



# OCCASIONAL PAPER

NOVEMBER 2020

280

## **Fulfilling the SDG on Zero Hunger: A Progress Report on BIMSTEC Nations**

SHOBA SURI AND ADITI TYAGI



OBSERVER  
RESEARCH  
FOUNDATION

---



# **Fulfilling the SDG on Zero Hunger: A Progress Report on BIMSTEC Nations**

**SHOBA SURI AND ADITI TYAGI**

## **ABOUT THE AUTHORS**

**Shoba Suri** is a Senior Fellow at ORF.

**Aditi Tyagi** is a Research Intern at ORF.

# Fulfilling the SDG on Zero Hunger: A Progress Report on BIMSTEC Nations

## ABSTRACT

The countries of BIMSTEC, or the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation, are working to translate the Sustainable Development Goals (SDGs) into action plans to ensure access to adequate and nutritious food. They are transforming their food systems based on their priorities and capacities to fulfill, in particular, the 2030 SDG Goal 2 that aims to “end hunger, achieve food security, and promote sustainable agriculture.” There are crucial gaps, however, and the BIMSTEC states need transformative action to overcome them. The imperatives include a multi-sector approach that scales up health and nutrition programmes for women, and more focused investment in agriculture. The latter, in particular, could pave the way for greater accessibility to food and accelerate progress across the SDGs.

Attribution: Shoba Suri and Aditi Tyagi, “Fulfilling the SDG on Zero Hunger: A Progress Report on BIMSTEC Nations,” *ORF Occasional Paper No. 280*, November 2020, Observer Research Foundation.

## INTRODUCTION

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is a subregional forum established in 1997. The member states include five from South Asia (India, Bangladesh, Nepal, Bhutan and Sri Lanka), and two from Southeast Asia (Myanmar and Thailand). The 4<sup>th</sup> BIMSTEC summit in 2018<sup>1</sup> identified 14 pillars of cooperation, including agriculture, public health, poverty alleviation, and climate change. It also called for intensifying cooperation towards attaining food and nutrition security in the region.

All of the BIMSTEC countries are categorised as either low- or middle-income. The majority of the poor in these countries live in rural areas, lack formal education, and are often employed in the agricultural sector. Large populations in these countries continue to lack adequate access to education, healthcare, electricity, sanitation, and clean drinking water,<sup>2</sup> and have low levels of nutrition and overall health. Indeed, by 2018 data, more than half of all stunted children under the age of five live in Asia.<sup>3,4</sup> South Asian countries, overall, account for 36 percent of those living in extreme poverty in the world and suffer from various other deprivations and development gaps.<sup>5</sup> Twelve percent of the Asian region's population, or 490 million people, are undernourished, most of them from South Asia.<sup>6</sup> Given that South Asia is home to these large populations of the global poor, achieving the global SDGs becomes an impossible task without progress in the region.<sup>7</sup>

In 2015, all United Nations member states adopted the 17 Sustainable Development Goals (SDGs)<sup>8</sup> which are especially relevant for South Asian countries whose development challenges

are daunting. The Joint Statement of the first BIMSTEC Ministerial meeting held in 2019<sup>9</sup> reiterated these goals, noting that “agricultural cooperation among BIMSTEC Member States can contribute to food and nutritional security, farmers’ prosperity, job creation, poverty alleviation and enhanced agricultural trade and investment.”

This paper makes an assessment of the progress (or lack of it) that the BIMSTEC states have achieved in reducing poverty, and promoting food security and nutrition outcomes. It outlines the nutrition policies of these countries and explores the opportunities that they have in meeting, in particular, the SDG on Zero Hunger.

## **POVERTY, FOOD SECURITY AND NUTRITION**

Across the world, those who live in poverty suffer from food insecurity, and lack of education, healthcare, and other essential needs.<sup>10</sup> The World Bank estimates that 40 to 60 million people will fall into extreme poverty in 2020, with incomes under US\$1.90 per day.<sup>11</sup> The global poverty rate could rise to nine percent in 2020, or a 0.4-percent increase from 2019.<sup>12</sup> This is the result of various factors including the burgeoning global population and resulting scarcity of resources, as well as the fallout of the COVID-19 pandemic.

The first half of the 20<sup>th</sup> century saw a massive increase in the incidence of poverty across the globe, amidst both growth in industrialisation and a rise in population. Beginning in the 1970s to the end of the last century, poverty declined. In the years to come, however, analysts largely agree that continually increasing global population and climate change will reverse this pattern, and poverty will likely rise.<sup>13</sup> Indeed, South Asia’s contribution to the

global poor has increased from 27 percent to 33 percent during the period 1990-2013, better only than Sub-Saharan Africa which accounts for the largest share, approximately 50 percent, of the global poor.<sup>14</sup> To be sure, in absolute numbers, the population of people living in poverty in South Asia decreased by 148.8 million during the same period of 1990-2013.<sup>15</sup> The poverty rate in the region, however, is still considerably higher (based on 2013 figures) than those of East Asia, the Pacific, Eastern Europe, Central Asia, the Middle East, and North America.<sup>16</sup>

In Asia, a facet of poverty that has become magnified in recent years is its being highly urban. In several countries, the number of impoverished people has risen between the years of 1990 and 2008, just as these same countries were seeing an expansion of urbanisation; scholars call it the “urbanisation of poverty.”<sup>a,17</sup> In most of developing Asia, such as in India, Bangladesh, and other BIMSTEC member countries, urbanisation has been accompanied by the growth of slums,<sup>18</sup> worsening living conditions, increasing food insecurity, and severe pollution risks. According to the UN-Habitat, Asia has 60 percent of the world’s slum population,<sup>19</sup> excluding the many more who live in slum-like conditions that are not officially categorised as such.

The BIMSTEC region remains among the poorest in the world. World Bank data<sup>20</sup> on Poverty Headcount Ratio<sup>b</sup> records a high

---

a Urban poverty is multidimensional, encompassing low income levels, low consumption, unequal access to land and housing, lack of infrastructure and economic sources, and absence of healthcare and education facilities, and social welfare networks.

b National poverty headcount ratio is the percentage of the population living below the national poverty line. National estimates are based on population-weighted subgroup estimates from household surveys.

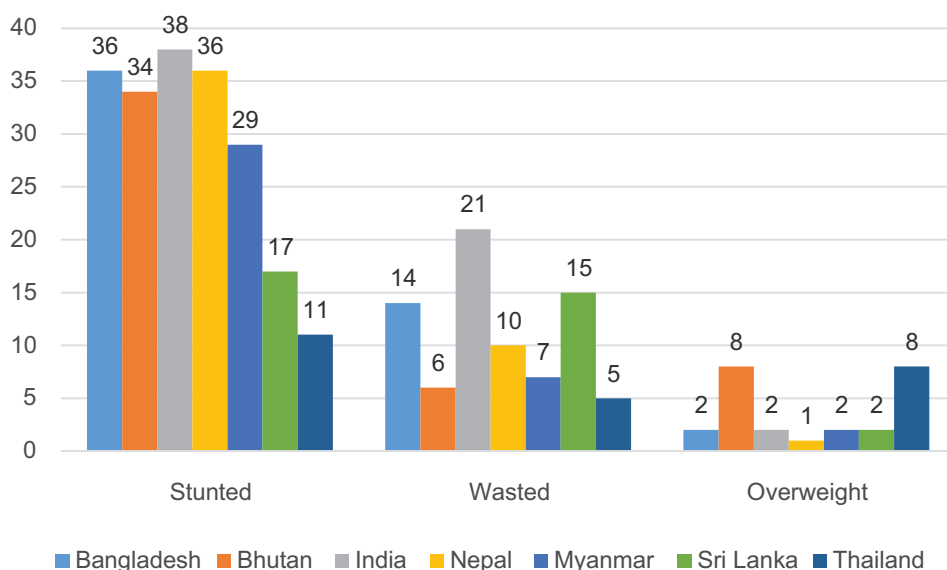


of 25.2 in Nepal, followed by 24.8 and 24.3 in Myanmar and Bangladesh, respectively; India is at 21.9, Thailand, 9.9; Bhutan, 8.2; and Sri Lanka, 4.1. Per capita GDP is low and other socioeconomic indicators of poverty remain high. The combined domestic exports of BIMSTEC member states are worth US\$2.7 trillion.<sup>21</sup> According to 2016 data, trade among member countries was worth US\$69.7 billion.

As resources become even more scarce—and weather extremes like droughts and floods more frequent—BIMSTEC states have aimed their sustainable development initiatives at their poor populations and their heightening insecurity.<sup>22</sup> The following paragraphs outline the most salient nutrition outcomes and explain the prevalent nutrition inequities and their determinants in the BIMSTEC countries.<sup>23</sup>

## Nutrition Outcomes

**Figure 1. Malnutrition Burden in BIMSTEC Countries**



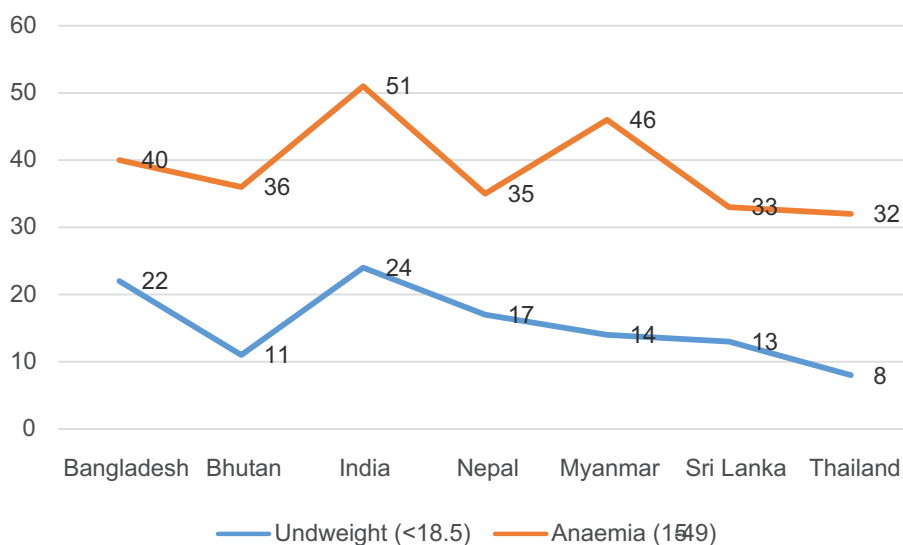
Source: UNICEF. *The State of the World's Children, 2019*<sup>24</sup>

Figure 1 shows stunting rates to be highest in India at 38 percent, followed by Bangladesh and Nepal (36 percent) and Bhutan and Myanmar at 34 and 29 percent, respectively. The lowest rate of stunting is Thailand's 11 percent. Overall, the incidence of stunting in the region has declined over the years;<sup>25</sup> however, the countries have recorded different levels of performance. Only Bangladesh and Thailand seem on-course to meet the global targets<sup>26</sup> of 40-percent reduction in the number of stunted children under-five; for their part, India, Myanmar, Nepal and Sri Lanka have shown some progress.

Another indicator of malnutrition, wasting, is highest in India, and has not improved<sup>27</sup> for the past decades. Bangladesh (14 percent) and Sri Lanka (15 percent) also have higher rates of wasting compared to the developing country average of 8.9 percent. There has been some progress in Thailand, Bhutan, Myanmar, and Nepal in terms of achieving global targets of reducing childhood wasting at less than five percent.

Overweight in under-five children is also a cause of concern. Bhutan and Thailand, at eight percent of under-five children, have the highest incidence in the region. Thailand has recorded a reduction from 10.9 percent in 2012; And Bhutan increased from 4.4 to 7.6 percent from 2012 to 2016. Thailand, Nepal and Myanmar are on-track in meeting the global target of arresting overweight in under-fives.

**Figure 2. Incidence of Anaemia and Underweight in Women (15-49 years)**

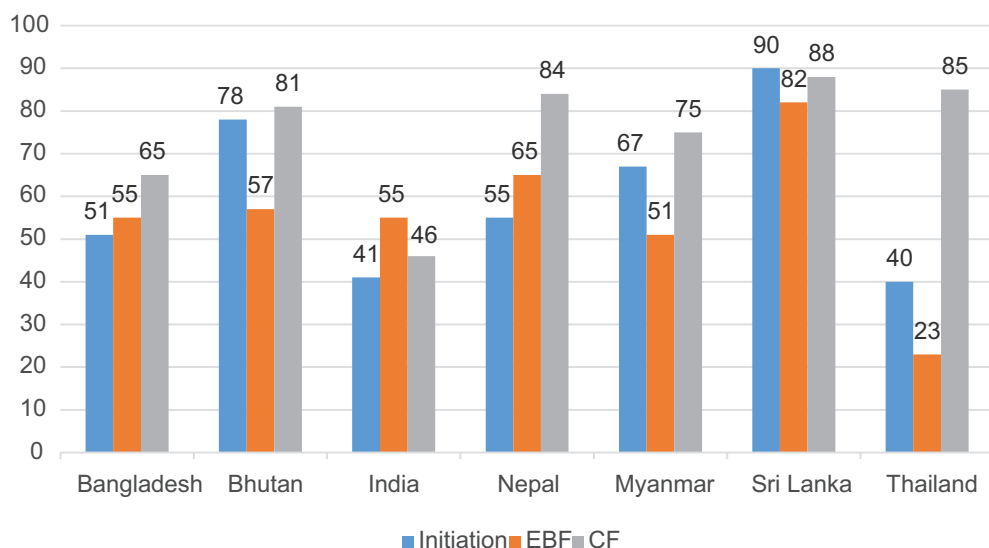


Source: UNICEF. *The State of the World's Children, 2019*<sup>28</sup>

Figure 2 shows a high prevalence of anaemia in women (15-49 years) in most of the BIMSTEC countries. India tops the list at 51 percent, followed by Myanmar (46 percent) and Bangladesh (40 percent). The other countries also record one-third of their 15-49-year-old women as anaemic. This is a cause of concern, as anaemia contributes to the intergenerational cycle of malnutrition and poverty. For one, maternal undernutrition and anaemia increases the risk of low birth weight (23 percent) and subsequent stunting or wasting in children.<sup>29</sup> Most of the countries in the region have performed poorly in reducing the prevalence of anaemia. Moreover, underweight in adult women is also prevalent and ranges from a high of 24 percent in India to eight percent in Thailand.

Maternity benefits are important for good health and nutrition for women after childbirth and also help promote exclusive breastfeeding. Most of the BIMSTEC countries<sup>30</sup> do provide for paid maternity leave to women working in the public sector, with some provisions for paternity leave or “breastfeeding breaks”. Unfortunately for the women in the private sector, this provision depends on the employer’s initiative.

**Figure 3. Child Nutrition**



Source: UNICEF. *The State of the World’s Children, 2019*<sup>31</sup>

Note: Initiation-Early Initiation of Breastfeeding; EBF-Exclusive Breastfeeding at 6 months of age; CF-Introduction to Complementary Feeding at 6 months

The initiation of breastfeeding averages at 50 percent amongst the BIMSTEC countries except for Bhutan, Myanmar and Sri Lanka. When it comes to sustaining the breastfeeding practice, however, there is a decline as seen in Bhutan and Myanmar. Sri Lanka has the highest rate of exclusive breastfeeding at 82

percent. The delayed initiation of breastfeeding is associated with the socio-cultural practice of giving pre-lacteal feeds<sup>32</sup> in some South Asian nations: India (42 percent), Bangladesh (27 percent) and Nepal (26.5 percent). The minimum acceptable diet with food from 4+ food groups<sup>c</sup> and frequency is low for most of the countries: India (10 percent),<sup>33</sup> Myanmar<sup>34</sup> and Bhutan<sup>35</sup> at 16 percent each, Bangladesh<sup>36</sup> (23 percent), Nepal<sup>37</sup> (36 percent), and Thailand<sup>38</sup> (54 percent). The exception is recorded by Sri Lanka<sup>39</sup> at 80 percent. Sub-optimal feeding practices can increase risk of illness, leading to impaired growth and development. Improved education<sup>40</sup> on complementary feeding along with behavioural change is necessary to improve feeding practices.

## Health Outcomes

Most of the BIMSTEC countries have low levels of health outcomes and have made little progress in the past decades. Health experts have come to refer to this as the “Asian Enigma” of undernutrition.<sup>41</sup>

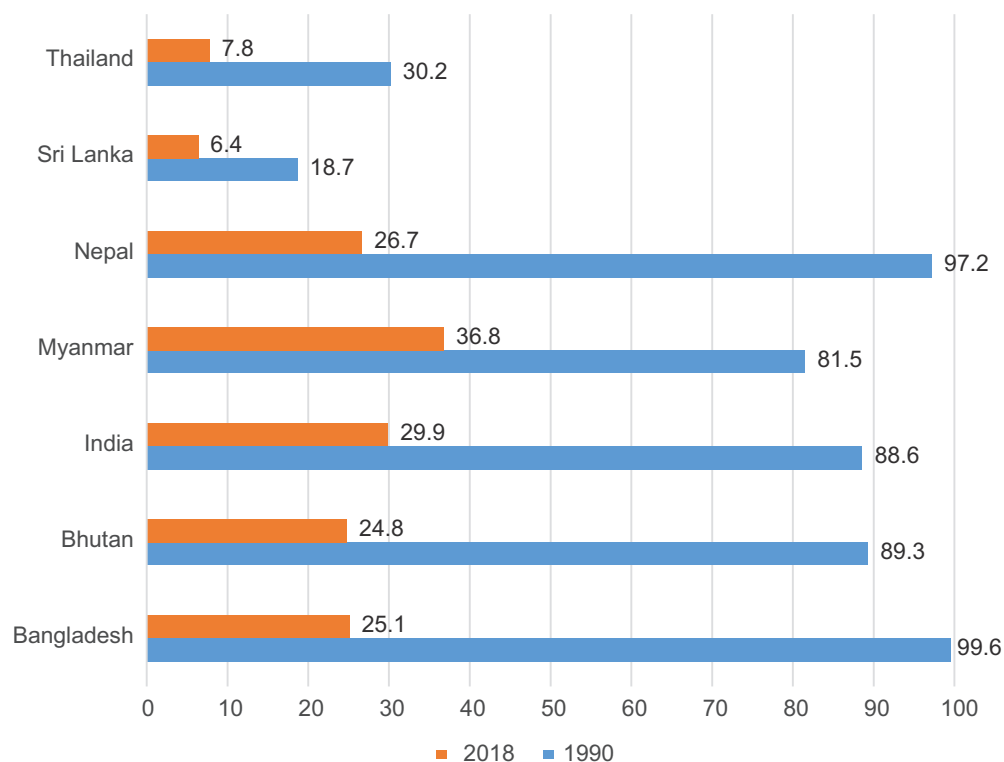
*Child Health:* Bangladesh, Bhutan, Nepal, Sri Lanka and Thailand have all improved in their rankings of under-five mortality rates since 1990 (See Figure 4). In terms of health progress across all BIMSTEC countries since the time the forum was founded, all of them have succeeded in recording significant declines in their infant mortality rates. In 1990, Bangladesh had the highest infant mortality and

---

c These are the 4+ food groups from the seven food groups as recommended by WHO. The seven food groups are grains, roots & tubers; legumes & nuts; dairy products; flesh foods; eggs; vitamin A-rich fruits & vegetables; and other fruits & vegetables.

Sri Lanka, the lowest. By 2015, Myanmar had the highest infant mortality rate; Sri Lanka remains the poorest performer in reducing infant mortality. The greatest progress has been seen in Bangladesh, Bhutan, and Nepal. Both India and Myanmar have gone from fourth and fifth rank, respectively, amongst BIMSTEC members in 1990, to being second and first in 2015.<sup>42</sup> Other indicators of child health include the infant mortality rate and neonatal mortality rate, and data shows marginal/slow progress in child deaths in both Myanmar and India. Bangladesh has made the greatest progress amongst BIMSTEC countries: from having the highest infant mortality rate in in 1990, to being fourth highest today.

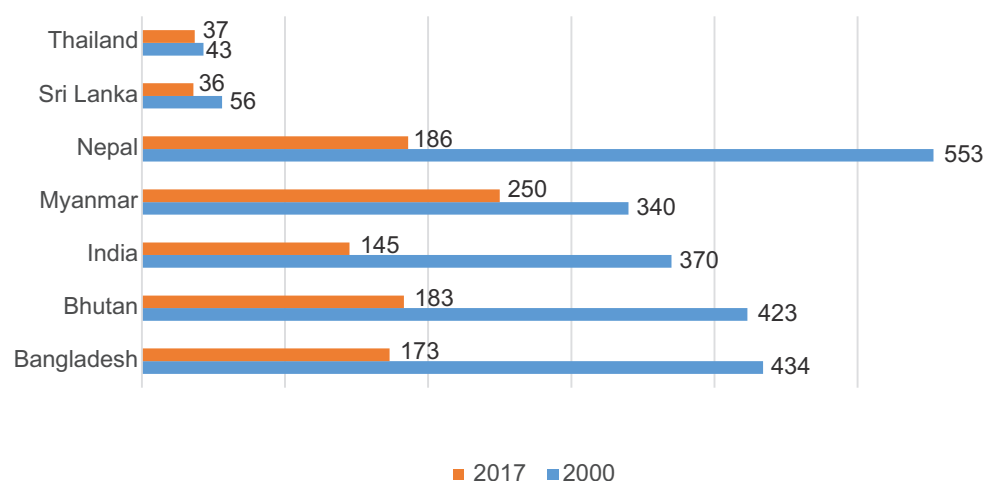
**Figure 4. Infant Mortality Rate (per 1,000 live births, 1990-2018)**



Source: World Bank<sup>43</sup>

*Maternal Health:* Across all seven BIMSTEC countries, there has been a steady decline in the maternal mortality rate (See Figure 5). Nepal<sup>44</sup> saw the greatest decline in maternal mortality from 553 per 100,000 live births in 2000 to 186/100,000 live births in 2017. Indeed, Nepal has taken vast strides in their healthcare delivery to prevent and treat the most important causes of child and maternal mortality through an array of community-based and federal approaches.<sup>45</sup> In 2000, Nepal, Bangladesh, Bhutan, India and Myanmar had significantly higher rates of maternal mortality (56/100,000 live births) than Sri Lanka and Thailand (43/100,000 live births). The progress is likely because both Sri Lanka and Thailand have strengthened their primary healthcare delivery and pursued universal health coverage.<sup>46</sup> Overall, the gradual decline in maternal mortality across the BIMSTEC member states in the past two decades, indicates the level of growth and development in their healthcare delivery.

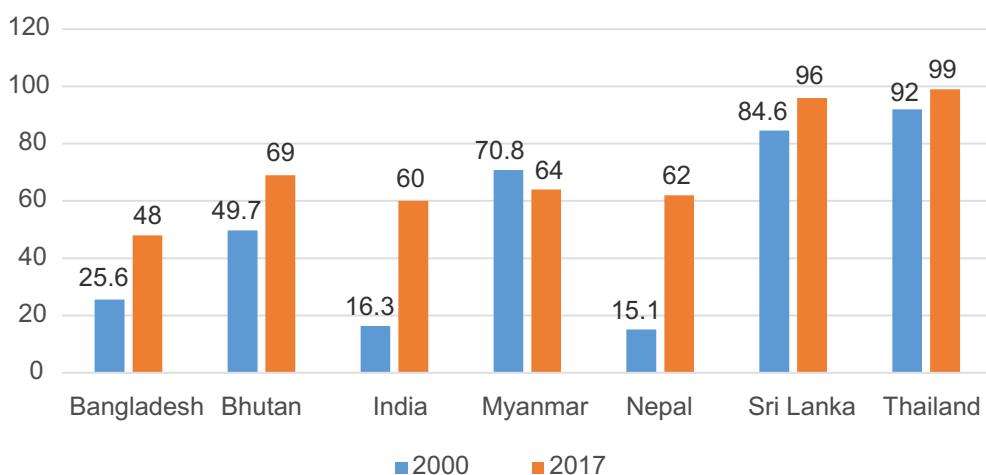
**Figure 5: Maternal Mortality Ratio (per 100,000 live births, 2000-2017)**



Source: World Bank<sup>47</sup>

*Water, Sanitation, Hygiene:* In terms of sanitation, some BIMSTEC countries have made more significant progress than others (See Figure 6). India and Nepal have increased the percentage of people using at least basic sanitation services by 43 percent and 46 percent, respectively. Bangladesh, Bhutan, Sri Lanka and Thailand have also made steady improvements in the proportion of their populations accessing basic sanitation services. Myanmar, however, has seen a regression. Myanmar's health system is financed largely by the government. In the last couple of decades, public health expenditure as a percentage of GDP has increased by more than six times.<sup>48</sup>

**Figure 6: Reach of Basic Sanitation Services (% of population, 2000-2017)**



Source: World Bank<sup>49</sup>

## TRACKING PROGRESS ON SDGS

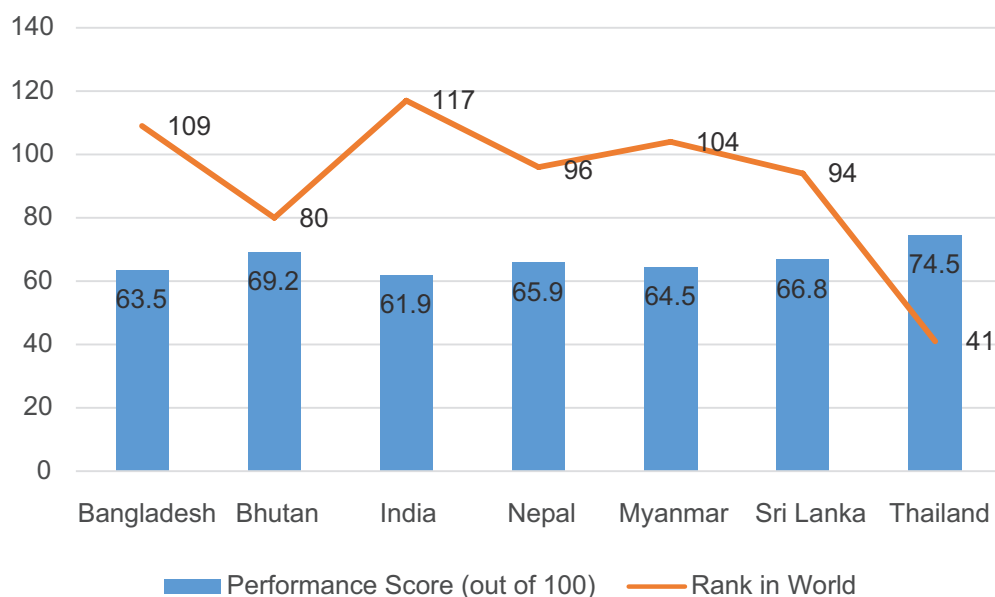
The 17 SDGs and the 169 specific targets are particularly relevant for South Asia—after all, the region is home to a huge 36 percent<sup>50</sup> of the world's impoverished, and nearly half of all undernourished



children. With South Asian countries, including member states of BIMSTEC, holding such a weight on their shoulders, global progress on the SDGs cannot be achieved without success in the region. It is a difficult task, given that South Asia, and particularly India, failed to meet the predecessor Millennium Development Goals (MDGs). Most recent available data suggest that the South Asian region, comprising the majority of BIMSTEC members, is far from being on-track in accomplishing the SDGs.<sup>51</sup>

Indeed, the fulfillment of these goals has little correlation with both levels of per capita income and degree of development, as seen in the case of India. As the largest and most diversified economy in the region, it unfortunately has recorded poorer performance compared to its fellow BIMSTEC members. Bhutan and Nepal, for example—both with lower levels of development than India—have achieved significantly greater progress towards the SDGs.<sup>52</sup> The only SDG which all BIMSTEC states appear to be on-track to achieving is the goal of eliminating poverty, the metric for which is living below a minuscule \$1.90 per day.<sup>53</sup> In all other goals, all BIMSTEC countries have recorded moderate progress that is inadequate for meeting the goals by 2030. With the current rate of progress in the region, overall, 14 out of the 17 SDGs will be missed by the BIMSTEC countries by 2030.

The COVID-19 pandemic has only enhanced the risks of falling short. According to the *Sustainable Development Goals Report 2020*, the 15-year effort of people across the globe attempting to achieve the 17 SDGs was already off-track by the end of 2019.<sup>54</sup> Figure 7 shows the performance on the SDGs (out of 10) for BIMSTEC countries and their world rankings. Among the BIMSTEC countries, Thailand is the best performer with a score of 74.5; the poorest is India at 61.9.

**Figure 7. Performance on SDGs for BIMSTEC Countries**

Source: Sustainable Development Report 2020.<sup>55</sup>

The SDG 2<sup>56</sup> on Zero Hunger has seen the least progress since 2015, and COVID-19 is likely to cause a reversal of whatever achievements have been made so far by many countries across the globe. The reason for the slow progress is linked to the increase in people undernourished as well as overweight.<sup>57</sup> The pandemic is likely to increase the problem of food security and malnutrition in the low-income countries. Achieving SDG 2—or recording some progress, at least—has been a challenge in most of the BIMSTEC countries, with India contributing to the large number of undernourished. If India were to eradicate undernourishment, the world can come closer in achieving the target of zero hunger.

The COVID-19 pandemic has already taken a toll exceeding 500,000 lives; confirmed cases are at more than 10 million people.<sup>58</sup>

The challenges posed by the pandemic are making it more difficult for the global community to succeed in achieving the SDGs by 2030.

## **GOVERNMENT POLICIES ON NUTRITION: AN OVERVIEW**

BIMSTEC states have adopted various policies to direct their nations on the path of achieving the SDGs. At a forum on sustainable development in October of 2018 held in Kathmandu, representatives of the BIMSTEC states agreed that achieving the SDGs by 2030 will require implementation action at the global, regional, national and local levels.<sup>59</sup> The polycentric approach of BIMSTEC involves both private and public stakeholders; the stakes are manifold, and covers the political, social, environmental, and economic domains.<sup>60</sup> Within this cooperative framework are policies and mandates that seek to pursue sustainable development. BIMSTEC's mandate and goals are broad, with objectives looking at economic, technical, social and scientific sectors. Environmental challenges including climate change and environmental degradation are important in addressing poverty as these exacerbate the political, economic, and social tensions in the region. Improving food and agriculture<sup>61</sup> can have a substantial impact on the attainment of the other SDGs by strengthening economic growth, and combating climate change.

Some initiatives taken by the Bay of Bengal Association for Sustainable Development (BOBAS) work towards increasing economic activity in the Bay of Bengal in a sustainable manner.<sup>62</sup> BOBAS also offers itself as a platform for small entrepreneurs and innovators of the member states. The business models they share address issues like monitoring and surveillance of fishing,

sustainable aquaculture, small-scale power projects along the Bay of Bengal coastline, and low-energy wastewater solutions.<sup>63</sup> Such attention to the environment is important as the Bay of Bengal, with its triangular shape, flat coastal terrain, and shallow depth, is an epicentre of the ‘World’s Hazard Belt’.

The following paragraphs describe the respective nutrition strategies that BIMSTEC states have adopted to improve food security for their people.

*Nepal:* In 2018, Nepal enacted the Multi-Sector Nutrition Plan-II, with the aim of improving maternal, adolescent, and child nutrition by scaling up essential nutrition interventions to improve nutritional status of under-five children, lower incidence of low birth weight, and reduce energy-deficiency in women.<sup>64</sup> Nepal scaled up multisector nutrition programmes across the country, developed campaigns to create positive nutrition behaviour among the people, and fostered cooperation in sharing best practices on improving nutrition. Data shows improvement in the nutritional aspects of the country: the prevalence of stunting and wasting among children under five has declined, and so has the incidence of low birth weights.<sup>65</sup>

*Bhutan:* The government of Bhutan articulates its development plans every five years. Currently on their 12<sup>th</sup> five-year plan, Bhutan aims to achieve 16 “national key result areas” that are based on regional and international commitments, including the UN SDGs.<sup>66</sup> Bhutan’s food and nutrition security policy, enacted in 2014, acknowledges the need for a multisectoral approach to ensuring nutrition security. In prioritising nutrition, the Bhutanese government established a national school and nutrition programme for addressing micronutrient deficiencies.

*Bangladesh:* Bangladesh enacted its National Nutrition Policy in 2015 with the goal of preventing and controlling malnutrition, and improving nutritional status especially of the women and children. The most common form of undernutrition in the country is stunting.<sup>67</sup> In response, the government has taken initiatives to mainstream nutrition into both public health and family planning services.<sup>68</sup> The National Nutrition Policy emphasises the goal of ensuring adequate nutrition for all demographic groups including children, women, pregnant women, men, and the elderly. By enhancing food security at the home-level and encouraging investment in nutrition-sensitive agriculture, the 2015 nutrition policy has provided necessary direction.

*Sri Lanka:* As a country in economic transition,<sup>d</sup> Sri Lanka is also undergoing a nutrition transition and faces a triple burden: overnutrition, undernutrition, and micronutrient deficiencies.<sup>69</sup> Interventions from the Sri Lankan government in addressing food insecurity have been ongoing since 1942 when it implemented a universal food subsidy scheme.<sup>70</sup> Since the UN adopted the 2030 SDGs, Sri Lanka has seen progress in their food insecurity issues through the Thripasha Program that was introduced long ago, in 1970. The food expenditure share of total household income expenditure in Sri Lanka has been steadily declining over the past five years with increases in household income. The overall provision of health infrastructure has improved the nutritional outcomes of Sri Lanka since 2015, and social welfare indicators illustrate the country's impressive performance.<sup>71</sup>

---

d The Sri Lankan economy is transitioning from being rural-based to urbanised. The social indicators rank the country highest in South Asia.

*Thailand:* Since adopting the SDGs, Thailand has integrated a framework for food security in its policies with a National Food Safety and Nutrition plan. Even prior to the formulation of the SDGs, Thailand was already seeing a decline in undernourishment, parallel to its economic growth. From 1990 to 2012, GDP increased by 113 percent, and undernourishment dropped by 87 percent.<sup>72</sup> The government's policy efforts have led Thailand to perform well in essential nutrition parameters such as reducing underweight and stunting. Amidst the achievements in decreasing hunger, however, another malnutrition issue has emerged, and that is of the prevalence of overweight. One-third of the adult population, and one-third of the child population, face overweight issues.<sup>73</sup>

*India:* India's national nutrition strategy is critical if the country is to achieve the SDGs. High levels of maternal and child undernutrition have continued in India despite efforts from the government and legislators' policy, plan and programme commitments. The National Nutrition Strategy, first adopted in 1993, has been committed to ensuring that every child, adolescent girl, and woman achieves optimum nutritional status.<sup>74</sup> In addition to the improvements seen in India's overall nutritional status as a result of the national strategy, the *Poshan Abhiyan* programme (National Nutrition Mission) under Prime Minister Narendra Modi has also been an effort in the right direction. The policy aims to set up an information and communications monitoring system in which the nutritional status of populations across the country could be tracked more efficiently.<sup>75</sup> While the intent of the policy is sound, the implementation poses a challenge to India, which is already falling behind in the SDGs amidst the COVID-19 pandemic.

*Myanmar:* Myanmar is on-course to meet global targets for under-five underweight and exclusive breastfeeding for infants, but is still off-

track in the other nutritional indicators.<sup>76</sup> Nutritional deficiencies as well as overweight and obesity issues are worsening in the country. The National Plan of Action for Food and Nutrition (NPAFN) was adopted by Myanmar with the goal of ensuring adequate access to food that is safe and well-balanced. By aiming for increased and diversified domestic food production, the promotion of healthy food, and the prevention of food-borne infectious diseases,<sup>77</sup> the NPAFN policy has helped Myanmar make great strides in attaining the SDGs.

## **TOWARDS FOOD SECURITY: KEY STRATEGIES**

Despite the progress that has been achieved in advancing food security and alleviating poverty, the number of hungry people in the world continues to grow, reductions in child stunting remain insufficient, and obesity is on the rise.<sup>78</sup> The three principal sources for these undesirable trends are economic shocks, climate change, and interstate conflicts. These drivers are deeply complex and exacerbate poverty and malnutrition in many dimensions.

BIMSTEC's platform—emphasising shared aspirations of growth, development, commerce and technology—enables the South Asian and Southeast Asian nations a level of regional connectivity that can enhance economic cooperation.<sup>79</sup> After all, economic slowdowns result in increased unemployment and decreased wages, and therefore pose massive challenges to access to food and essential social services especially for the poor.<sup>80</sup> Additionally, access to high-quality and nutritious food becomes more difficult, making bigger populations more susceptible to poor nutrition. Unfortunately, recent world economic reports highlight that there may soon be another massive economic downturn,

with global growth being the slowest it has been since the global financial crisis a decade ago.<sup>81</sup> In order to protect the food status of populations that face economic shocks, policies and resilience capacities must be built.<sup>82</sup>

Trade policy also has substantial implications for nutritional outcomes in areas of food insecurity, as it has the potential to make healthy food available to populations and create demand for more nutritious food. However, with trade policy virtually never being concerned with nutritional outcomes or healthy diets, it often even contributes to forms of malnutrition. For example, the health impacts of changes in trade regarding food and agriculture are mixed and dependent on a multitude of factors, and foreign direct investment has been shown to be a driver in the growth of sugar-sweetened beverage consumption,<sup>83</sup> which has contributed to the global prevalence of overweight and obesity.

Multisectoral policies for reducing poverty must be addressed if the world is to bridge the social inequalities perpetuated by the direction of national and global economies. The physical availability of food is important, specifically through the promotion of marginal and small farmers' productivity. Additionally, facilitating trade of food products increases the availability of food commodities at lower prices for poorer consumers.<sup>84</sup> Equally important is economic access to food. Social protection systems, work promotion programmes, support for poor farmers, and rural development programmes must be built as long-term strategies for increasing access to nutritional food for the poor populations.

Along with the fragility of the global economy and its detrimental impacts on global food security, climate change is



also a key obstacle to the fulfillment of the SDGs. Climate change affects all four dimensions of food security: food availability, food accessibility, food utilisation, and food systems stability.<sup>85</sup> Populations who are already food-insecure will likely be the first to be severely affected by the consequences of climate change. The imperative is for governments to enact policies that will protect food security through climate adaptation measures. Beyond the policy level of the required change in order to achieve the SDGs, community-led initiatives can also play a vital role.

Nutrition and home gardens can improve food security. Nutritious, dense food like fruits and vegetables that can be produced at home are known to improve health and result in cognitive, behavioural, and physical benefits for both adolescents and adults.<sup>86</sup> Over the last century, there has been a growing interest in strengthening and intensifying local food production in order to avoid the adverse effects of global economic shocks and food price volatilities. Home gardens are a proven strategy to enhance household nutrition and food security in addition to them being an integral part of local food systems. Home gardens are part of the agricultural landscape of developing countries across the globe and have been useful throughout the centuries.<sup>87</sup>

The practical approaches available to combat food insecurity in the developing world and beyond are restricted to the existing social, political, and economic conditions along with the resources available for intervention. Food insecurity and economic hardships often force people to consume less and settle for food of low nutritional status. This leads to adverse health effects, due to the lack of basic micronutrients and other important vitamins and minerals; indeed, more than 35 percent of deaths worldwide are

caused by factors attributed to nutritional deficits.<sup>88</sup> At-home food production of vegetables and fruits can address micronutrient deficiencies and improve the quality of diets by facilitating year-round production and availability of nutritious food.

Home gardens and community gardens do not only improve food diversity, availability, and overall health, but can also elevate the socioeconomic status of resource-poor families.<sup>89</sup> In a review of a number of case studies, Mitchell and Hanstad<sup>90</sup> assert that home gardens can contribute to the economic well-being of a household. Gardening activities can be developed into a small industry, and earnings from the sale of home garden products can lead to higher disposable incomes that can be used for other domestic purposes.<sup>91</sup>

Across the BIMSTEC countries, various studies have found that nutrition gardens are a sustainable model to enhance food security and diversity. A research study from Bangladesh, for example, has shown a 300 to 400-percent increase in the variety and quantity of fruits and vegetables among families who have kitchen gardens.<sup>92</sup> Another kitchen garden model in rural Bangladesh has resulted in reduced expenses on vegetables, improved intake of fruits and vegetables, and income generation.<sup>93</sup> School gardens in Nepal<sup>94</sup> and Bhutan<sup>95</sup> have been found to improve food preferences in children, bringing about behavioural changes. A study from Sri Lanka suggests that home gardens are a sustainable model to improve food security and the nutritional status of households.<sup>96</sup> Indian states like Odisha<sup>97</sup> and Gujarat<sup>98</sup> have utilised backyard spaces to grow seasonal fruits and vegetables—they have brought improved nutrition and economic conditions to the families.


India's Reliance Nutrition Garden provides a specific example of how community-led nutrition gardens can help bridge the nutrition gap in rural households.<sup>99</sup> A huge 62 percent of rural households across India have met their vegetable requirements and reduced their spending on food because of their home gardens.

## CONCLUSION

The BIMSTEC countries are not on-track to achieve the SDG of Zero Hunger by 2030. It was already evident, even before the COVID-19 pandemic, that many BIMSTEC nations were falling behind the targets set by the United Nations. The pandemic has further aggravated the situation and the number of people affected by hunger is projected to surpass 840 million by 2030.

There is hardly any doubt that achieving the SDGs will be a far-fetched goal without ending hunger and malnutrition. There is a need for sustainable and resilient food systems to achieve the goal of zero hunger. This can be achieved by comprehensive efforts to ensure food is available to all. There is a need for a renewed focus and innovative strategies to build capabilities both at the individual and community level.

An integrated approach is required in response to the diverse and interconnected causes of hunger and malnutrition. Countries can learn from each other's successes and scalable models to ensure food systems that deliver improved nutrition and sustainable and resilient communities. As the UN has stated, "A sustainable food systems deliver food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised."<sup>100</sup> Investment in nutrition, along with a

multisectoral approach that includes both nutrition-sensitive interventions (healthcare, water, sanitation) and nutrition-specific ones that empower women—will help end all forms of malnutrition in the long run.  ORF

## ENDNOTES

- 1 BIMSTEC 2018. Recommendations for fourth BIMSTEC Summit. [https://www.ris.org.in/sites/default/files/Final\\_Recommendations\\_for\\_BIMSTEC.pdf](https://www.ris.org.in/sites/default/files/Final_Recommendations_for_BIMSTEC.pdf) vc
- 2 Bangladesh: Poverty Reduction Strategy Paper, *IMF Country Report No 13/63, 2013*. [https://www.imf.org/~media/Websites/IMF/imported-full-text-pdf/external/pubs/ft/scr/2013/\\_cr1363.ashx](https://www.imf.org/~media/Websites/IMF/imported-full-text-pdf/external/pubs/ft/scr/2013/_cr1363.ashx)
- 3 “Southern Asia Population”, Worldmeters, 20 July 20, 2020. [https://www.worldometers.info/world-population/southern-asia-population/#:~:text=Southern%20Asia%20Population%20\(LIVE\)&text=Southern%20Asia%20population%20is%20equivalent,among%20subregions%20ranked%20by%20Population.](https://www.worldometers.info/world-population/southern-asia-population/#:~:text=Southern%20Asia%20Population%20(LIVE)&text=Southern%20Asia%20population%20is%20equivalent,among%20subregions%20ranked%20by%20Population.)
- 4 *Levels and trends in child nutrition*. UNICEF, WHO, World Bank Group, 2019. <https://www.who.int/nutgrowthdb/jme-2019-key-findings.pdf>
- 5 *Economics Students Give Hope to One South Asia, The World Bank, (2018)*. <https://www.worldbank.org/en/news/feature/2018/03/15/south-asia-economics-students-word-toward-one-south-asia#:~:text=South%20Asia%20is%20home%20to,of%20the%20world's%20malnourished%20children.&text=South%20Asia%20has%20become%20a,territorial%20division%20and%20historic%20conflicts.>
- 6 *BIMSTEC Must Produce More Food*, KUENSEL 29 December 2016, <https://kuenselonline.com/bimstec-must-produce-more-food/>
- 7 South Asia Forum on Sustainable Development Goals Subregional preparatory meeting for the Asia-Pacific Forum on Sustainable Development (APFSD) New Delhi, 4-5 October 2018 <https://www.unescap.org/sites/default/files/South%20Asia%20SDG%20Forum%202018%20Report.pdf>
- 8 Sustainable Development Goals kick off with start of new year”, United Nations, accessed July 20, 2020. <https://www.un.org/sustainabledevelopment/blog/2015/12/sustainable-development->

- goals-kick-off-with-start-of-new-year/#:~:text=The%2017%20SDGs%20build%20on,and%20other%20diseases%3B%20ensure%20environmental
- 9 Joint Statement of the first BIMSTEC Ministerial meeting on Agriculture. July <https://drive.google.com/file/d/0Bw5iVdDDVNCRLVF1T212bVMwQXFlNzk2UXpyYjczWmJGQ0ZZ/view>
  - 10 Ortiz-Ospina, Esteban, and Max Roser. *Global Extreme Poverty*. Our World Data, 2019. <https://ourworldindata.org/extreme-poverty>
  - 11 The World Bank, ‘Understanding Poverty’, <https://www.worldbank.org/en/topic/poverty/overview#:~:text=The%20World%20Bank%20estimates%20that,magnitude%20of%20the%20economic%20shock.&text=The%20work%20to%20end%20extreme,over%2C%20and%20many%20challenges%20remain.>
  - 12 The World Bank, ‘Understanding Poverty’
  - 13 Ortiz-Ospina, Esteban, and Max Roser. *Global Extreme Poverty*.
  - 14 Nirav Patel, “Figure of the week: Understanding poverty in Africa,” *Brookings*, November 21, 2018.
  - 15 N.R. Ravindra Deyshappriya, *Examining Poverty Trends* (London School of Economics, 2018). <https://blogs.lse.ac.uk/southasia/2018/07/31/examining-poverty-trends-in-south-asian-countries-where-is-sri-lanka-among-its-south-asian-counterparts/>
  - 16 N.R. Ravindra Deyshappriya, *Examining Poverty Trends*
  - 17 Om Prakash Mathur. *Urban Poverty in Asia*. Asian Development Bank, 2014. <https://www.adb.org/sites/default/files/publication/59778/urban-poverty-asia.pdf>
  - 18 Om Prakash Mathur, *Urban Poverty in Asia*
  - 19 UNICEF ‘Levels and Trends in Malnutrition’ Key Findings 2020 Edition. <https://www.unicef.org/reports/joint-child-malnutrition-estimates-levels-and-trends-child-malnutrition-2020>
  - 20 The World Bank 2020. <https://data.worldbank.org/indicator/>

SI.POV.NAHC?end=2019&start=2019&type=shaded&view=map

- 21 The World Bank. World Development Indicators. <http://data.worldbank.org/data-catalog/world-development-indicators>. <https://datacatalog.worldbank.org/dataset/world-development-indicators>
- 22 United Nations. 'Promote Sustainable Development'. <https://www.un.org/en/sections/what-we-do/promote-sustainable-development/>
- 23 Global Nutrition Report 2020. 'Inequalities in all forms'. <https://globalnutritionreport.org/reports/2020-global-nutrition-report/introduction-towards-global-nutrition-equity/#note-z-d7WyTWd>
- 24 UNICEF. The State of the World's Children, 2019. <https://www.unicef.org/reports/state-of-worlds-children-2019>
- 25 Global Nutrition Report 2019. <https://globalnutritionreport.org/events/nutrition-2019/>
- 26 WHO Global Nutrition Targets 2025. <https://www.who.int/nutrition/global-target-2025/en/>
- 27 National Family Health Survey 2015-16. <http://rchiips.org/nfhs/NFHS-4Reports/India.pdf>
- 28 UNICEF. The State of the World's Children, 2019
- 29 Black RE, Allen LH, Bhutta ZA et al. Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet* 2008, 5. [https://www.who.int/nutrition/topics/Lancetseries\\_Undernutrition1.pdf](https://www.who.int/nutrition/topics/Lancetseries_Undernutrition1.pdf)
- 30 International Labor Organization 2014. Maternity and paternity at work. [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_242615.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_242615.pdf)
- 31 UNICEF. The State of the World's Children, 2019
- 32 Maira NS, Salman MS, Sarmad MS (2018) Barriers to Breastfeeding in South-Asia: A Systematic Literature Review. *J Contracept Stud*

- Vol.3 No.2:15. <https://contraceptivestudies.imedpub.com/barriers-to-breastfeeding-in-southasia-a-systematic-literature-review.php?aid=22827>
- 33 NFHS 4, 2015-16
- 34 Mya, Kyaw Swa, Aung Tin Kyaw, and Thandar Tun. 2018. Feeding Practices and Nutritional Status of Children Age 6-23 Months in Myanmar: Further Analysis of the 2015-16 Demographic and Health Survey. DHS Working Paper No. 136. Rockville, Maryland, USA: ICF. <https://dhsprogram.com/pubs/pdf/WP136/WP136.pdf>
- 35 Campbell RK, Aguayo VM, Kang Y. Infant and young child feeding practices and nutritional status in Bhutan. *Maternal & Child Health* 2018, 14, e12580. <https://onlinelibrary.wiley.com/doi/full/10.1111/mcn.12762>
- 36 UNICEF 2013. Bangladesh Nutrition Report. [https://data.unicef.org/wp-content/uploads/country\\_profiles/Bangladesh/Nutrition\\_BGD.pdf](https://data.unicef.org/wp-content/uploads/country_profiles/Bangladesh/Nutrition_BGD.pdf)
- 37 UNICEF 2015. Nepal Nutrition Report. <https://www.unicef.org/nepal/nutrition>
- 38 Global Nutrition Report 2020. Thailand Nutrition Profile. <https://globalnutritionreport.org/resources/nutrition-profiles/asia/south-eastern-asia/thailand/>
- 39 Infant and young child feeding practices in Sri Lanka: A desk review – 2006 to 2017. Colombo: World Health Organization, Country Office for Sri Lanka; 2017. <https://apps.who.int/iris/rest/bitstreams/1258291/retrieve>
- 40 Manikam, L., Robinson, A., Kuah, J.Y. *et al.* A systematic review of complementary feeding practices in South Asian infants and young children: the Bangladesh perspective. *BMC Nutr* **3**, 56 (2017). <https://doi.org/10.1186/s40795-017-0176-9>
- 41 Oommen C Kurian. Health policies of BIMSTEC states: The scope for cross-learning, 2017, [https://www.orfonline.org/wpcontent/uploads/2017/11/ORF\\_Issue\\_Brief\\_211\\_](https://www.orfonline.org/wpcontent/uploads/2017/11/ORF_Issue_Brief_211_)



BIMSTEC-Health.pdf

- 42 Health Nutrition and Population Statistics, DataBank, The World Bank, 2017. <https://databank.worldbank.org/source/health-nutrition-and-population-statistics>
- 43 World Bank Data. (<https://data.worldbank.org/indicator/SP.DYN.IMRT.IN?end=2018&locations=IN-BT-MM-LK-TH-BD-NP&start=1990>)
- 44 Nepal Maternal Mortality 2000-2017. [https://www.who.int/gho/maternal\\_health/countries/npl.pdf?ua=1](https://www.who.int/gho/maternal_health/countries/npl.pdf?ua=1)
- 45 Ministry of Health and Population Nepal, Partnership for Maternal, Newborn & Child Health, WHO, World Bank and Alliance for Health Policy and Systems Research. Success factors for women's and children's health: Nepal. Geneva: World Health Organisation; 2014. [http://www.who.int/pmnch/knowledge/publications/nepal\\_country\\_report.pdf](http://www.who.int/pmnch/knowledge/publications/nepal_country_report.pdf)
- 46 WHO 2013. A decade of public health achievements in WHO's South-East Asia Region: 2004–2013. <http://apps.who.int/iris/bitstream/10665/204724/1/B5003.pdf>
- 47 World Bank Data. <https://data.worldbank.org/indicator/SH.STA.MMRT?locations=IN-BT-MM-LK-TH-BD-NP>
- 48 The World Bank. [http://data.worldbank.org/indicator/SH.XPD.PUBL?end=2015&locations=MM&name\\_desc=false&start=1960&view=chart](http://data.worldbank.org/indicator/SH.XPD.PUBL?end=2015&locations=MM&name_desc=false&start=1960&view=chart)
- 49 World Bank Data. [https://data.worldbank.org/indicator/SH.STA.BASS.ZS?locations=IN-BT-MM-LK-TH-BD-NP&most\\_recent\\_year\\_desc=true&year=2000](https://data.worldbank.org/indicator/SH.STA.BASS.ZS?locations=IN-BT-MM-LK-TH-BD-NP&most_recent_year_desc=true&year=2000)
- 50 United Nation ESCAP 2018. Achieving the Sustainable Development Goals in South Asia: Key Policy Priorities and Implementation Challenges <https://www.unescap.org/publications/achieving-sustainable-development-goals-south-asia-key-policy-priorities-and>

- 51 Chandrasekhar CP and Ghosh J. ‘Why is South Asia performing badly on the SDGs?’ *The Hindu*, March 25 2019. <https://www.thehindubusinessline.com/opinion/columns/c-p-chandrasekhar/why-is-south-asia-performing-so-badly-on-the-sdgs/article26636204.ece>
- 52 Chandrasekhar CP and Ghosh J. ‘Why is South Asia performing badly on the SDGs?’
- 53 Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G. (2018): *SDG Index and Dashboards Report 2018*. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN).
- 54 United Nations <https://www.un.org/development/desa/en/news/sustainable/sustainable-development-goals-report-2020.html>
- 55 Sustainable Development Report 2020. <https://dashboards.sdgindex.org/rankings>
- 56 The Sustainable Development Goals Report 2020. <https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2020.pdf>
- 57 FAO (2020). Prevalence of undernourishment (% of population). Food and Agriculture Organization, Rome. <http://data.worldbank.org/indicator/SN.ITK.DEFC.ZS>
- 58 United Nations News 2020. <https://www.un.org/development/desa/en/news/sustainable/sustainable-development-goals-report-2020.html>
- 59 Fourth BIMSTEC Summit Declaration, Kathmandu, Nepal 2018. Towards a peaceful, prosperous and sustainable Bay of Bengal Region. <https://pib.gov.in/PressReleasePage.aspx?PRID=1544617>
- 60 Ostrom Elinor et al in Carlisle Keith and Gruby Rebecca. “Polycentric Systems of Governance: A Theoretical Model for the Commons”, *The Policy Studies Journal* (2017).
- 61 Multi Sector Nutrition Plan: 2018-2022. Kathmandu: National

- Planning Commission. [https://extranet.who.int/ncdccs/Data/NPL\\_B11\\_MSNP\\_ii.pdf](https://extranet.who.int/ncdccs/Data/NPL_B11_MSNP_ii.pdf)
- 62 “Bay of Bengal”, Accessed August 30th, 2020.
- 63 BOBP/REP/67, “An Environmental Assessment of the Bay of Bengal Region” (Swedish Center for Coastal Development and Management of Aquatic Resources). <http://www.fao.org/tempref/FI/CDrom/bobp/cd1/Bobp/Publns/Reports/0067.pdf>
- 64 Multi Sector Nutrition Plan: 2018-2022. Kathmandu: National Planning Commission. [https://extranet.who.int/ncdccs/Data/NPL\\_B11\\_MSNP\\_ii.pdf](https://extranet.who.int/ncdccs/Data/NPL_B11_MSNP_ii.pdf)
- 65 World Health Organization, *Policy – Multi-Sector Nutrition Plan-II (2018-2022)*, <https://extranet.who.int/nutrition/gina/en/node/40376>
- 66 World Food Programme, *Draft Bhutan Country Strategic Plan (2019-2023)* <https://docs.wfp.org/api/documents/WFP-0000100980/download/#:~:text=Bhutan's%20food%20and%20nutrition%20security,approach%20to%20ensuring%20this%20right.>
- 67 Bangladesh National Nutrition Policy 2015: Nutrition is the Foundation for Development. <http://extwprlegs1.fao.org/docs/pdf/bgd152517.pdf>
- 68 Bangladesh National Nutrition Policy 2015
- 69 Weerahewa Jeevika, et al., “Food Policies and Nutrition Transition in Sri Lanka: Historical Trends, Political Regimes, and Options for Interventions”, IFPRI Discussion Paper 1727 (2018), <https://ssrn.com/abstract=3239962>
- 70 Weerahewa Jeevika, et al., “Food Policies and Nutrition Transition in Sri Lanka”
- 71 Weerahewa Jeevika, et al., “Food Policies and Nutrition Transition in Sri Lanka”
- 72 Food and Agriculture Administration, Thailand – Food and Nutrition Security Profiles <http://www.fao.org/3/a-at703e.pdf>

- 73 Food and Agriculture Administration, Thailand
- 74 Pawan Agarwal, “Why we need to revisit the National Nutrition Strategy”, Indian Express, December 28, 2019, <https://indianexpress.com/article/opinion/why-we-need-need-to-revisit-the-national-nutrition-strategy-malnutrition-obesity-undernutrition-india-6187824/>
- 75 Sharma, Neetu Chandra, “Intent of nutrition policy is clear but achieving its goals may be a challenge”, Mint, July 10, 2019, <https://www.livemint.com/politics/policy/intent-of-nutrition-policy-is-clear-but-achieving-its-goals-may-be-a-challenge-1562698332423.html>
- 76 Global Nutrition Report, *Myanmar Nutrition Profile* <https://globalnutritionreport.org/resources/nutrition-profiles/asia/south-eastern-asia/myanmar/>
- 77 World Health Organization, *Policy – National plan of Action for Food and Nutrition* <https://extranet.who.int/nutrition/gina/en/node/22852>
- 78 *The State of Food Security and Nutrition in the World 2019* (FAO, IFAD, UNICEF, WFP, and WHO, 2019), 50. <http://www.fao.org/3/ca5162en/ca5162en.pdf>
- 79 Sugeeswara Senadhira, “BIMSTEC Viable, Though SAARC Deadlocked”, *Soka Gakkai International*, September 8<sup>th</sup>, 2018, <https://www.sdgforall.net/index.php/goal-17/765-bimstec-viable-though-saarc-deadlocked>.
- 80 *The State of Food Security and Nutrition in the World 2019* (FAO, IFAD, UNICEF, WFP, and WHO, 2019), 51. <http://www.fao.org/3/ca5162en/ca5162en.pdf>
- 81 *The State of Food Security and Nutrition in the World 2019* (FAO, IFAD, UNICEF, WFP, and WHO, 2019), 52. <http://www.fao.org/3/ca5162en/ca5162en.pdf>
- 82 *The State of Food Security and Nutrition in the World 2019* (FAO, IFAD, UNICEF, WFP, and WHO, 2019), 103. <http://www.fao.org/3/>

ca5162en/ca5162en.pdf

- 83 *The State of Food Security and Nutrition in the World 2019* (FAO, IFAD, UNICEF, WFP, and WHO, 2019), 113. <http://www.fao.org/3/ca5162en/ca5162en.pdf>
- 84 *The State of Food Security and Nutrition in the World 2019* (FAO, IFAD, UNICEF, WFP, and WHO, 2019), 116. <http://www.fao.org/3/ca5162en/ca5162en.pdf>
- 85 *Climate Change and Food Security: A Framework Document* (FAO, 2008), 31. <http://www.fao.org/3/a-au035e.pdf>
- 86 Laila E. van Lier, Jennifer Utter, Simon Denny, Mathijs Lucassen, Ben Dyson, and Terryann Clark, “Home gardening and the health and well-being of adolescents,” *Health Promotion Practice* 18, no. 1 (2017): 34–43.
- 87 Niñez VK: *Household gardens: theoretical and policy considerations*. *Agr Syst.* 1987, 23: 167-186. 10.1016/0308-521X(87)90064-3.
- 88 *World Health Organization: Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks*. 2009, Geneva, Switzerland: World Health Organization
- 89 Calvet-Mir L, Gómez-Bagetthun E, Reyes-García V: *Beyond food production: Home gardens. ecosystem services. A case study in Vall Fosca, Catalan Pyrenees, northeastern Spain*. *Ecol Econ.* 2012, 74: 153-160.
- 90 Mitchell R, Hanstad T: *Small Homegarden Plots and Sustainable Livelihoods for the Poor*. 2004, Rome, Italy: LSP Working Paper 11.
- 91 Brownrigg L: *Home Gardening in International Development: What the Literature Shows*. 1985, Washington DC, USA: The League for International Food Education.
- 92 A. Talukder, N. J. Haselow, A. K. Osei, E. Villate, D. Reario, H. Kroeun, L. SokHoing, A. Uddin, S. Dhunge, and V. Quinn, “Homestead food production model contributes to improved household food security and nutrition status of young children and women in poor

- populations, Lessons learned from scaling-up programs in Asia (Bangladesh, Cambodia, Nepal and Philippines).” Field Actions Science Reports, The journal of Field Actions Special Issue 1 (2010).
- 93 Zannatul Ferdous, Avishek Datta, Anil Kumar Anal, Mazharul Anwar, and ASM Mahbubur Rahman Khan, “Development of home garden model for year round production and consumption for improving resource-poor household food security in Bangladesh,” *NJASWageningen Journal of Life Sciences* 78 (2016): 103-110.
- 94 Pepijn Schreinemachers, Dhruba Raj Bhattarai, Giri Dhari Subedi, Tej Prasad Acharya, Hsiao-pu Chen, Ray-Yu Yang, Narayan Kaji Kashichhawa, Upendra Dhungana, Gregory C. Luther, and Maureen Mecozzi, “Impact of school gardens in Nepal: A cluster randomised controlled trial,” *Journal of Development Effectiveness* 9, no. 3 (2017): 329-343.
- 95 Pepijn Schreinemachers, Bal Bdr Rai, Desang Dorji, Hsiao-pu Chen, Thinley Dukpa, Namgay Thinley, Passang Lhamo Sherpa, and Ray-Yu Yang, “School gardening in Bhutan: Evaluating outcomes and impact,” *Food Security* 9, no. 3 (2017): 635-648.
- 96 Leelangi Wanasundhara. Rural women in Sri Lanka s post-conflict rural economy. RAP Publication 13 (2006): 7-43. <http://www.fao.org/3/ag114e/ag114e00.htm>
- 97 Basudev Mahapatra, “Odisha women fight malnutrition with backyard gardens,” <https://www.villagesquare.in/2019/03/11/odisha-women-fight-malnutrition-with-backyardgardens/>
- 98 BMTandel et al., “Cost-effective-dietary Backyard Kitchen Gardening: A success story,” *Rashtriya Krishi* 10, no. 1 (2015): 113–114, [http://www.researchjournal.co.in/online/RKE/RK%20Eng%20%20%2010%20\(1\)/10\\_113-114.pdf](http://www.researchjournal.co.in/online/RKE/RK%20Eng%20%20%2010%20(1)/10_113-114.pdf)
- 99 Reliance Foundation Annual Report 2012-12. [https://www.reliancefoundation.org/documents/20182/20854/RF\\_Annual\\_Report\\_2013.pdf/0d8e6be0-e53a-448b-a278-24f7b4d1b8a1](https://www.reliancefoundation.org/documents/20182/20854/RF_Annual_Report_2013.pdf/0d8e6be0-e53a-448b-a278-24f7b4d1b8a1)
- 100 United Nations. Zero Hunger Challenge. <https://www.un.org/>

zerohunger/content/challenge-hunger-can-be-eliminated-our-lifetimes

**Observer Research Foundation (ORF)** is a public policy think tank that aims to influence formulation of policies for building a strong and prosperous India. ORF pursues these goals by providing informed and productive inputs, in-depth research, and stimulating discussions. The Foundation is supported in its mission by a cross-section of India's leading public figures, academic and business leaders.



**Ideas • Forums • Leadership • Impact**

---

20, Rouse Avenue Institutional Area, New Delhi - 110 002, INDIA  
Ph. : +91-11-43520020, 30220020. Fax : +91-11-43520003, 23210773  
E-mail: [contactus@orfonline.org](mailto:contactus@orfonline.org)  
Website: [www.orfonline.org](http://www.orfonline.org)