# Sustainable Development Goal 3: Good Health and Well-being

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**Key Points**

- In 2015, the United Nations adopted Sustainable Development Goals (SDG).
- The broad agenda of SDG are to end poverty, combat climate change, and fight injustice and inequality over the next 15 years (2030).
- The UN resolution on the SDGs often refers to the five "P"s—People, Planet, Prosperity, Peace, and Partnerships.
- SDG has 17 inter-connected goals and 169 targets.
- SDG 3 is "Good Health and Well-being." It has 13 targets and 26 indicators.
- There has been variable achievement of SDG 3 goals in the South-East Asia region.
- Many infectious diseases have reduced. This includes two countries with zero trachoma and two countries malaria-free.
- Substantial resource commitment and policy-planning are required to accelerate the process to achieve universal health coverage by 2030.
- Concurrent development of connected SDG goals are required to meet the targets of SDG 3 goals.

In September 2015, the United Nations (UN) proposed Agenda 2030, an ambitious initiative to end poverty, combat climate change, and fight injustice and inequality over the next 15 years. Agenda 2030 promises a better future for all by setting out 17 sustainable development goals (SDGs) that the Member States of countries all over the world have committed to achieving. These goals cover a range of different topics—from ending poverty, improving healthcare, and building more inclusive and sustainable cities, to reducing the impacts of climate change (Fig. 4.1). The goals were adopted by all Member States of the UN formally in 2015 (September 25–27, 2015; at the 70th anniversary of the UN), and were effective from 1st January 2016 for the period 2016–2030.

These 17 goals, which are intimately interconnected with each other (Table 4.1), have 169 targets [1]. The practical and political importance of the SDGs, and the associated challenges follow the Millennium Development Goals (MDG, 2000–2015). The MDGs consisted of 8 international development goals: (1) eradicate extreme poverty; (2) achieve universal primary education; (3) promote gender equity and empower women; (4) reduce child mortality; (5) improve maternal health; (6) combat human immunodeficiency

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**Fig. 4.1** The 17 Sustainable Development Goals (Source: WHO) [1]

virus (HIV)/acquired immunodeficiency syndrome (AIDS), malaria, and other diseases; (7) ensure environmental sustainability; and (8) develop global partnerships for development. The MDG focused primarily on the needs of developing countries.

The SDGs are broader in scope, collective in action, detailed in content, and are applicable to both developed and developing countries. The SDGs also required a political commitment (SDG goal 17) from developed countries to support less developed countries in finance, technology transfer, capacity building, increased trade, public–private partnership, and data management. The UN encouraged developed countries to commit an official development assistance (ODA) of 0.7% of their gross national income (GNI), and ODA of 0.15–0.2% of GNI for developing and least developed countries (LDCs) [2]. Achieving the SDGs will require an estimated collective investment of USD5–7 trillion (United States Dollars) annually by all member countries in the world. Up to 2017, the ODA share of the richer countries has reached USD147.2 billion [3].

The UN resolution on the SDGs often refers to the five "P"s which are five areas of critical importance, namely, People, Planet, Prosperity, Peace, and Partnerships.

- *People*—to end poverty and hunger and to ensure that all human beings can fulfill their potential in dignity and equality and in a healthy environment;
- *Planet*—to protect the planet from degradation; this includes steps to encourage sustainable consumption, production, and management of our planet's natural resources, and taking urgent action on climate change;
- *Prosperity*—to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social, and technological progress occur in harmony with nature.
- *Peace*—to foster peaceful, just, and inclusive societies, which are free from fear and violence.
- *Partnership*—to mobilize the means required to implement the agenda through a revitalized global partnership for sustainable development, based on a spirit of strengthened global

**Table 4.1** Sustainable Development Goals (17 targets and 169 indicators) [1]

| Goal | Target | Indicators |
|---|---|---|
| 1 | End poverty in all its forms everywhere | 7 |
| 2 | End hunger, achieve food security and improved nutrition, and promote sustainable agriculture | 8 |
| 3 | Ensure healthy lives and promote well-being for all at all ages | 13 |
| 4 | Ensure inclusive an equitable quality education and promote lifelong learning opportunities for all | 10 |
| 5 | Achieve gender equality and empower all women and girls | 9 |
| 6 | Ensure availability and sustainable management of water and sanitation for all | 8 |
| 7 | Ensure access to affordable, reliable, sustainable, and modern energy for all | 5 |
| 8 | Promote sustained, inclusive, and sustainable economic growth; full and productive employment and decent work for all | 12 |
| 9 | Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation | 8 |
| 10 | Reduce inequality within and among countries | 10 |
| 11 | Make cities and human settlements inclusive, safe, resilient, and sustainable | 10 |
| 12 | Ensure sustainable consumption and production patterns | 11 |
| 13 | Take urgent action to combat climate change and its impacts | 5 |
| 14 | Conserve and sustainably use the oceans, seas, and marine resources for sustainable development | 10 |
| 15 | Protect, restore, and promote sustainable use of terrestrial ecosystems; sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss | 12 |
| 16 | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels | 12 |
| 17 | Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development | 19 |

solidarity and particularly focused on the needs of the poorest and most vulnerable; this must be done with the participation of all countries, stakeholders, and people of the world [4].

The SDG has 17 goals and 169 targets (Table 4.1). The goals are interconnected. SDG 3 is "Good Health and Well-being." It is intimately connected with "Quality Education" (SDG 4), "Gender Equity" (SDG 5), "Clean water and Sanitation" (SDG 6), "Reduce Inequalities" (SDG 10), "Sustainable Cities and Communities" (SDG 11), and "Climate Action" (SDG 13).


Good Health and Well-being: Ensure healthy lives and promote well-being for all at all ages

The World Health Organization (WHO) founding constitution (proposed at the International Health Conference, on 22 July 1946, and entered into force on 7 April 1948) defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" [5]. The WHO further clarified health as a "resource for everyday life, not the objective of living" at the Ottawa Charter for Health Promotion (21 November 1986) [6]. Health combines social and personal resources and physical capabilities. In 2009, a new dimension was added to health—the "ability

of the body to adapt to new threats and infirmities" [7]. This was based on two important factors: (1) that human health cannot be separated from the health of the planetary biodiversity; and (2) our daily interaction with the inanimate world. Both physical and mental health are important components of good health. Physical well-being is pursuing a healthy lifestyle to decrease the risk of disease, and mental well-being is pursing emotional and social stability to decrease the risk of psychological breakdown.

The SDG 3 agenda takes into account widening economic and social inequalities, rapid urbanization, threats to the climate and environment, the continuing burden of infectious diseases, and emerging challenges of non-communicable diseases. Universal health coverage (UHC) is integral to achieving SDG 3, ending poverty, and reducing inequalities. Another new and emerging global health priority is to fight antimicrobial resistance.

The world has made tremendous progress in the last century. Globally, at least one dreaded disease such as smallpox has been eliminated, and another, poliomyelitis, is close to elimination. But progress has been uneven, both between and within countries [8]. In South-East Asia, two countries are malaria-free and two countries are zero trachoma.

However, inequalities in access to medicine do exist. One essentially needs multisectoral, rights-based, and gender-sensitive approaches to address such inequalities within and outside countries. In 2017, an estimated 400 million people did not have access to basic healthcare, 40% lacked social protection; and every 2 s, someone aged 30–70 years died prematurely from a non-communicable disease [9].

SDG 3 has 13 targets and 26 indicators interconnected to many other SDG goals (Table 4.2). Table 4.2 also includes the target values where available.

The following is a detailed description of the specific targets and their relevance to South-East Asia.

***SDG 3.1. By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.***

Maternal mortality refers to maternal deaths due to complications of pregnancy (includes death within 42 days of pregnancy termination) and childbirth. It is considered a primary indicator of overall health status and quality of life of a given geographic area. Two regions, sub-Saharan Africa (533 maternal deaths per 100,000 live births and 68% of all maternal deaths worldwide) and South Asia (163 maternal deaths per 100,000 live births, and 19% of all maternal deaths worldwide) account for 85% of global maternal mortality. From 2000 to 2017, the global maternal mortality rate (MMR) declined by 38%—from 342 to 211 maternal deaths per 100,000 live births. But this annual rate of reduction (averaging 2.9%) is still less than half of the required annual reduction rate of 6.4% to achieve the SDG 3 goal of 70 maternal deaths per 100,000 live births by 2030. Between 2000 and 2017, the reduction in MMR in South-East Asia was 59%, from 395 to 163 maternal deaths per 100,000 live births [10]. In 2017, of all the South-East Asian countries, Myanmar reported the highest MMR (250 maternal deaths per 100,000 live births) and Sri Lanka recorded the lowest (36 maternal deaths per 100,000 live births) (Table 4.3).

***SDG 3.2. By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births.***

The neonatal (life up to 28 days) mortality rate (NMR) is a key outcome indicator for newborn care, and directly reflects prenatal, intrapartum, and neonatal care. Globally, this was halved between 1990 (36.7 neonatal deaths per 1000 live births) and 2018 (17.7 neonatal deaths per 1000 live births). In 2017, the annual NMR was 26.9 neonatal deaths per 1000 live births in South Asia. SDG 3 aims at reducing the NMR to 12 neonatal deaths per 1000 live births by 2030. At the current NMR, it is estimated that 27.8 million babies could die in their first month of life between 2018 and 2030; if the SDG 3 target of reducing this rate can be achieved, only 22.7 million neonatal deaths would occur by 2030 [11].

**Table 4.2** SDG 3. Targets indicators and selected target values

| Target | Indicator | Description | Target value |
|---|---|---|---|
| 3.1 | 3.1.1 | Maternal mortality. Death/100,000 live births | 70 |
| | 3.1.2 | Births attended by skilled health personnel % of live births | 100 |
| 3.2 | 3.2.1 | Under-5 mortality. Deaths/1000 live births | 25 |
| | 3.2.2 | Neonatal mortality. Deaths/1000 live births | 12 |
| 3.3 | 3.3.1 | New HIV infections/100,000 population | 0 |
| | 3.3.2 | Tuberculosis incidence/100,000 population | 0 |
| | 3.3.3 | Malaria incidence/1000 population at risk | 0 |
| | 3.3.4 | Hepatitis B incidence/100,000 population | |
| | 3.3.5 | Number of people requiring interventions against neglected tropical diseases | |
| 3.4 | 3.4.1 | Mortality rate attributed to cardiovascular disease, cancer, diabetes, or chronic respiratory disease. Probability % | 18.5 |
| | 3.4.2 | Suicide mortality/100,000 population | 4.3 |
| 3.5 | 3.5.1 | Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders | |
| | 3.5.2 | Alcohol per capita consumption. Liters/annum | 2.1 |
| 3.6 | 3.6.1 | Road traffic injuries. Death/100,000 population | 7.8 |
| 3.7 | 3.7.1 | Proportion of women of reproductive age (15–49 years) who have their need for family planning satisfied with modern methods | 100 |
| | 3.7.2 | Adolescent fertility rate. Live births/1000 women (15–49 years) in that age group | 13 |
| 3.8 | 3.8.1 | Coverage of essential health services (reproductive, maternal, newborn and child health, infectious diseases, and non-communicable diseases; service capacity and access among the general and most disadvantaged populations) | |
| | 3.8.2 | Household expenditures on health. % of population | >10% = 5.4<br>>25% = 0.7 |
| 3.9 | 3.9.1 | Mortality rate attributed to household and ambient air pollution | |
| | 3.9.2 | Mortality rate attributed to lack of safe water, sanitation, and hygiene (WASH) | |
| | 3.9.3 | Mortality rate attributed to unintentional poisoning/100,000 population | 0.3 |
| 3.A | 3.A.1 | Age-standardized prevalence of current tobacco use among persons aged 15 years and older | |
| 3.B | 3.B.1 | Proportion of the population with access to affordable medicines and vaccines on a sustainable basis [this includes three doses vaccination against diphtheria-tetanus-pertussis (DPT3); Pneumococcal conjugate 3rd dose vaccination (PCV3); Measles (MCv2)]. % of population | 100 |
| | 3.B.2 | Total net official development assistance to medical research and basic health sectors | |
| 3.C | 3.C.1 | Health worker density/1000 population | |
| | | Dentistry | 1 |
| | | Nurse/Midwife | 10.5 |
| | | Pharmacist | 1 |
| | | Physician | 4.1 |
| 3.D | 3.D.1 | International Health Regulations (IHR) capacity and health emergency preparedness. Index | 100 |

**Infant (life up to 1 year) mortality rate (IMR)** indicates the overall physical health of a community. High IMRs are generally indicative of unmet human health needs in sanitation, medical care, nutrition, and education. In the last two decades, the global IMR has reduced from 65 infant deaths per 1000 live births in 1990 to 29 infant deaths per 1000 live births in 2018 [12]. In 2017, the world registered 4.1 million infant deaths as compared to the 8.8 million deaths in 1990 [13]. SDG 3 has not set any target for infant mortality rate, probably because IMR is clubbed with child mortality.

The global child (under 5) mortality rate has reduced from 93.2 child deaths per 1000 live

**Table 4.3** Important health indices in South-East Asian countries

| Country | NMR[a] 2018 | IMR[a] 2018 | Children (under 5) mortality[a] 2018 | MMR[a] 2017 | Life expectancy[a] (years) 2018 |
|---|---|---|---|---|---|
| Bangladesh | 17 | 25 | 30 | 173 | 72 |
| Bhutan | 16 | 25 | 30 | 183 | 71 |
| India | 23 | 30 | 37 | 145 | 69 |
| Indonesia | 13 | 21 | 25 | 177 | 72 |
| Maldives | 5 | 7 | 9 | 53 | 79 |
| Myanmar | 23 | 37 | 46 | 250 | 67 |
| Nepal | 20 | 27 | 32 | 186 | 70 |
| Sri Lanka | 5 | 6 | 7 | 36 | 77 |
| Thailand | 5 | 8 | 9 | 37 | 77 |
| Timor Leste | 20 | 39 | 46 | 142 | 69 |
| SDG 3 goal | 12 | – | 25 | 70 | – |

[a]Source: World Bank www.data.worldbank.org
*IMR* infant mortality rate (per 1000 live births), *NMR* neonatal mortality rate (per 1000 live births), *MMR* maternal mortality rates (per 100,000 live births)

births to 38.6 child deaths per 1000 live births between 1990 and 2018; in absolute numbers, this translates to a reduction of child mortality from 12.6 million children in 1990 (1 in 11 children) to 5.3 million children (1 in 26 children) in 2018 [14]. Two regions, sub-Saharan Africa and Central and Southern Asia, that account for 52% of the global population of under-5 children also accounted for more than 80% of deaths in children under five in 2018. Five countries, namely, the Democratic Republic of Congo, Ethiopia, India, Nigeria, and Pakistan accounted for half of all deaths in children under five in 2018 [15]. Diarrhea, and acute respiratory diseases such as pneumonia were the major causes of such deaths, and the major risk factors for such deaths were low birth weight, malnutrition, non-breastfeeding, overcrowding, and unsafe drinking water [15]. The SDG 3 target aims to reduce mortality in children under five to 25 per 1000 live births by 2030.

Life expectancy, a key metric for assessing population health, refers to the number of years a person is expected to live. Increased life expectancy is usually linked to good diet and public health. Between 1960 and 2018, there has been a steady increase in life expectancy from 52.6 years (1960) to 72.5 years (2018) [16]. The global average in life expectancy increased by 5.5 years between 2000 and 2016 [17].

Table 4.3 lists the values of various health indices in South-East Asian countries. Three countries (Maldives, Sri Lanka, and Thailand) have already achieved the SDG 3 goals in these indices and must continue to consolidate their positions. The remaining seven countries are required to design appropriate policies and execute specific programs to improve their health indices.

Despite global increases in average life expectancy, years of life lost (YLL), which is an estimate of the years of potential life lost due to premature death is also expected to rise. Compared to 2016, several non-communicable diseases (NCD) in many high- and middle-income countries (which account for 67.3% of YLLs) and communicable, maternal, neonatal, and nutritional (CMNN) diseases in many lower-income countries (which cause 53.5% of YLLs in sub-Saharan Africa) are likely to account for a large share of YLLs in 2040 [18]. In South Asia and the South-East Asia–Oceania regions, NCDs are expected to increase and CMNNs are expected to decrease (Table 4.4) [18].

***SDG 3.3. By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases, and combat hepatitis, water-borne diseases, and other communicable diseases.***

***Tuberculosis*** (TB) is one of the top 10 causes of death worldwide and the leading cause of

**Table 4.4** Comparison of important health disorders in South Asia and the South-East Asia–Oceania region between 1980 and 2040 [18]

| Year | Category | Global | HIC | South Asia | SEA & Oceania |
|---|---|---|---|---|---|
| 1980 | NCD % | 29.8 | 76.1 | 17.6 | 36.3 |
| | CMNN % | 58.9 | 9.4 | 75.0 | 47.7 |
| | Injuries % | 11.3 | 14.5 | 7.3 | 16.0 |
| 2040 | NCD % | 67.3 | 85.7 | 67.8 | 83.2 |
| | CMNNs% | 21.4 | 5.9 | 18.4 | 8.0 |
| | Injuries% | 11.2 | 8.4 | 13.8 | 8.8 |

*CMNN* communicable, maternal, neonatal, nutritional, *HIC* high-income country, *NCD* non-communicable disease, *SEA* South-East Asia

death due to a single infectious agent. In 2018, an estimated 10 million people fell ill with tuberculosis and 1.5 million people died. Thirty high TB burden countries accounted for 87% of new cases and eight countries (Bangladesh, China, India, Indonesia, Nigeria, Pakistan, the Philippines, and South Africa), which includes three from the South-East Asian region that account for two-thirds of the total new cases of TB every year [19]. In September 2018, the UN held its first high-level meeting on epidemic TB, where a re-commitment was made to meet SDG target 3.3 (end TB strategy milestones for 2020–2025 and targets for 2030–2035) for reduction in TB cases and deaths. The targets for 2030 are a 90% reduction in the number of TB deaths and an 80% reduction in the TB incidence rate (new cases per 100,000 population per year) levels in 2015. This meeting noted that the current reduction in TB incidence at 2% per year must be accelerated to 4–5% per year to meet the 2030 targets. There was also a financial commitment to mobilize at least USD13 billion annually for universal access to TB diagnosis, treatment, and care by 2022, as well as to mobilize at least USD2 billion annually for TB research [19].

***Malaria*** accounted for an estimated 228 million cases and 405,000 deaths in the world in 2018 [20]. While the African region has a disproportionately high share of the global malaria burden (93% of malaria cases and 94% of malaria deaths in 2018), there were eight million cases and 11,600 deaths related to malaria in the WHO South-East Asia Region. The WHO global technical strategy for malaria 2016–2030 (World Health Assembly (WHA), 2015) has 2030 aims to reduce incidence of malaria and malaria-related mortality by at least 90% by the year 2030. The strategy also aims to eliminate malaria in at least 35 countries and prevent the disease resurgence in all malaria-free countries [20]. The WHO has certified two South-East Asian countries, the Maldives (2015) and Sri Lanka (2016), malaria-free, and two more countries, Bhutan and Timor Leste are close to being malaria-free; in addition, Bangladesh, India, and Thailand have also reported substantial declines in reported malaria cases.

***Water-borne diseases*** spread through contaminated water. Important water-borne diseases include diarrheal diseases, cholera, shigella, typhoid, hepatitis A and E, and poliomyelitis. In 2016, diarrheal diseases were the eighth leading cause of death in all age groups (1.65 million deaths), the fifth leading cause of death for under-5 children (446,000 deaths) and an increasing burden on people aged 70 and above [21]. Childhood wasting (low weight-for-height score), unsafe water, and unsafe sanitation were the leading risk factors. In 2018, the average numbers of diarrheal episodes in South-East Asia and South Asia were 22.8 and 64.4 per 100,000 people, respectively, against the global average of 7.06 per 100,000 people. In both these areas, the numbers of episodes per person-year was 1.60 and 1.49, respectively, against the global average of 1.75 episodes per person-year [22]. While safe drinking water and improved sanitation are important global goals (SDG 6) and many organism-specific vaccines are currently available to combat water-borne diseases, oral rehydration therapy (ORT) is an inexpensive and effective treatment that has saved many lives (approximately 70 million), since its introduction in the late 1970s in Bangladesh [23].

***Poliomyelitis*** is a highly infectious disease that invades the nervous system. It is transmitted mainly through the fecal–oral route, and often causes irreversible paralysis (usually in the legs). In 1988, the 48th WHA (41.28) adopted a resolution for the worldwide eradication of polio. It marked the launch of the Global Polio

Eradication Initiative (GPEI), which followed the smallpox eradication strategy of the 1980s. By 2018, the occurrence of poliovirus infections reduced from an annual incidence of 350,000 cases in 125 countries to only 33 cases identified in two countries, Afghanistan and Pakistan [24]. The WHO launched the Polio Eradication & Endgame Strategic Plan (PEESP) in 2013 that followed the GPEI program period from 2013 to 2018 [25]. The net gain of the program is that over 18 million children have been saved from polio-affected paralysis. However, this effort must continue; because discontinuation will lead to a global rise of 200,000 cases per year in polio-related morbidities. With these factors in mind, the Polio Endgame Strategy 2019–2023 was launched to face the final challenges of polio eradication and lay the groundwork for a sustainable future free of polio [26]. In September 2018, the Polio Oversight Board (POB) approved a multiyear budget and recognized the resource requirements of the GPEI to an overall cost of USD5.1 billion [26].

***Neglected tropical diseases (NTDs)*** are a diverse group of communicable diseases in tropical and subtropical areas in 149 countries. Populations living in poverty, without adequate sanitation, and in close contact with infectious vectors, domestic animals, and livestock are worst affected by NTDs. There are 17 common NTDs and between 1978 and 2011, the WHA has passed 10 resolutions to end or substantially reduce these 10 NTDs: treponematoses (WHA 31.58 in 1978), lymphatic filariasis (WHA 50.29 in 1997), trachoma (WHA 51.11 in 1998), leprosy (WHA 51.15 in 1998), schistosomiasis (bilharziasis) and soil-transmitted helminthiases (intestinal worms) (WHA 54.19 in 2001), African trypanosomiasis (sleeping sickness) (WHA 57.2 in 2004), leishmaniasis (WHA 60.13 in 2007), onchocerciasis (river blindness) (WHA 62.1 in 2009), Chagas disease (WHA 63.20 in 2010), and dracunculiasis (guinea-worm disease) (WHA 64.16 in 2011) [27].

Worldwide, ~2 billion people are at risk of one or more NTDs and more than 1 billion people are affected by these diseases. Annually, up to half a million deaths and 57 million disability-adjusted life years (DALY) are attributed to NTDs [28]. The London declaration on NTDs (30 January 2012) is the first joint effort of the WHO, the World Bank, the Bill & Melinda Gates Foundation, and 13 leading pharmaceutical companies to commit to an NTD eradication program at a global level. Since then, much progress has been made to eradicate guinea-worm disease, lymphatic filariasis, leprosy, sleeping sickness (African trypanosomiasis), and blinding trachoma. The incidences of diseases such as schistosomiasis, soil-transmitted helminths, Chagas disease, visceral leishmaniasis, and river blindness (onchocerciasis) have also reduced [28].

***SDG 3.4. By 2030, reduce by one-third, all cases of premature mortality due to NCDs through prevention and treatment; also promote mental health and well-being.***

Globally, the principal NCDs are cardiovascular diseases (CVDs), cancers, chronic respiratory diseases, and diabetes. The numbers of NCD deaths worldwide are expected to increase by 15% between 2010 and 2020 (to 44 million deaths) with an estimated 10.4 million deaths in South-East Asia [29]. Modifiable risk behaviors for NCDs include tobacco use, physical inactivity, unhealthy diets, and harmful use of alcohol. The metabolic risk factors include high blood pressure, overweight/obesity, hyperglycemia, and hyperlipidemia. A global Non-Communicable Disease Alliance (NCDA) was formed in 2009 with a vision of "a world where everyone has the opportunity for a healthy life, free from the preventable suffering, stigma, disability, and death caused by non-communicable diseases." The NCDA partners with civil societies, governments, and the UN to jointly work towards reducing NCD-related morbidity and mortality. Today, the global NCDA is a 2000-strong member organization from 170 countries. The global NCDA has successfully influenced political commitments (such as the resolution to reduce overall NCD-related mortality by 25% by the year 2025; the "25 by 25" target), created multisectoral partnerships, positioned NCDs in the 2030 SDG, and cultivated national and regional NCDAs. As a part of this movement, the South-East Asia Region

NCDA (SEAR-NCDA) was formed in February 2020 [30]. Chapter 12 has further details of NCDs and diabetic retinopathy in the WHO South-East Asia Region.

***SDG 3.5. Strengthen systems for the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.***

Substance abuse refers to the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs. It can have negative consequences on health, economy, productivity, and social aspects of communities [31]. In 2016, the most common substance and drug disorders worldwide were alcohol (an estimated 100.4 million people have alcohol addiction-related issues; the age-standardized prevalence of alcohol addiction is 1320.8 cases per 100,000 people) and cannabis (22.1 million cases of cannabis addiction; the age-standardized prevalence of cannabis addiction is 289.7 cases per 100,000 people) [32]. The 2019 report of the United Nations Office on Drugs and Crime (UNODC) indicates that an estimated 35 million people suffer from drug use disorders; of those who require deaddiction services, only 1 in 7 receive treatment [33].

***SDG 3.6. By 2020, halve the number of global deaths and injuries caused by road traffic accidents.***

The United Nations Conference on Trade and Development (UNCTAD) in 2017 reported that each year, over 1.35 million people die, and an additional 50 million are injured or permanently disabled in road accidents [34]. Death due to road traffic injury is the 8th leading cause of all deaths and the first cause of death in the 5–29 years age group in the world. Most (90%) of road traffic deaths occur in low- and middle-income countries, although these countries only have 54% of the world's vehicles. In the WHO South-East Asia Region, deaths due to road traffic injuries increased by 1% between 2013 and 2016 (from 19.8 to 20.7 per 100,000 population); furthermore, most deaths (43%) occurred due to 2- or 3-wheeler drivers/riders [35]. In addition to SDG 3.6, road traffic injury is interconnected with SDG 11 (make cities and human settlements inclusive, safe, resilient, and sustainable by 2030) through specific indicator 11.2, which calls for access to safe, affordable, accessible, and sustainable transport systems for all, and to improve road safety for vulnerable populations.

***SDG 3.7. By 2030, ensure universal access to sexual and reproductive healthcare services, including family planning, information, and education; reproductive health must also be integrated into national strategies and programs.***

Widening access to contraception and ensuring that demands for family planning are satisfied using elective contraceptive methods are essential for achieving universal access to reproductive healthcare services. The 2030 agenda reaffirms the commitments made in the Program of Action of the International Conference on Population and Development (ICPD, 1994), adopted by 179 Member States. Among the 1.9 billion women of reproductive age (15–49 years) living in the world in 2019, as many as 1.1 billion women have a need for family planning, and 10% of these women's needs are unmet [36]. Significant disparities exist across countries and regions in the use of modern family planning methods. Approximately 1 in 10 women of reproductive age use traditional methods in 21 countries including 7 countries in Asia [36]. Among the countries in the WHO South-East Asia Region, as per the UN report in 2019, the prevalence of modern contraceptive use was highest in Thailand and Bangladesh (median percentile 46.6% and 45.5%, respectively) and very low in Timor Leste (median percentile 12.9%). The unmet needs for family planning methods was low in Thailand and Sri Lanka (median percentile 3.7% and 5.9%, respectively) [37]. In addition to SDG 3.7, the WHO has a very specific goal targeted to achieve gender equality and empowerment of all women and girls (SDG 5) to promote healthy lives and well-being for all by 2030.

***SDG 3.8. Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.***

UHC means that all individuals and communities receive the health services they need without suffering financial hardship [38]. It includes the

full spectrum of essential, quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care. The UHC encompasses all components of the health system, including service delivery, workforce, facilities, communications networks, technologies, information systems, quality assurance mechanisms, governance, and policy legislation. The degree to which UHC has been achieved can be measured by the proportion of a population that can access essential quality health services as well as the proportion of the population that spends a large amount of household income on health [38].

Currently, at least half of the world's population does not have full coverage for essential health services. About 100 million people are still being pushed into extreme poverty (defined as living on USD1.90 or less a day) because they have to pay for healthcare. Over 930 million people (around 12% of the world's population) spend at least 10% of their household budgets to pay for healthcare. Approximately 800 million people do not have full health coverage and 65 million people are pushed to extreme poverty when they pay for their healthcare in the WHO South-East Asia Region, which has 26% of the world's population [38].

***SDG 3.9. By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals, and air, water, and soil pollution and contamination.***

Pollution is the largest environmental cause of disease and premature death in the world today. Diseases caused by pollution were responsible for an estimated nine million premature deaths in 2015, and nearly 92% of pollution-related deaths occurred in low- and middle-income countries. The Lancet Commission on Pollution and Health estimated that pollution-related diseases cause productivity losses equivalent to 2% of the gross domestic product (GDP) in low- and middle-income countries. Pollution-related diseases also result in increased healthcare costs; up to 1.7% of annual health spending in high-income countries and up to 7% of health spending in middle-income countries [39]. While the household air and water pollution (usually associated with profound poverty and traditional lifestyles) are on a decline, the ambient air, chemical, and soil pollution—produced by industry, mining, electricity generation, and petroleum-powered vehicles—are on the rise, especially in the developing and industrializing low- and middle-income countries. In addition to SDG 3.9, the WHO has a very specific goal targeted towards achieving climate and environmental control through affordable and clean energy (SDG 7), sustainable cities and communities (SDG 11), and climate action (SDG 13).

***SDG 3.A. Strengthen the implementation of the WHO framework convention on tobacco control in all countries, as appropriate.***

Tobacco smoking is one of the world's largest health problems. The Global Burden of Disease (GBD) reported that more than 8.2 million people died prematurely as a result of smoking in 2017; this included 7 million primary and 1.2 million secondary smokers [40]. The mean annual death rate due to smoking-related issues in ten South-East Asian countries was 93.04 deaths per 100,000 population in 2017; the highest mean annual death rate was in Myanmar (175.06 deaths per 100,000 population) and lowest was in Bhutan (54.19 deaths per 100,000 population) [41]. Of these deaths, 93% occurred in people 59 years or older, and 51.3% occurred in people aged 70 years or older. Between 1990 and 2017, smoking-related death rates have fallen (146 deaths per 100,000 population in 1990 to 90 deaths per 100,000 population in 2017); however, this decline has occurred mostly in the rich countries [41].

***SDG 3.B. Support the research and development of vaccines and medicines for those communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, and provide access to medicines for all.***

There are many reasons why people do not get the healthcare they need; this includes problems such as under-resourced health systems, a lack of sufficiently qualified and skilled healthcare workers, inequalities between and within countries, exclusion, stigma, discrimination, and exclusive marketing rights [42]. Often times, it is related to unaffordability, poor quality,

inappropriate use, and procurement of medicines, and problems with supply chains and regulatory obstacles to obtaining such medicines in the least developed countries. One of the main objectives under SDG 3 is to ensure access to affordable medicines for all. Following the adoption of the SDGs in September 2015, the WTO's Council for TRIPS (Trade-Related aspects of Intellectual Property Rights) in November 2015, extended its scope to promote access to medicines for all [42].

***SDG 3.C. Substantially increase health financing and recruitment, development, training, and retention of health workforce in developing countries, especially in the least developed countries and small island developing states.***

Human Resource for Health (HRH) is a key enabler for the attainment of UHC, and achievement of SDG 3. This requires a knowledgeable, skilled, and motivated health workforce. The health workforce includes those people who provide health services directly (physicians, nurses, and paramedics) and indirectly (hospital managers and administrators). As a result of chronic under-investment in education and training of health workers, the WHO estimates a projected global shortfall of 18 million health workers, including 9 million nurses or midwives by 2030; it is likely that this shortage would mostly occur in low- and lower-middle income countries. This is despite the fact that the global economy is projected to create around 40 million new health sector jobs by 2030 [43]. The WHO Global Health Observatory estimates that South-East Asia would need 10.9-million health workers by 2030; this translates to an increase of 75% from the 6.2 million health workers in active service in 2013. This health workforce includes 1.9 million physicians, 5.2 million nurses, and 3.7 million other health workers [44]. The eye health personnel directly involved in patient care (ophthalmologists, optometrists, and allied ophthalmic personnel) in 2019 and their densities are shown in Table 4.5.

In 2015, there were 232,866 ophthalmologists in the world according to a survey by the International Council of Ophthalmology (ICO) [45]. Although there has been a 2.6% annual growth in the number of ophthalmologists worldwide, these ophthalmologists were unequally distributed; there were fewer ophthalmologists in low-income countries (3.7 per million population) than in high-income countries (76.2 per million population). In addition, within the low-middle income countries, most ophthalmologists were located in urban areas than in rural localities [45]. The current numbers of allied ophthalmic personnel (AOP), who form the backbone of eye care in the community and primary eye care level as recommended in the World Report on Vision (WRV), are not enough to meet demands [46]. It is estimated that in order to develop a patient-centered eye care system from community to tertiary care, the 10 South-East Asian countries would need more than 164,000 AOPs [47]. At the current level (Table 4.5), there is an acute

**Table 4.5** Eye health workforce in SEAR member states (2019 data)

| Country | Population (Million) | Ophthalmologist density | | | Optometrist density | | AOP density | |
|---|---|---|---|---|---|---|---|---|
| | | n | Per population | Per million population | n | Per population | n | Per population |
| Bangladesh | 163.0 | 1200 | 1/135,883 | 7.36 | 1485 | 1/109,764 | 500 | 1/326,000 |
| Bhutan | 0.75 | 10 | 1/75,000 | 13.33 | 9 | 1/83,333 | 56 | 1/13,393 |
| India | 1366.0 | 23,567 | 1/56,689 | 17.64 | 12,000 | 1/113,833 | 30,000 | 1/44,433 |
| Indonesia | 267.6 | 2712 | 1/98,672 | 10.13 | 2470 | 1/108,340 | 6250 | 1/42,816 |
| Maldives | 0.53 | 26 | 1/20,384 | 49.05 | 13 | 1/40,769 | 0 | – |
| Myanmar | 54.0 | 390 | 1/138,461 | 7.22 | 95 | 1/568,421 | 0 | – |
| Nepal | 29.1 | 335 | 1/86,865 | 11.51 | 857 | 1/33,955 | 1246 | 1/23,354 |
| Sri Lanka | 21.3 | 130 | 1/163,000 | 6.13 | 670 | 1/31.800 | 1355 | 1/15,700 |
| Thailand | 69.6 | 1700 | 1/40,941 | 24.42 | 320 | 1/217,500 | 1200 | 1/55 ,500 |
| Timor Leste | 1.3 | 4 | 1/325,000 | 3.07 | 2 | 1/650,000 | 24 | 1/52,000 |

*AOP* allied ophthalmic personnel

imbalance in the density of ophthalmologists and an acute shortage of AOPs.

***3.D. Strengthen the capacity of all countries, in particular, developing countries, for early warning, risk reduction, and management of national and global health risks.***

People across the world are faced with a wide and diverse range of risks associated with health emergencies and disasters. These comprise of infectious disease outbreaks, natural hazards, conflicts, unsafe food and water, chemical and radiation and other accidents, lack of water and power supply, air pollution, antimicrobial resistance, etc. The health, economic, political, and societal consequences of these events can be devastating, both in the acute phase and in the longer term. Sound risk management is essential for development and implementation of the SDG goals. The Health Emergency and Disaster Risk Management (EDRM) framework of the WHO provides the framework for management of unforeseen health emergencies [48]. Health EDRM is a continuum of measures, and not merely a response to a health event or crisis. Globally, approximately 190 million people are directly affected annually by emergencies due to natural and technological hazards, which cause over 77,000 deaths [49]. A further 172 million are affected by conflict [50]. From 2010 to 2019, WHO recorded more than 2000 outbreaks of infectious diseases in 168 countries, including those due to new or re-emerging infectious diseases, including the recent epidemic caused by the Zika virus (2015), Ebola virus (2014–2016), and novel Corona virus (2019) [51].

Between 1990 and 2015, unsafe sanitation, household air pollution, childhood underweight, childhood stunting, and smoking have decreased by more than 25%. However, high body-mass index (BMI), and drug use have increased by more than 25% [52]. Together, all these health risks in 2015 accounted for 57.8% of global deaths and 41.2% of DALY. In 2015, the ten largest contributors to global DALYs were high systolic blood pressure (211.8 million), smoking (148.6 million), high fasting plasma glucose (143.1 million), high BMI (120.1 million), childhood under-nutrition (113.3 million), ambient particulate matter (103.1 million), high total cholesterol (88.7 million), household air pollution (85.6 million), alcohol use (85 million), and high-sodium diets (83 million) [52]. Although eye conditions were not in this list, it is known that high blood pressure, high plasma sugar, high total cholesterol, high BMI, and childhood under-nutrition can cause several eye disorders, reduce vision, and even lead to early blindness. All these conditions adversely impact the quality of life.

In 2017, there were 56 million deaths in the world; the most common cause of these were NCDs (73.4%; 41.1 million), followed by CMNN diseases/disorders (18.6%; 10.4 million), and injuries (8.0%, 4.5 million). These diseases accounted for 1.65 billion years of life lost caused by NCDs, CMNN diseases/disorders, and injuries by 53.0%, 35.1%, and 11.9%, respectively [53]. Between 1990 and 2017, there has been a substantial change in these patterns (Fig. 4.2). While there the numbers of deaths due to injury have not changed much, there has been a significant change in the numbers of deaths caused by NCDs (which has increased by 26.73%) and CMNN diseases/disorders (which has reduced by 43.93%). The age-specific mortality and the most common causes of death are shown in Table 4.6 [54].

The UN has developed a mechanism to track the progress of SDGs. The Economic and Social Commission for Asia and the Pacific (ESCAP) monitors this progress in the Asia Pacific region. The 2018 ESCAP report indicates that South-

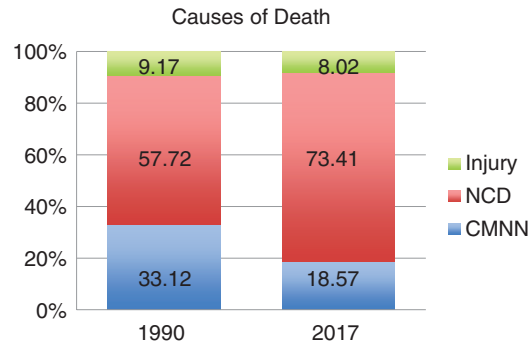


**Fig. 4.2** Comparison of the percentages of causes of death due to CMNN diseases/disorders, NCDs, and injuries between 1990 and 2017 [53]

**Table 4.6** Age-specific causes of death between 1990 and 2017 [54]

| Year | 70+ | 50–69 | 15–49 | 5–14 | <5 |
|---|---|---|---|---|---|
| 1990 in percentage | 33.46 | 23.31 | 15.06 | 2.84 | 25.32 |
| 2017 in percentage | 48.64 | 26.81 | 13.61 | 1.31 | 9.64 |
| Most common cause in 2017 | CVD | CVD | CVD | Road accidents | Lower respiratory infections |

East Asia is ahead of other sub-regions in quality education (Goal 4), affordable and clean energy (Goal 7) and industry, and innovation and infrastructure (Goal 9); but this region has regressed on economic growth (Goal 8), climate action (Goal 13), and peace and justice (Goal 16). Areas requiring immediate action to reverse these trends include harmful use of alcohol (SDG 3.5.2) and shrinking above-ground forest biomass (SDG 15.2.P1) (Fig. 4.3) [55].

Health is affected by multitude of factors inherent to each individual, though many societal factors also influence it. Eye health is an important component for overall human development and well-being. The SDG 3 is connected to many other SDGs [56]. The 73rd WHA (2020), while adopting the resolution (73.12) on "integrated people-centered eye care, including preventable vision impairment and blindness" has mentioned these interconnections. More specifically these are Goal 1 (end poverty in all its forms everywhere), Goal 4 (ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), Goal 5 (achieve gender equality and empower all women and girls), Goal 6 (ensure availability and sustainable management of water and sanitation for all), Goal 8 (promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all), and Goal 10 (reduce inequality within and among countries) [1].

Despite many remarkable gains in health over the past few decades, the world will need to significantly increase its efforts to achieve the SDGs by 2030. In response to these needs, 11 global health, development, and humanitarian agencies aligned with the WHO committed to closer collaboration and alignment in October 2018 to help accelerate the progress towards attaining the SDGs [57]. These 11 agencies include Gavi (the vaccine alliance for equitable use of vaccines in lower-income countries); GFF (Global Finance Facility for women, children and adolescents, currently working in 36 countries); Global Fund to Fight AIDS, TB and Malaria (invests over USD4 billion a year to support programs); UNAIDS (UN Program on HIV/AIDS), UNDP (UN Development Program, supports over 100 counties in addressing health determinants and developments); UNFPA (UN Population Fund, working to deliver universal access to sexual and reproductive health); UNICEF (United Nations Children's Fund, partners in 190 countries to promote the rights and well-being of children); Unitaid (working to fill the gap between late-stage development of heath products and their adoption); UN Women (dedicated to gender equality and empowerment of women); World Bank (with a global strategy to improve health, nutrition and population (HNP) parameters, with an commitment of USD3 billion annually); and WFP (World Food Program, delivering food assistance during emergencies) [58].

These agencies have adopted the following four strategies: *Engage* with countries to identify priorities and implement plans together; *Accelerate* progress in countries through joint actions under seven accelerator themes; *Align* by harmonizing operational and financial strategies and country-specific policies; *Account* by reviewing progress and enhance shared accountability [58]. The seven *accelerators* are (1) primary health; (2) sustainable financing; (3) community and civil society engagement; (4) determinants of health; (5) innovative programs for handling fragile and vulnerable settings and for disease outbreak responses; (6) research, development, innovation, and access; and (7) data and digital health [58].

2023 is the mid-point to 2030. By 2023, these 11 agencies along with the WHO plan to achieve better coordination among the different agencies

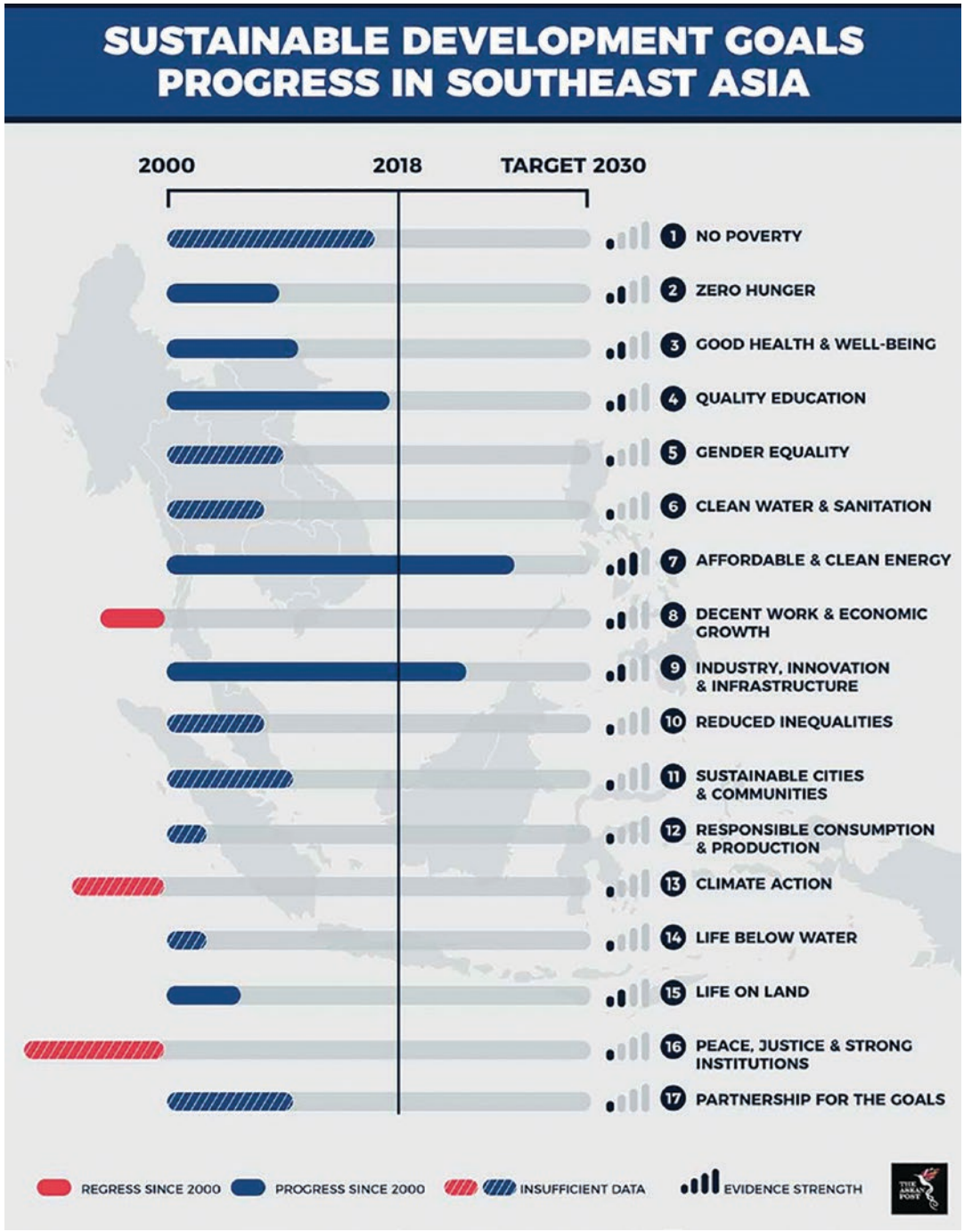


**Fig. 4.3** Snapshot of SDG progress in 2018: South-East Asia [56]

in their global, regional, and in-country processes; superior operational and financial policies; and focus on purpose-driven collaboration [59]. This is aimed at providing the required momentum in the final push to achieve "good health and well-being" to all by 2030.

## Case Story

### Medical Mission for Refugees in South-East Asia (FDMN in Bangladesh)

Munir Ahmed and Lutful Husain

Since August 2017, over 700,000 Myanmar nationals (Rohingyas) have migrated from the northern Rakhine state of Myanmar to Teknaf and Ukhyia sub-districts of the Cox's Bazar district of Bangladesh (Fig. 4.4). The United Nations High Commission for Refugees (UNHCR) estimates this migrated population of 'forcibly displaced Myanmar nationals (FDMN)' to be 1.2 million people, including all earlier arrivals. This sudden and massive influx overwhelmed existing health services in Bangladesh. In response, the Government of Bangladesh, with a number of international non-government organizations (INGOs) set up 74 health centers, including health posts in and around the resettled migrant population. This was in accordance with the WHA resolution 70.15 of 2017 (promoting the health of refugees and migrants) that urges member states to oversee safe and orderly migration, address health needs, strengthen international cooperation on the health of refugees, and provide health-related assistance through bilateral/international cooperation [60].

The Bangladesh government accepted the Orbis International proposal to make provisions for primary eye care, integrated with general healthcare in this region, both for the host community, and the migrant population (Fig. 4.5). The systematic planning for this included a rapid assessment of avoidable blindness (RAAB) for people 50 years and older, establishing provisions for basic eye care, and engaging the Cox's Bazar Baitush Sharaf Hospital (CBBSH, 34 km

**Fig. 4.5** FDMNs at the improvised eye screening facility at Kutupalong (camp # 4), Ukhyia, Cox's Bazar, Bangladesh (Source: Orbis, Bangladesh)

**Fig. 4.4** FDMN on way to southern Cox's Bazar district I Bangladesh (Source: UNHCR)

from the migrant population) for referrals and ophthalmic surgery. A study recorded the high burden of untreated eyes of young adults [61] and the RAAB study showed prevalences of blindness (vision < 3/60) and severe visual impairment (vision < 6/60) at 2.1% and 2.4%, respectively, in the elderly people of this population.

Orbis International also addressed issues of system strengthening through the following measures: improving eye health infrastructure and service delivery at primary and secondary levels; skill development of primary eye care personnel; defining the referral pathway; building efficient data management and patient information systems; and identifying and engaging leaders from both, the host and migrant communities. Orbis International spearheaded the collaborative platform for this migrant population health crisis and formed the 'Eye Health Forum of Cox's Bazar' that included the government, various UN agencies (UNHCR, WHO, IOM (International Organization for Migration), and UNICEF), and INGOs (Orbis, Seva, International Agency for the Prevention of Blindness (IAPB), the Fred Hollows Foundation, and the CBM). When this article was being written (July 2020), the Eye Health Forum had trained 800 medical and other professionals in eye health, screened 160,000 people, provided spectacles to 8370 people, and facilitated 3389 eye surgeries.

Globally, an estimated 65 million people are forcibly displaced from their homes. Developing countries host 86% of such displaced populations [60]. While this is a global tragedy calling for a political solution, experience in dealing with FDMNs in Bangladesh suggests that humanitarian efforts could be maximized by good collaboration and linkage between the Government, community, and INGOs. Additionally, an effective health model that basically consists of three phases: emergency phase, settlement phase, and (long-term) engagement phase must be put in place. Activities in the *Emergency phase,* include provision of emergency services when the displaced population is still moving and is dispersed; it is possibly the time for eye health scoping and positioning. In the *Settlement phase,* the moving population is mostly contained and settled in specific locations with a supply system of basic needs; this could be the right time for health intervention. Once this is done, a strategic, integrated, comprehensive, sustainable, inclusive eye care system could be planned for the *Engagement phase*. The lessons learned and evidence generated from this instance could guide policy makers in eye care and healthcare during similar human disasters.

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