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GLOBAL TRENDS

Challenges and Opportunities in the Implementation of the Sustainable Development Goals



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Abbreviations and Acronyms

AAAA	Addis Ababa Action Agenda
AfDB	African Development Bank
CBD	Convention on Biological Diversity
CIS	Commonwealth of Independent States
CRED	Centre for Research on the Epidemiology of Disasters
CSO	civil society organization
DAC	Development Assistance Committee
ECOSOC	United Nations Economic and Social Council
EDC	Education Development Center, Inc.
EIU	Economist Intelligence Unit
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
FfD3	Third International Conference on Financing for Development
GCEC	Global Commission on the Economy and Climate
GDP	gross domestic product
GNI	gross national income
HDI	Human Development Index
HIHK	Heidelberg Institute for International Conflict Research
ICNL	International Center for Not-for-Profit Law
IDMC	Internal Displacement Monitoring Centre
IDS	Institute of Development Studies
IEA	International Energy Agency
IEAG	United Nations Secretary-General's Independent Expert Advisory Group on a Data Revolution for Sustainable Development
IEP	Institute for Economics and Peace
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
ILO	International Labour Organization
IMF	International Monetary Fund
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change

ISSC	International Social Science Council
ITU	International Telecommunication Union
LDCs	least developed countries
LLDCs	landlocked developing countries
MDBs	multilateral development banks
MDGs	Millennium Development Goals
MPI	Multidimensional Poverty Index
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
OPHI	Oxford Poverty and Human Development Initiative
PPP	purchasing power parity
R&D	research and development
SDGs	Sustainable Development Goals
SIDS	small island developing states
SSDC	South-South development cooperation
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNAIDS	The Joint United Nations Programme on HIV/AIDS
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNGA	United Nations General Assembly
UN-Habitat	United Nations Human Settlements Programme
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UN-OHRLLS	United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small

	Island Developing States
UNRISD	United Nations Research Institute for Social Development
UNSG	United Nations Secretary-General
UNU-IHDP	United Nations University – International Human Dimensions Programme on Global Environmental Change
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
WEF	World Economic Forum
WFP	World Food Programme
WHO	World Health Organization

I. Introduction

In September 2015 the world's governments signed an historic agreement to eradicate poverty, improve the living standards and well-being of all people, promote peace and more inclusive societies and reverse the trend of environmental degradation. The 2030 Agenda for Sustainable Development commits to promoting development in a balanced way—economically, socially and environmentally—in all countries of the world, leaving no one behind and paying special attention to those people who are poorest or most excluded. It contains 17 Sustainable Development Goals (SDGs) with associated targets to assess progress.

The 2030 Agenda builds on earlier commitments, more recently the aspirations set out in the Millennium Development Goals (MDGs) and Millennium Declaration. In much of the period leading up to and through the MDGs' target date, and in many parts of the world, progress in several areas that are also reflected in the SDGs has been strong. This is especially the case for income poverty, access to education and health services, and improved sources of clean water. In other areas progress has been steady but less marked, including on gender equality, nutrition and access to sanitation facilities.

The SDGs are, however, universal, more ambitious and comprehensive. For example, the 2030 Agenda affirms explicitly with a dedicated goal that sustainable development requires building peaceful, just and inclusive societies. The SDGs aim at completing the unfinished business of the MDGs and also include targets on areas that have deteriorated or become more challenging since the turn of the century, including growing income disparities within countries, insecure and low-paid employment, climate change and environmental degradation.

While the future is impossible to predict, as the global economic and financial crisis and many disasters in the MDG era acutely illustrate, this report assesses recent trends in six critical areas that are either reflected directly in the SDGs or are so important that they are likely to condition the prospects for achieving all of the goals. These six “mega-trends” relate to poverty and inequalities, demography, environmental degradation and climate change, shocks and crises, development cooperation and financing for development, and technological innovation.

Positive developments in these areas will radically enhance the prospects for achievements of the entire Agenda. These will be more likely with collaboration and cooperation between countries, in addition to natural competition and innovation in the private sector.

Yet it is also possible that negative developments in some (or all) have the potential to derail the SDGs. Because we have no precise knowledge about what may happen, this points to the need for a sophisticated policy response of preparedness, investment and cooperation. This is explored in more detail in the report.

II. Global Trends

1. Poverty and Inequalities

Ending poverty and reducing inequalities are central to the 2030 Agenda for Sustainable Development, which sets forth an action plan for people, planet and prosperity with an overriding principle of “leaving no one behind”, while ensuring that the goals and targets are met for all countries and all people (UN 2015d).

This chapter provides a review of the major trends in multiple dimensions of poverty and inequality and discusses policy implications for implementing the SDGs. Relevant in this regard are SDG 1 that aims to end poverty in all its forms and SDG 10 that aspires to reduce inequalities both within and among countries.

1.1 Trends in income poverty

Income poverty has fallen sharply in some regions of the world in the past 20 years, although considerable challenges remain, with recent economic shocks and escalating conflicts leading to a resurgence of poverty across different regions and countries.

In developing regions, income poverty overall declined by more than two thirds, and the number of people living in extreme poverty, i.e. under US\$1.90 per capita per day,¹ around the world fell by more than half from 1.84 billion in 1990 to 767 million in 2013, or 10.7 percent of the global population (Table 1, Figure 1) (ILO 2016b; UN 2015b; World Bank 2016b).² Of these, the majority are children, constituting 385 million, while those aged 60 and above make up 44 million (UNICEF and World Bank Group 2016). People living in poverty also include those who reside in rural areas, work in agriculture, have no formal education and live in large families (World Bank 2016b).

Notable progress in reducing poverty has been seen in East Asia and the Pacific, as well as in South Asia, which has been largely attributed to the rapid economic growth of China and India (World Bank Group 2016). Poverty reduction in sub-Saharan Africa has been slower, with the poverty rate standing at 41 percent in 2013 compared with 54.3 percent in 1990 (World Bank 2016b). At the same time, despite considerable economic growth in the subcontinent, the absolute number of people living in extreme poverty rose from 276.1 million in 1990 to 388.7 million in 2013 (Ibid.), which can be attributed to the region’s rapid population growth (Beegle et al.

¹ In resolution A/RES/70/1 adopted by the United Nations General Assembly, “Transforming our world: the 2030 Agenda for Sustainable Development” (UN 2015d), global extreme poverty is measured as people living on less than US\$1.25 a day based on 2005 purchasing power parity (PPP). In 2016, the World Bank adopted an updated extreme poverty line of US\$1.90 a day using 2011 PPP, referring to it as the international poverty line (World Bank Group 2016). The current report uses the revised measurement of US\$1.90 for extreme poverty where data are available.

² The World Bank estimates of extreme poverty for 2013 do not include the Middle East and North Africa due to data coverage and quality problems. In fact, the number of poor globally more than doubles when the poverty line is raised to US\$3.10, which points to a high degree of vulnerability (ILO 2016b).

2016). Europe and Central Asia, and Latin America and the Caribbean, where poverty rates were already relatively low, managed to reduce them further during this period.

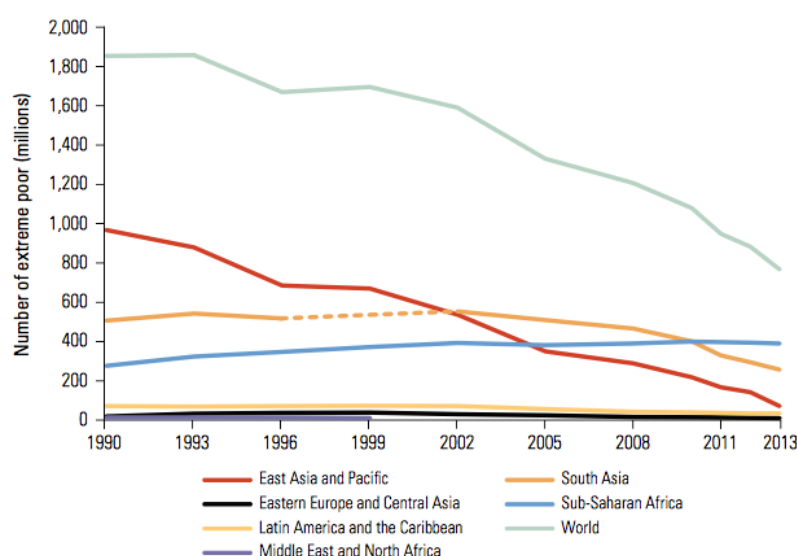
Table 1 Percentage of population living below US\$1.90 a day (2011 PPP) (%), 1990-2013

Region	1990	1999	2005	2010	2013
East Asia and Pacific	60.23	37.24	18.43	11.11	3.54
Europe and Central Asia	1.93	7.98	4.98	2.89	2.15
Latin America and the Caribbean	15.84	13.86	10.76	6.46	5.40
Middle East and North Africa	6.03	3.82	3.02	n/a	n/a
South Asia	44.58	n/a	33.64	24.58	15.09
Sub-Saharan Africa	54.28	57.12	50.04	45.68	40.99
World	34.82	28.02	20.45	15.55	10.67

Source: World Bank calculations from the PovcalNet database

(<http://iresearch.worldbank.org/PovcalNet/povDuplicateWB.aspx>).

Figure 1 Number of people living below US\$1.90 a day (2011 PPP), 1990-2013



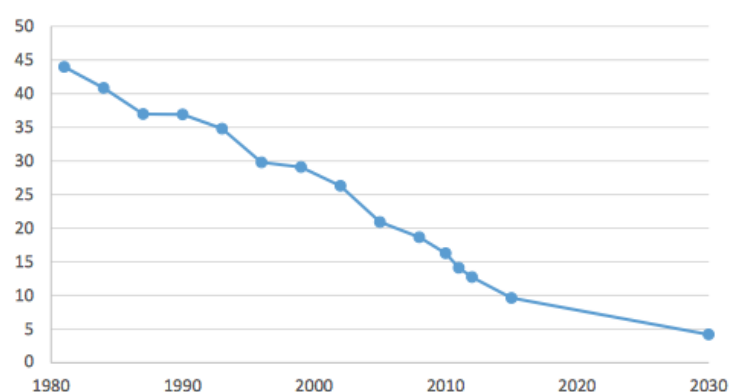
Note: Breaks in the South Asia trend is due to the lack of good-quality data. Source: World Bank estimates based on the PovcalNet database (<http://iresearch.worldbank.org/PovcalNet>).

However, some of these regions have observed a slowdown or reversal in the poverty reduction trend in recent years, including Africa, Latin America, South Asia and Western Asia (UN 2015c; UN DESA 2016d). For example, following the slowdown in the pace of poverty reduction after the 2008–2009 crisis, in 2015 Latin America and the Caribbean for the first time in decades saw a rise in the number of people living in poverty. In particular, the annual change in the region’s total population living in income poverty between 2003 and 2008 amounted to an average of 8 million people; between 2009 and 2014 it declined to under 5 million, while in 2015–2016 it is projected to increase to 2.8 million people, including those both rising from and sliding back into poverty (UNDP 2016b). This reversal trend can be explained by the negative impact of the economic slowdown on the labour market, fiscal policies and public transfers.

Within Europe and Central Asia, several countries, such as Russia, Belarus and the Kyrgyz Republic have seen the national poverty rates increasing in recent years (Dugarova 2016). In Russia, for example, while the official national poverty rate had been dropping steadily since 2000, reaching 11 percent in 2014, this trend has been reversed as a result of the recent economic recession, with 16 percent of Russians, some 23 million people, being officially considered poor in 2015 (Russian Federation, Federal State Statistics Service 2015).

Poverty scenarios depend on the assumptions on the pace and incidence of per capita household income (or consumption) growth over the next years (World Bank Group 2016). Eradicating poverty by 2030 is likely to be a challenge, particularly in sub-Saharan Africa, as the notable progress in poverty reduction during the MDG period, which was driven by rapid economic growth and supported by social investments, is at risk in view of uncertain economic prospects (Ibid.). For example, if one adopts a scenario that developing countries realize similar per capita growth rates as observed during the 10-year period 2004–2013, global poverty would decline by half compared with its value in 2013 but would still not be completely eliminated (Figure 2) (Ibid.).

Figure 2 Global extreme poverty 1980-2030 (% of population living on less than US\$1.90 a day)



Note: Numbers until 2012 are estimated and numbers for 2015 and 2030 are projections. Source: Gill, Revenga and Zeballos (2016); World Bank Group (2016b).

Many families and individuals may become “trapped” in poverty due to failures in economic policy and weak institutions and governance, as well as low levels of income, education and health. Despite the progress made, a large proportion of people living in poverty have limited access to social protection and basic services. The challenge here will be not only to provide resources and services needed to raise people above the poverty line, particularly those who are furthest behind, but also to ensure that they do not fall back and that they remain out of poverty, particularly in times of crises and shocks (Pedrajas and Choritz 2016; UN 2016b). Ending poverty is also complicated by labour market conditions such as the lack of sufficient productive and remunerative jobs, labour mobility and female labour force participation; demographic changes including, for example, shrinking population in Europe, ageing in some parts of Asia and increasing population in sub-Saharan Africa; and growing conflicts and insecurity (as will be discussed in chapter 2). Low incomes in particular will limit capacities of households to spend on food, health care and education. This can hinder progress on human capital development and productivity growth, which are critical imperatives for achieving sustainable development.

1.2 Multidimensional poverty

The 2030 Agenda aims to end poverty in all its forms everywhere. This implies going beyond income or consumption in defining poverty to consider multiple aspects of non-monetary deprivations related to health, education, nutrition, empowerment and security, among others.³ During the MDG period the world has seen significant progress in economic and human development. For example, between 1990 and 2014, global GDP per capita based on PPP increased by 62 percent in real terms (World Bank Group 2016). During the same period, the global Human Development Index (HDI) value increased by more than a quarter and the number of people living at a low human development level decreased from 3 billion to almost 1 billion (UNDP 2015a).⁴

Substantial gains have been made in various dimensions of poverty. The child mortality rate, for instance, dropped by 53 percent between 1990 and 2015, as the number of deaths of children under 5 declined from 12.7 million in 1990 to 5.9 million in 2015 (UN Inter-agency Group 2015). The maternal mortality ratio fell by nearly 44 percent over the past 25 years (WHO 2015b).

Advancements have also been made in education. The global adult literacy rate reached 85 percent in 2015 compared with 76 percent in 1990, and the youth literacy rate rose from 83 percent in 1990 to 91 percent in 2015 (UN 2015b). The primary school completion rate has also improved, increasing from 79 percent in 1990 to 91 percent in 2013 in developing countries as a whole (World Bank Group 2016). Furthermore, the number of out-of-school girls at the primary level has been reduced by half since 1999, and two thirds of developing countries have reached gender parity in primary education (World Bank Group 2015b).

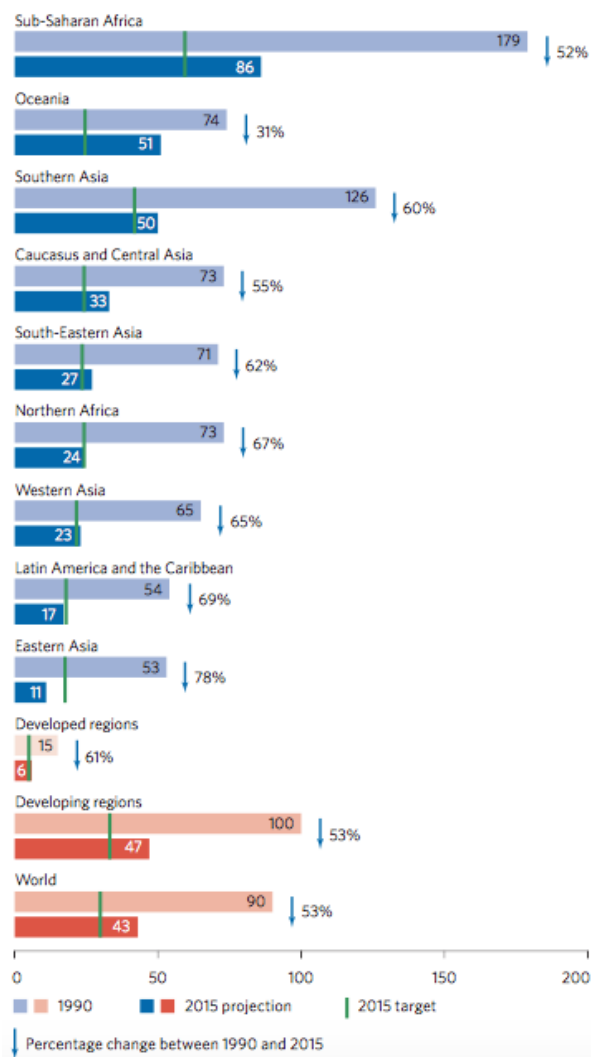
In addition to health and educational gains, more than 2.6 billion people have gained access to an improved source of drinking water and 2.1 billion people to better sanitation facilities since 1990 (UNDP 2015a).

Despite these gains, the progress has been uneven across regions, within countries, between urban and rural areas, and across households (UN 2015b; World Bank Group 2016). For example, in 2015 the child mortality rate was 11 deaths per 1,000 live births in Eastern Asia, which is in stark contrast to 86 in sub-Saharan Africa (Figure 3) (UN 2015b).

³ Income alone cannot capture the multidimensional nature of poverty (OPHI 2013). For instance, evidence around the world shows that levels and trends of income poverty are not highly correlated with trends in other aspects such as child mortality, primary school completion rates or undernourishment (Bourguignon et al. 2008).

⁴ One should be aware that this number may not reflect all deprivations that people experience (such as unpaid work), while the macro measures used to establish the HDI value may hide disparities at lower aggregate levels, which can be partly attributed to the fact that not all indicators are available for all countries (such as nutrition or access to electricity).

Figure 3 Under-5 mortality rate, 1990 and 2015 (deaths per 1,000 live births)



Source: UN (2015b).

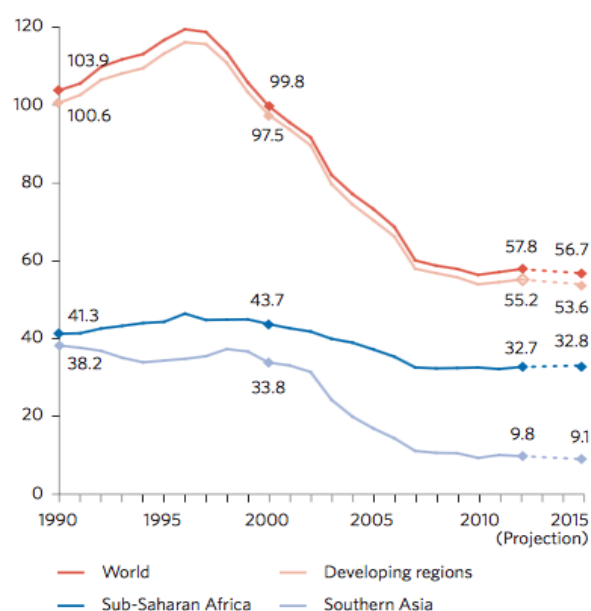
Sub-Saharan Africa also has the highest maternal mortality ratio, which stands at 546 deaths per 100,000 live births in 2015 (WHO 2015b), compared with the world average of 216 deaths and 12 deaths in developed countries (WHO 2016c). To achieve SDG target 3.1 of a global maternal mortality ratio below 70 per 100,000 live births by 2030, for instance, it will be necessary to reduce the global ratio by at least 7 percent annually (WHO 2016c). This will require more than three times the 2.3 percent annual rate of reduction observed globally between 1990 and 2015 (WHO 2015b). Most maternal and child deaths occur in low-resource contexts and can be prevented with improved nutrition, quality of and access to public health, and vaccination.

SDG 4 focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities. While opportunities for education have substantially expanded, this has sometimes come at the cost of quality. The quality and availability of teacher training, scarcity of textbooks and resources, and class size remain serious challenges affecting education quality, particularly in developing countries (UNESCO et al. 2015). In 2015, over 780 million adults lacked basic reading and writing skills, of whom nearly two thirds were women and 103 million were young people (UNDP

2015a; World Bank 2016b). Providing universal access to quality education for all, including for girls, as a foundation for eradicating poverty and fostering economic growth is thus critical for attaining sustainable development.

Furthermore, while the global number of out-of-school children has fallen considerably since 1990, an estimated 57 million children of primary school age are currently not in school, of whom 33 million are in sub-Saharan Africa (Figure 4) (UN 2015b). Girls in fact make up 53 percent of the global population of children out of school, with the largest gender gaps found in Northern and sub-Saharan Africa and Western and Southern Asia (UNESCO 2016). Children from marginalized backgrounds, including those from rural areas; ethnic, religious or linguistic minorities; children with disabilities; migrant children; as well as those affected by armed conflicts, face the greatest difficulty in accessing education. Unless measures are taken to address this issue, an estimated 43 percent of out-of-school children globally will never go to school (UN 2015b).

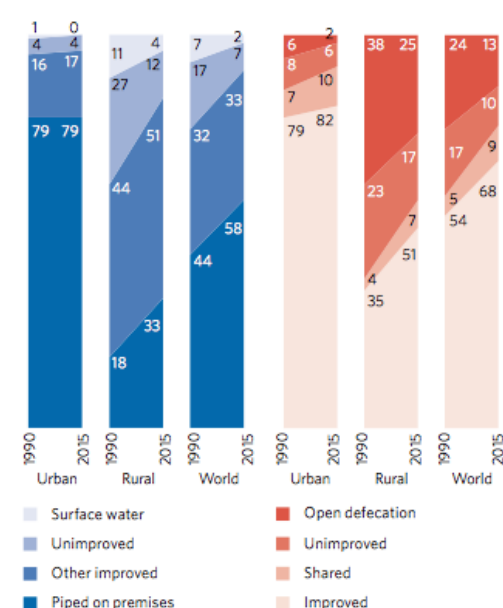
Figure 4 Number of out-of-school children of primary school age, selected regions, 1990-2015 (million)



Source: UN (2015b).

Deprivations and disparities are also found in the use of water and sanitation. For example, 16 percent of the rural population worldwide do not use improved drinking water sources, compared with 4 percent of the urban population (unimproved and surface water in Figure 5) (UN 2015b). Moreover, 49 percent of people living in rural areas lack improved sanitation facilities, compared with only 18 percent of people in urban areas (Figure 5) (Ibid.). Elimination of inequalities in accessing clean water and adequate sanitation, particularly for those living in rural areas, is essential for achieving the 2030 Agenda.

Figure 5 Proportion of population using improved and unimproved drinking water sources and sanitation facilities, urban, rural and world, 1990 and 2015 projection (percentage)



Note: Unimproved water in the figure includes surface and unimproved water. Unimproved sanitation includes open defecation, unimproved and shared facilities. Source: UN (2015b).

In fact, the Multidimensional Poverty Index (MPI), which measures the nature and magnitude of deprivations in health, education and living standards at the household level, counted 1.6 billion people living in multidimensional poverty in 2016, with 53 percent of these in South Asia and 32 percent in sub-Saharan Africa (Alkire and Robles 2016). This is nearly twice the number of people living in extreme poverty measured by income alone.⁵

1.3 Trends in income inequality

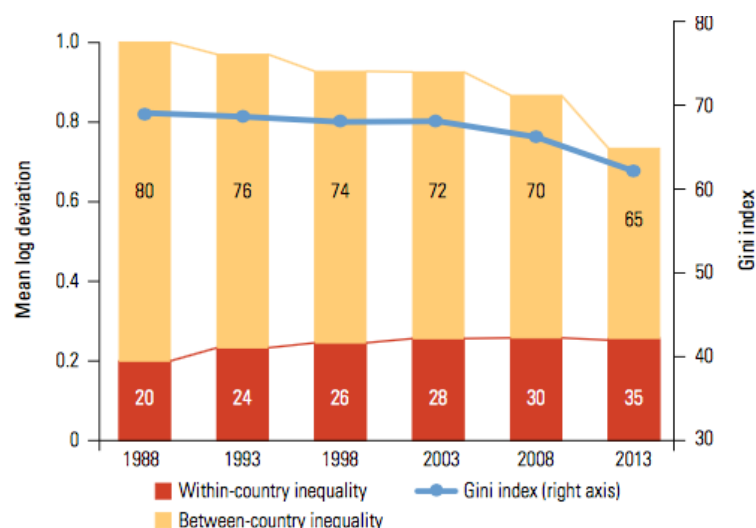
SDG 10 aims to reduce inequality within and among countries in all domains, including income.⁶ Evidence shows that income inequality globally has been falling over recent decades (Bourguignon 2015; Milanovic 2016; World Bank 2016b). This decline in global inequality has been attributed to a convergence of income between countries that was mainly spurred by the rapid growth and rising incomes in populous

⁵ The MPI also provides information about the intensity of poverty by assessing the situation of the poorest of the poor, also called “the destitute”. These people are deprived in at least one third of indicators used to identify the MPI poor. There are an estimated 736 million destitute people (in 82 countries for which data are available), with 58 percent of them in South Asia and 34 percent in sub-Saharan Africa (Alkire et al. 2015).

⁶ Three main types of income inequality can be distinguished: intra-country inequality (between individuals within one country), inter-country inequality (between countries) and global inequality (between all persons worldwide). When measuring intra-country and global inequality, one uses household surveys’ information on income or expenditure per capita, while the degree of inter-country inequality is established based on gross domestic product (GDP) or gross national product (GNP) per capita of the country (in the case of weighted inter-country inequality a country’s population size is also taken into account). For details about different concepts of inequalities see Milanovich (2005).

developing countries such as China and India (World Bank 2016b), as well as good economic performance in Latin America and Africa in the past 15 years (ISSC, IDS and UNESCO 2016). The estimates in Figure 6 show declining global inequality between 1988 and 2013. The Gini index of the global distribution (represented by the blue line) fell from 69.7 in 1988 to 62.5 in 2013, most markedly since 2008 (when the global Gini index was 66.8) (Word Bank 2016b).⁷

Figure 6 Global inequality, 1988-2013



Note: For each country, income or consumption per capita is obtained from household surveys and expressed in 2011 PPP exchange rates. Each country distribution is represented by 10 decile groups. The blue line shows the level of the global Gini index. The height of the bars indicates the level of global inequality as measured by GE(0) (the mean log deviation). In contrast to the Gini, GE(0) is a bottom-sensitive inequality measure that can be decomposed into within- and between-country components. The red bars indicate the level of population-weighted inequality within countries. The yellow bars show the level of inequality between countries. The numbers in the bars refer to the relative contributions (in %) of these two sources to total global inequality. Source: World Bank (2016b).

While inequality between countries has been declining, inequality within most countries, both developing and developed,⁸ has been rising (OECD 2011; UN DESA

⁷ If one decomposes global inequality into differences within and between countries, this helps one understand how much of the change in global inequality is explained by the reduction of income inequality between countries relative to the reduction of inequality within countries. The largest part of global inequality derives from income inequality between countries. The reduction in overall global inequality was mostly driven by a decline in this component, that is, average incomes among countries. As mentioned earlier, this reflects the increasing incomes in some large developing countries. These developments were counteracted to a certain extent by growing within-country inequality, especially in the 1990s. Between 2008 and 2013, within-country inequality stabilized or even decreased slightly, which, together with the strong convergence effect, led to a considerable decline in global inequality (World Bank 2016).

⁸ While there is no established convention for the designation of “developed” and “developing” countries in the United Nations system, for analytical purposes this report categorizes countries into two broad groups of “developed” and “developing” countries based on their basic economic conditions, where “developed” countries include Japan in Asia, Canada and the United States in Northern America, Australia and New Zealand in Oceania, as well as countries in Europe, and the rest are referred to as “developing” countries. It is recognized that certain countries (e.g. those in Eastern

2013; World Bank 2016b), reaching unprecedented levels in the post-World War II period (Ibid.). In particular, between the early 1990s and the late 2000s income inequality within countries rose on average in all regions of the developing world except for Africa and Latin America and the Caribbean (UNDP 2013c; World Bank 2016b). Increases in inequality within countries were observed in some parts of Europe and the Commonwealth of Independent States (CIS) (UNDP 2016c),⁹ as well as in Asia and the Pacific region, where inequality increased on average by 13 percent during this period (UNDP 2013c). The Arab States did not, overall, experience a significant change in income inequality (Ibid.).

By contrast, inequality within countries in Africa declined by 7 percent, and in Latin America by 5 percent (ILO et al. 2015; UNDP 2013c). The decrease in inequality in Latin American countries in the 2000s, particularly in Brazil and Argentina, can be mainly attributed to redistributive policies that entailed a more equal distribution of incomes and public transfers, labour market changes such as increased minimum wages, and progressive tax reforms (ISSC, IDS and UNESCO 2016; UNRISD 2016).

Despite this progress, levels of income inequality remain consistently higher in developing countries than in developed countries, most notably in Africa and Latin America (ISSC, IDS and UNESCO 2016; World Bank 2016b; World Bank Group 2016). Somewhat paradoxically, in spite of the decline in income inequality in these two regions, they have among the world's most unequal societies, in which new forms of inequalities have also emerged in recent decades (ISSC, IDS and UNESCO 2016). Latin America in particular remains the most unequal region in the world, with 10 of the 15 most unequal countries in the world being in this region in which Gini indexes are above or close to 50 (UNDP 2016b).

As the experience of various countries has shown, economic growth does not necessarily lead to lower income inequality within countries. The data analysis in Figures 7 and 8 shows that the Gini coefficient¹⁰ in developed countries such as Australia, Sweden and the United States and developing countries such as China,

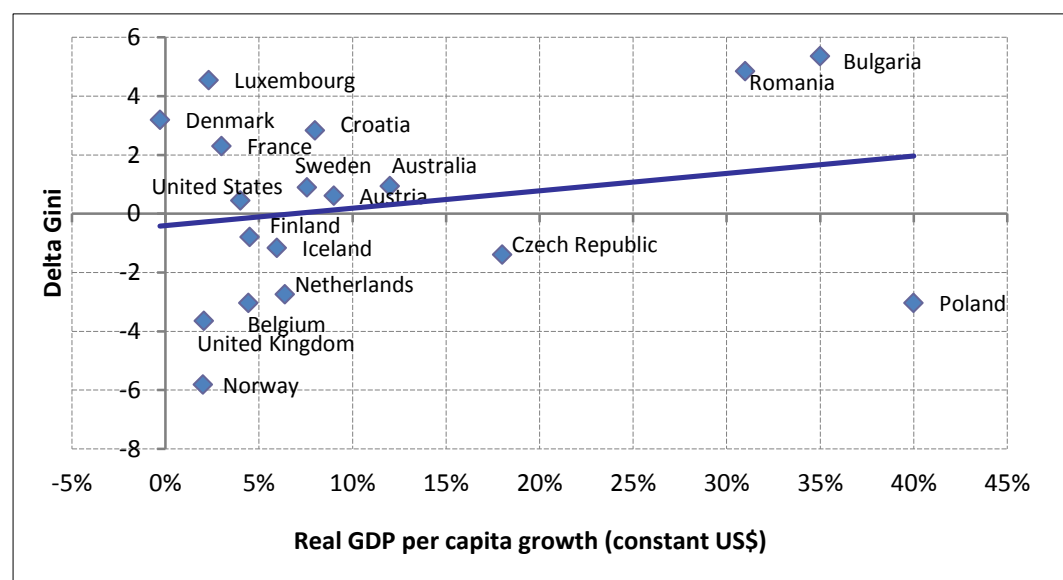
Europe) have characteristics that could place them in either of the categories. For more details on country classification see: <http://unstats.un.org/unsd/methods/m49/m49regin.htm#developed>; www.un.org/en/development/desa/policy/wesp/wesp_archive/2016wesp_stats_en.pdf (accessed 1 February 2017).

⁹ The findings of the UNDP (2016c) report show that, following increases during the 1990s, significant reductions, or low rates, of income inequality have been observed in most of the developing and transition economies of Europe and Central Asia. While this trend is at odds with many commonly accepted narratives that report rising income inequality in the region, what is important here is that those economies in the region that seem to have made progress in the reduction, or maintaining low levels, of income inequality are able to retain these achievements in the coming decades.

¹⁰ Other standard measures of income inequality include the quintile ratio (the ratio of the average income of the top 20 percent and the bottom 20 percent of the population) and the Palma ratio (the ratio of the income of the top 10 percent and the bottom 40 percent). The Palma ratio, for instance, addresses the Gini index's over-sensitivity to changes in the middle of the distribution and insensitivity to changes at the top and bottom (Atkinson 1970). Overall, the Palma's ranking of countries conforms to other measures of inequality, but trends can differ from changes in the Gini (Cobham and Sumner 2013). In particular, greater income equality is found in countries of Northern Europe such as Norway (0.9) and in some countries in Eastern Europe and Central Asia such as the Kyrgyz Republic (1.3), implying that there is less of a gap between the richest 10 percent and the poorest 40 percent, while countries that have the highest income inequality according to the Palma are those in Latin America and sub-Saharan Africa such as South Africa (8.0) (UNDP 2015a).

Costa Rica and Ethiopia increased during 2004–2012 in the former and during 1998–2012 in the latter despite economic growth.¹¹

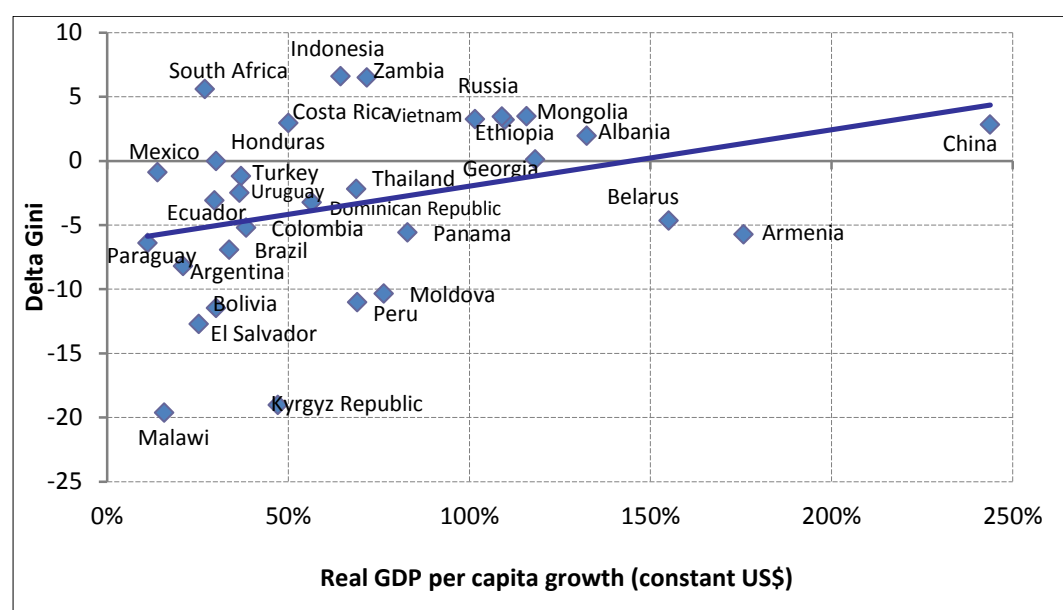
Figure 7 GDP per capita growth and income inequality changes in selected developed countries, 2004-2012



Note: The countries and years provided here are those for which data are available in the World Development Indicators database. Delta Gini corresponds to the difference of the Gini coefficients in 2012 and 2004. Real GDP per capita growth corresponds to the percentage change in GDP per capita (PPP 2011) from 2004 to 2012. Source: Authors' calculations based on the World Development Indicators database.

¹¹ Figures 7 and 8 present data on selected developed and developing countries that (i) saw a positive GDP per capita growth rate and (ii) had Gini data available during the specified period. For developing countries, the period covered is between 1998 and 2012 (or nearest available), while for developed countries, the period is covered between 2004 (as only a few of these countries had the Gini data for 1998 in the World Development Indicators database) and 2012 (or nearest available). During these periods, developed countries such as Bulgaria, Luxembourg and Romania saw the highest rise in the Gini coefficient, while among developing countries this was the case with Indonesia, South Africa and Zambia. At the same time, countries such as Norway, the United Kingdom, the Kyrgyz Republic and Malawi experienced the sharpest decline in income inequality during the specified periods. However, the Gini coefficient in Malawi, for example, is still very high compared with that in Sweden (43.9 vs. 25.0 in 2013: <http://hdr.undp.org/en/content/income-gini-coefficient>, accessed 1 February 2017). Furthermore, while income inequality declined in the United Kingdom in 2004–2012, it is projected to surge by 2030 following Brexit (Lawrence 2016).

Figure 8 GDP per capita growth and income inequality changes in selected developing countries, 1998-2012



Note: The countries and years provided here are those for which data are available in the World Development Indicators database. Delta Gini corresponds to the difference of the Gini coefficients in 2012 and 1998. Real GDP per capita growth corresponds to the percentage change in GDP per capita (PPP 2011) from 1998 to 2012. Source: Authors' calculations based on the World Development Indicators database.

Furthermore, the gap between the richest and poorest in the world has been widening (Hardoon 2017). In Brazil, for instance, while the income growth rate for the poorest 40 percent was more than twice that of the richest 5 percent between 2002 and 2011, the absolute difference between the average incomes of the poorest and richest in the same period more than doubled (Krozer 2015). At current growth rates, it would likely take more than 35 years for the gap between the average incomes of the poorest 40 percent and richest 5 percent to start closing in China, whereas in Brazil it would not start shrinking until 2080 (Ibid.).

The process of convergence between developed and developing countries has also led to the expansion of a global middle class,¹² which is expected to reach 4.9 billion—nearly 57 percent of the global population—in 2030, with 3.2 billion in Asia and the Pacific, mostly in China and India (Kharas 2010; UNDP 2015a). In fact, in 2015 the Chinese middle class for the first time outnumbered the American middle class and became the world's largest, counting 109 million adults compared with 92 million in the United States (Credit Suisse 2016).¹³

The developing world's middle class is likely to play a critical role in economic and social progress by driving consumption and domestic demand and accumulating

¹² Global middle class is defined as households with daily expenditure of US\$10–US\$100 per capita (in PPP terms) (Kharas and Gertz 2010).

¹³ In its report, Credit Suisse (2016) defines the middle class in terms of wealth rather than income. While the size of the middle class was larger in China than in the United States in 2015, in the latter it was nearly twice as wealthy, with the total wealth holdings of the middle class amounting to US\$16,845 billion in the United States compared with US\$7,342 billion in China.

human capital (OECD 2012). The situation is, however, complicated by the vulnerability of the middle class in both developed and developing countries because of the recent economic downturn and unemployment, and by the rising expectations of the expanding middle class in developing countries on the one hand and deteriorating living standards of the shrinking middle class in some developed countries on the other (ILO 2016b; OECD 2012). With some variation between countries, the struggle of the middle class to cope with the consequences of slower economic growth and wage uncertainty, along with significant cuts in social provision (Vaughan-Whitehead 2015), may lead to the weakening of middle-class societies (notably in developed countries) (ISSC, IDS and UNESCO 2016), and cause renewed risks of social unrest and discontent (ILO 2016b).

With regard to future trends in inequality, the falling global inequality observed in the first decade of the 2000s driven by a decline in inequality between countries might slow down, or possibly be reversed, if inequality within countries continues to rise (Bourguignon 2016).

If the growth slowdown in developing countries continues, it will likely delay further reductions in global inequality in view of the fact that the decline in global inequality observed in the past decades was largely possible because of the rapid growth in large developing countries, such as China. Commodity prices (for both commodity importers and exporters) also have an important impact on public revenues in many developing countries and the volatility in commodity prices can affect the funding available for equity-enhancing public investments in human capital. Climate change is also projected to have significant negative distributional and poverty effects both globally and within countries (World Bank 2016b). People living in poverty have lower quality assets and less access to protection mechanisms, and are more vulnerable to the negative effects of climate change on agricultural productivity, food prices, weather shocks and diseases (World Bank 2016b), as will be further discussed in chapter 3.

Experience from around the world has shown that economic growth has not necessarily translated into inclusive outcomes and shared prosperity and in some cases has even exacerbated poverty and inequality. In Peru, for example, despite economic growth and a significant reduction in extreme poverty, the income gap between indigenous and non-indigenous people has not changed over 10 years (Pasquier-Doumer 2016). In some resource-rich countries, exports of primary products, particularly those related to extractive industries, typically have limited spillover effects on the rest of the economy. As a result, their direct impact on poverty reduction remains modest, whereas the benefits are concentrated among small groups of people who are better placed to capture the gains (ILO 2016b). While growth is essential for reducing poverty, particularly for low-income countries, a critical linkage between economic growth and the reduction of poverty and inequalities is related to the nature and quality of growth (e.g. whether it is job rich or not) and how growth benefits are shared among all segments of the society.

1.4 Other dimensions of inequalities

Inequalities should not be understood narrowly in terms of income (or wealth). The distribution of income between individuals, i.e. vertical inequalities, is only one dimension. Inequalities can be found in social, political, cultural and environmental domains, and may relate to inequalities between groups that can be characterized by gender, class, race, ethnicity, age or religious affiliation, which intersect all groups. Such group-based, or horizontal, inequalities cut across income or wealth dimensions and generally reinforce each other.

One of the most challenging forms of inequality to tackle is gender disparity, which persists across the world. Although overall gender gaps in education, employment and political representation have narrowed globally, women continue to face disadvantages in access to work, economic assets and participation in private and public decision-making. For example, women have gained ground in parliamentary representation in nearly 90 percent of 174 countries over the past two decades, with the average proportion of women in parliament having nearly doubled during the same period (UN 2015b). Yet still only one in five members are women.

Inequality between women and men also persists in the labour market, in relation to opportunities, treatment and outcomes. Women are more likely to be unemployed than men, with the global unemployment rate being 5.8 percent for men and 6.7 percent for women in 2015 (UN 2016b). In the same year, the gender gap in the employment rate amounted to 25.5 percentage points in women's disfavour, which is only 0.6 percentage points less than in 1995 (ILO 2016a). In recent years the gender gaps in Western Europe have been declining, as women continue to enter the labour market in higher numbers but also as employment rates for men are declining due to the economic downturn, which is also the case in North America (ILO 2016a). Gender disparities are particularly evident in Western Asia and Northern Africa, where the female unemployment rate is almost double that of men (ILO 2016a; UN 2016b). Furthermore, as will be discussed in more detail in chapter 4, women are at a disadvantage in terms of wages and time spent on work, which derives from unequal responsibilities for care work or discriminatory practices that are embedded in labour market institutions (World Bank 2012).

The inequality of outcome in various material dimensions of well-being, such as the level of income, education or health, is closely related to the inequality of opportunity, such as unequal access to health care, education or employment. Equal outcomes cannot be achieved without equal opportunities, while equal opportunities cannot be achieved when people have unequal starting points (UNDP 2013c). Unequal access to quality education, health care and basic social services including water, sanitation and decent housing constitute significant barriers to achieving better development outcomes and result in widening social disparities. For example, where outcomes are highly unequal among parents, this can be transmitted to children, compromising the opportunities of the next generation (Espey et al. 2012). Evidence shows that differences in birth weight, determined largely by maternal nutrition and women's access to quality health care, are directly correlated with children's survival, stunting and educational achievements (Woodhead et al. 2009). To achieve sustained reduction in inequality, policy measures need to address inequalities of both opportunity and outcome. Achieving equal opportunities and equitable outcomes for

men and women in the labour market, for instance, will require public policies that counter all forms of discrimination (ECOSOC 2014).

Unless relevant policies to address various dimensions of inequalities are implemented, the level and nature of inequalities between and within countries are likely to constrain economic growth, impede poverty reduction and undermine social cohesion. In fact, there is a growing consensus that systemic inequality between identity groups may generate conflict, and evidence that countries with high levels of group-based inequalities are more likely to experience civil war (Østby 2016). Furthermore, recent research has shown that redistribution towards greater equality is not an impediment to economic growth (Ostry, Berg and Tsangarides 2014). High inequality reduces the impact of growth on poverty reduction, and with the higher level of inequality, it is more difficult to reduce poverty (ILO 2016b; Ravallion 2016). Conversely, if economic growth is accompanied by a reduction in inequality, growth has a stronger effect on poverty reduction (ISSC, IDS and UNESCO 2016; UNDP 2016c). Thus, tackling inequalities in their multiple dimensions is critical for progressing towards the implementation of the SDGs.

1.5 Political inequalities

An important dimension of inequalities that has implications for sustainable development is political inequalities, which entails disparities in the distribution of political opportunities and power among groups (Pedrajas and Choritz 2016). They also include inequalities in people's capabilities to participate politically, in human rights and the rule of law.

Rising inequalities, both vertical and horizontal, have fuelled discontent in many countries, leading to an upsurge in large-scale protests and social movements around the world in recent years, including in the Arab region (EIU 2017; ICNL 2016; Ortiz et al. 2013). These protests have taken place in a broader context of democratization that has accelerated over the past three decades in many parts of the world (EIU 2017), and has been accompanied by people's enhanced ability to voice opinions with greater possibilities for accountability at regional, national and local levels (UNDP 2010). Many people today live in democratic states, and decentralization has been increasing, notably in India and several Latin American countries (Ibid.).

While citizens' empowerment and participation has been growing, there has been deterioration in the quality of democracy in recent years, which is manifested in the failing traditional political party system, the growing disconnect between elites and ordinary people, and the rise of populist parties, notably in some advanced democracies (EIU 2017). Between 2006 and 2016, for example, almost half of the 167 countries covered by the Economist Intelligence Unit's Democracy Index registered a decline in their overall scores, with the biggest regressions observed in Eastern Europe, North America and Western Europe. In fact, the overwhelming demand of protesters in recent demonstrations has been not so much for economic justice per se, but for real democracy (Ortiz et al. 2013).

As mentioned in the previous section, despite the growing political participation of women, gaps between women and men persist in decision-making. Across all regions

women's representation in leadership positions falls short of the global 30 percent target endorsed by the United Nations Economic and Social Council (ECOSOC) in 1990 and reaffirmed in the Beijing Declaration and Platform for Action in 1995 (UNDP 2014a). The participation of women and men in formal and informal decision-making structures varies among countries, but is generally in favour of men. Discriminatory laws and practices, along with deeply entrenched social norms and unequal power relations, limit women's opportunities and abilities to participate in decision-making and hold back progress to achieve gender equality.

Despite the fact that international development institutions and frameworks now generally recognize the need for participation, in practice it is often reduced to consultations with selected stakeholders or other actors in positions of power (UNRISD 2010a, 2016). Many factors continue to constrain broad-based participation, and achievements in protecting human rights have been limited. Efforts of civil society are undermined by existing or new laws and regulations that narrow the civic space and restrict the abilities of CSOs (ICNL 2016). This mainly affects organizations that raise concerns with which governments disagree, seek human rights and good governance or attempt to exercise accountability, as opposed to those that prioritize charitable activities and deliver social welfare services (Firmin 2017).

SDG 16 aims at promoting peaceful and inclusive societies, ensuring access to justice for all and developing accountable institutions, while ensuring participatory and representative decision-making at all levels (target 16.7), among others. Enabling legal environments should be put in place to help ensure that CSOs can play a full range of roles to advance social change (Firmin 2017). At the same time, while the legal foundation is an important mechanism to ensure people's engagement in decisions that affect their lives, more effective approaches are needed to recognize the diversity, identities and abilities of local actors to participate in these processes and improve institutional arrangements that enable them to do so (Gaventa 2002). More collaborative and participatory processes can in turn facilitate the mobilization of resources at the local level, pool competencies and create synergies that otherwise might not exist (Dugarova 2015).

1.6 Policy implications for SDG implementation

A fundamental precondition for the reduction of poverty and inequalities is a pattern of economic growth that generates productive employment that can allow workers, including low-skilled workers, to maintain and expand their earning ability. Employment represents a crucial channel through which income derived from growth can be widely shared. Employment-intensive growth can have a strong multiplier effect on various goals and targets, including SDG 1 on poverty, SDG 8 on economic growth and decent work and SDG 10 on inequalities.

For sustainability, economic growth must also be "green", simultaneously creating employment and reducing negative environmental impacts. This requires profound changes in production and consumption patterns and energy use through legislation, regulation and public policies. Relevant in this regard could be "eco-social policies" that aim to shift behaviours or provide incentives for more sustainable environmental management or resource use, strengthening the resilience or adaptive capacities of

individuals and communities while also achieving social goals (Dugarova 2014; UNRISD 2012, 2016). These policies may involve support for environmentally cleaner energy and technology, the expansion of low-carbon service sectors, including energy-efficient public transport and housing systems, and community-based development that draws on the traditional knowledge and practices of small-scale farmers and indigenous peoples. Of particular note in this regard are conditional cash transfer programmes to reduce exploitation of resources in environmentally sensitive zones, such as Bolsa Verde in Brazil, employment schemes that rehabilitate environmentally degraded areas, such as the Mahatma Gandhi National Rural Employment Guarantee Act in India, and the use of fiscal savings from reduced fuel subsidies to expand social programmes, as seen in Ethiopia and Indonesia (UNRISD 2016).

Social policy that entails public interventions in education, health, employment and social protection also plays an important role in reducing poverty and inequalities. Recent social policy interventions in this regard include a considerable scaling up of cash transfer programmes in several countries, reforms in pension and healthcare provision and the introduction of child grants and public works programmes (UNRISD 2016). In Bolivia, for example, Renta Dignidad (a universal social pension for older persons), Bono Juancito Pinto (a cash transfer programme to enhance school access, attendance and completion) and Bono Juana Azurduy (a mother–child cash transfer programme) have helped to address entrenched inequalities and resulted in considerable poverty reduction (Paz Arauco and Daroca Oller forthcoming; Mendizabal and Escobar 2013).

In fact, a number of social policies are feasible and affordable even for countries at fairly low levels of income (UNRISD 2010a; World Bank 2016b). Evidence from across the world suggests that poverty levels are considerably reduced after social protection programmes have been implemented, with the most significant reductions occurring in countries with comprehensive social policies that aim at universal access and coverage in social protection, education, health care and other services. The Universal Coverage Scheme in Thailand, for example, has provided universal access to health care including general medical care, in-patient care and rehabilitation services, and in just 10 years it reduced the proportion of the population without health coverage from 30 percent to less than 4 percent (WHO 2010), with people living in poverty having benefited most. Another remarkable example is the experience of Rwanda, a post-conflict country that achieved substantial health gains from universal coverage, after the government formalized the right to health in the constitution and recognized that prosperity would not be possible without substantial investments in public health (Binagwaho et al. 2014). Other notable examples that contributed to the reduction of poverty and inequalities include Bolsa Família in Brazil, Prospera in Mexico and the Productive Safety Net Programme in Ethiopia. To ensure that no one is left behind, universal social policies need to be complemented by special or targeted measures to address the specific barriers faced by those who are at a high risk of exclusion (UN DESA 2016c). It is also essential that countries implement policies that are based on the norms of solidarity and reciprocity,¹⁴

¹⁴ Relevant policies here refer to the production of goods and services by enterprises that put social, and often environmental, objectives before profit, involve cooperative relations and forms of democratic management and espouse values of solidarity, reciprocity and caring (UNRISD 2016;

promote equality of both opportunities and outcome and ensure rights-based entitlements to social protection, while ensuring their fiscal sustainability.

To expand fiscal space and generate resources for social investments, countries can, for example, reallocate public expenditures (as in the case of Costa Rica and Thailand, which reallocated military expenditures for universal health); increase tax revenues, for instance, from natural resource extraction (as in Bolivia, Mongolia and Zambia, which are financing universal pensions, child benefits and other programmes from taxes on mining and gas) (Hujo, ed. 2012); expand social security coverage and contributory revenues (as in many countries in Latin America); or use fiscal reserves to support social development (as in the case of Venezuela, which has channelled its fiscal reserves in support of various development initiatives domestically and internationally) (Ortiz, Cummins and Karunanethy 2015).

Strategies for sustained reduction of poverty and inequalities should also aim to reinforce a more equal redistribution of resources, including income, and enhance the economic and political empowerment of disadvantaged and vulnerable groups. Brazil and India provide examples of institutionalizing citizens' participation through the constitution, which opens up space for people to participate in decision-making processes. Many governments have also used affirmative action policies to promote greater access of disadvantaged or underrepresented groups to public institutions. In Chile, for instance, people with disabilities receive 10 additional points when applying for public subsidies or housing programmes, while several countries in Latin America guarantee political representation by offering a number of seats in the national legislature on the basis of gender, race or ethnicity (Dani and de Haan 2008).

To address poverty and inequalities, it is also important to reduce women's burden of domestic and care-related work, as stated under SDG 5 on gender equality, through, for example, better developed care policies such as parental leave, improved infrastructure in rural areas and care services for children, the sick, disabled and older persons (UNRISD 2010b, 2016). A recently launched Costa Rican Care Network, for instance, aims to guarantee access to childcare services to all children up to 6 years old and ensure that the provision of these services will allow both parents to engage in paid work or education (UNRISD 2016).

Research suggests that achieving more inclusive and sustainable outcomes depends not only on economic and political structures, but also on social attitudes, norms and values (ISSC, IDS and UNESCO 2016; UN DESA 2016c). Policy pathways towards ending poverty and inequalities may thus require shifts in these complex areas taking into account context-specific historical legacies and deep-rooted cultural practices

Utting, ed. 2015). Useful in this regard are concepts such as *Buen Vivir* and happiness that are gaining currency in international development discourse (Helliwell, Layard and Sachs, eds. 2015). Such perspectives uphold values and lifestyles associated with non-conspicuous consumption, living in harmony with both people and the environment and enhancing people's sense of purpose and belonging (Dugarova 2015). For example, small-scale farmer communities in the Mazowe district in Zimbabwe established health, farm and irrigation committees that served as a valuable asset in the livelihood strategies of farmers through maintaining order at the farm level and the provision of social services. Such institutions embody social capital associated with interaction, reciprocity and collective action, which strengthen links between people in a community (Chiweshe 2014).

(Bangura 2015). While changing the norms that underpin unequal power relations is often a long-term process, concerted effort and political will would make this transformation possible (UN DESA 2016c).

Implementation of the 2030 Agenda also requires improved global, regional and national governance. To ensure real inclusion, it is important to go beyond merely giving a voice at the table to disadvantaged individuals or groups and provide meaningful options for participation and political empowerment (UNRISD 2010a; 2016). This involves strengthening people's capacity to influence decision-making processes and exercise their claims on external actors and institutions that affect their lives (Dugarova 2015).

2. Demography

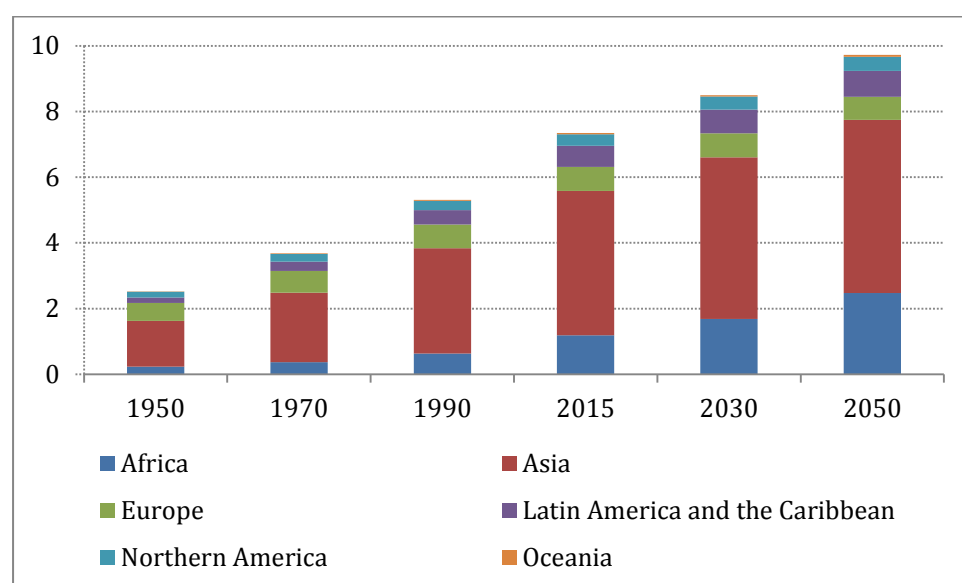
Demographic dynamics, including population growth, ageing, migration and urbanization, affect virtually all development objectives across social, economic and environmental dimensions within the 2030 Agenda. This chapter presents key demographic trends and outlines policy suggestions for addressing challenges and seizing opportunities towards more sustainable development pathways.

2.1 Trends in population growth

In 2015, the world population reached 7.3 billion, having increased from 5.3 billion in 1990, with the largest share being in Asia (60 percent), followed by Africa (16 percent) and Europe (10 percent) (Figure 9) (UN DESA 2015f).

Compared with the recent past, the world population growth rate has slowed down. While 10 years ago the global population was growing by 1.24 percent per year, today it is growing by 1.18 percent per year, or approximately an additional 83 million people annually (Ibid.). With this population growth rate, the world population is projected to increase by more than 1 billion people within the next 15 years, reaching 8.5 billion in 2030 (Ibid.). Africa and Asia are expected to be the largest contributors to the size and distribution of the world's population in the coming decades, while population in Europe is projected to shrink (Ibid.). Among the top countries where the world's population growth is likely to be concentrated are India and Nigeria (Ibid.).

Figure 9 Population of the world and major regions (billion): 1950–2015, 2030 and 2050 according to medium-variant projection



Source: UN DESA (2015f).

2.2 Trends in ageing

The direction and pace of demographic change vary significantly around the world, with disparities found between high-income and middle-income countries, which are generally marked by rapid ageing, and low-income countries, many of which are characterized by high fertility (World Bank Group 2016).

Population ageing has been shaped by a steady decline in fertility rates and a rapid improvement in life expectancy. Global fertility was more than five births per woman in the 1950s, but it has steadily declined since then, falling to 2.5 children per woman in 2010–2015, and is projected to drop further to 2.4 in 2025–2030 (UN DESA 2015f). Large variations exist in fertility levels at the regional and country levels. In low-fertility countries such as Brazil, China¹⁵ and the United States, women have fewer than two children on average. In countries with “intermediate fertility”, such as India, Indonesia and Pakistan, women have on average between two and five children, while in high-fertility countries, including Congo, Nigeria and Tanzania, the average woman has five or more children over her lifetime (Ibid.).

Over the past few decades, considerable gains have been made in average life expectancy at birth, which globally rose from 47 years in 1950 to 72 years in 2015, and is projected to reach 77 years in 2045–2050 (Ibid.). At the regional level, while the greatest increases in life expectancy were observed in Africa, it still has the lowest level of life expectancy, amounting to 61 years in 2015. This is in contrast to 72 years in Asia, 75 years in Latin America and the Caribbean, 77 years in Europe and

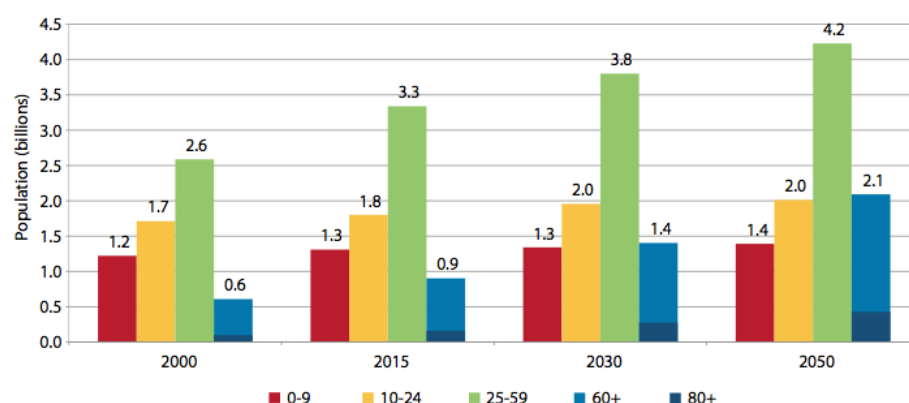
¹⁵ In 2016, a new two-child policy came into effect in China that is aimed at addressing the country’s rapidly ageing population and severe gender imbalance. However, with the costs of raising a child increasing, the effect of this policy on the nation’s demography remains to be seen.

Oceania, and 79 years in Northern America (UN DESA 2015e; World Bank Group 2016). By 2050, further improvements are expected to occur in life expectancy, which is projected to surpass 80 years in Europe, Latin America and the Caribbean, Northern America and Oceania, and will approach 79 years in Asia and 70 years in Africa (UN DESA 2015e). However, these improvements are expected to take place at a lower rate than in the past (World Bank Group 2016). In high-income countries, for instance, this could be largely attributed to increased mortality from cancer and cardiovascular and respiratory diseases (Crimmins et al. 2011; de Beer 2006). Furthermore, while medical advances may contribute to a further rise in life expectancy, unhealthy life styles, including smoking, poor diet, physical inactivity and excessive alcohol consumption, may have a restraining effect.

As fertility declines and life expectancy rises, the proportion of the population aged 60 or over increases (Figure 10). In 2015, there were 901 million people aged 60 or over, comprising 12 percent of the global population (UN DESA 2015f). While the Asia-Pacific region has the world's largest number of people aged 60 or over (7 percent, or 508 million), Europe has the largest percentage of its population of this age (24 percent, or 177 million). In the coming years, rapid ageing will occur in many parts of the world, with older persons expected to account for more than 25 percent of the population in Europe and Northern America, 20 percent in Oceania and 17 percent in Asia and in Latin America and the Caribbean, as opposed to only 6 percent in Africa by 2030 (UN DESA 2015e).

At the same time, in some parts of the world, notably Africa, populations are still young, which provides an opportunity for a demographic dividend and enhanced economic productivity. For example, children in Africa accounted for 41 percent of the population in 2015, and young persons aged 15 to 24 make up a further 19 percent (UN DESA 2015f). Many countries in Africa, especially in its western and central parts, are yet to progress through the demographic transition and achieve reduced fertility, as well as reduced mortality, particularly among infants and children. Latin America and the Caribbean also have quite a high proportion of young people in the population, with 26 percent children and 17 percent youth, as has Asia, with 24 percent children and 16 percent youth (Ibid.).

Figure 10 Global population by broad age group, 2000-2050



Source: UN DESA (2015e).

2.3 Trends in migration

The world is living in an era of unprecedented human mobility, in which international migration has reached record levels (IOM 2015). The 2030 Agenda sees international migration as a multidimensional reality that is of major relevance for the development of countries of origin, transit and destination, and recognizes the positive contribution of migrants for inclusive growth and sustainable development. While today it has become easier, faster and more affordable for people to move, factors such as poverty, inequality, lack of decent jobs, conflicts and natural hazards compel people to leave their homes in search of better lives for themselves and their families (UN DESA 2016b; UNDP 2009).

Well-managed migration brings profound benefits to both receiving and sending countries. In 2014, for example, migrants from developing countries sent home an estimated US\$436 billion in remittances, far exceeding official development assistance (ODA) and, excluding China, foreign direct investment (FDI) (World Bank 2015). These funds are often used to improve the livelihoods of families and communities through investments in education, health, housing and infrastructure. The impacts can also be seen in the skills, knowledge and networks that returning migrants can bring to their home countries. Countries of destination in turn can benefit from migrants, who often fill critical labour shortages, create jobs as entrepreneurs, contribute in terms of taxes and provide care services. The presence of young migrants can increase the working-age population and reduce dependency ratios, thus contributing to overcoming ageing challenges (IMF 2016d). As some of the most dynamic members of society, migrants can also forge new paths in science and technology and enrich their host communities by promoting cultural diversity (UN DESA 2016b).

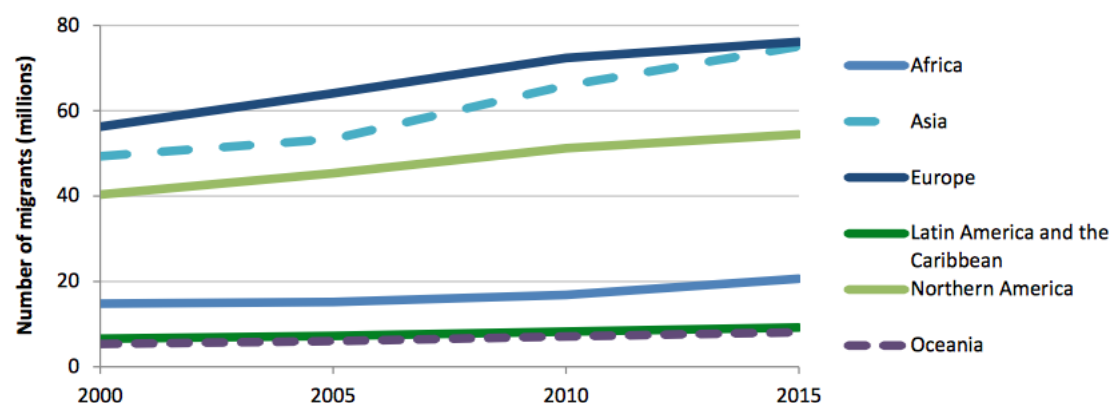
Despite many benefits, poorly governed migration can lead to exclusion, crime and insecurity, encourage smuggling and human trafficking, and cause violence and social unrest, as observed, for example, in Europe amid its ongoing “migration crisis”. Migrants often remain among the most vulnerable groups, experiencing discrimination, exploitation and human rights violations (UN DESA 2016b). Temporary and irregular workers in particular face systemic disadvantages, making it difficult or impossible for them to access local services on equal terms with local people. The distribution of gains from movement can be restricted not only by vast inequalities but also by policy barriers, which can normally be overcome by those who have enough resources and possess necessary skills (UNDP 2009).

The data show that in 2015, the number of international migrants worldwide reached 244 million, an increase of 71 million, or 41 percent, compared with 2000 (UN DESA 2015a).¹⁶ This constitutes 3.3 percent of the global population in 2015. Nearly two thirds of all international migrants live in Europe (76 million) or Asia (75 million), followed by Northern America (54 million) (Figure 11) (UN DESA 2015a, 2015c). In 2015, 72 percent of all international migrants were between the ages of 20 and 64

¹⁶ Estimation of the number of migrants, whether international or internal, should be treated with caution. A lot of data are still missing and many people, including migrants, go uncounted. Making accurate predictions about future migrant flows is further complicated by demographic trends, conflicts and extreme weather events.

(UNGA 2016b), which reflects the interlinkage between migration and labour market activity. In fact, when grouping countries by income rather than geography, high-income countries are found to have received 172.6 million migrants in 2015 (which is nearly twice the 1990 number), compared with 61.4 million in middle-income countries and 9.2 million in low-income countries in 2015 (UN DESA 2015a).

Figure 11 Number of international migrants by major area of destination, 2000-2015



Source: UN DESA (2015c).

International migration is likely to increase further due to continued economic inequalities between countries, persistent poverty, rising conflicts and violence, demographic trends, climate change and environmental degradation. By 2050, the number of international migrants could reach 320 million if their proportion in the total population remains constant (UNGA 2016a). With the growing flows of migrants, the implementation of well-managed migration policies will be critical for achieving inclusive and sustainable development, as indicated by target 10.7 under SDG 10 on inequalities. This will also require respecting labour rights of migrant workers, as stated in target 8.8, as well as providing legal identity for all, as contained in target 16.9.

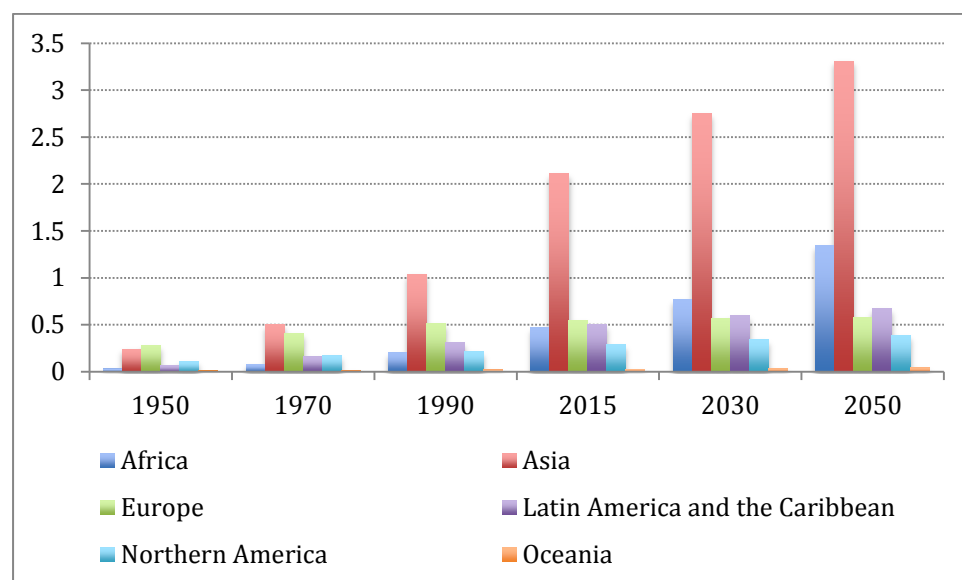
2.4 Trends in urbanization

Along with international migration, internal migration is also growing, driving much of the rise of megacities¹⁷ and the rapid increase in urbanization (Figure 12). The number of megacities, for instance, nearly tripled to 28 today from 10 in 1990; they have 453 million inhabitants, accounting for 12 percent of the world's urban dwellers (IOM 2015). While large cities are in certain ways the leading edge of urbanization due to their economic importance, the fastest growing urban centres are in fact small and medium cities with fewer than 1 million inhabitants, which account for 59 percent of the world's urban population (UN-Habitat 2016). Due to demographic shifts, slow and uneven economic growth within and among nations, and environmental degradation, increased large-scale migration to urban centres is expected to continue (IOM 2015).

¹⁷ Megacities are defined as having 10 million or more inhabitants.

Globally, the share of the world's population residing in urban areas increased from 30 percent (746 million) in 1950 to 55 percent (4 billion people) in 2015, and is projected to reach 60 percent (5.1 billion) by 2030 (UN DESA 2015b).

Figure 12 Urban population by region, 1950-2050 (billion)

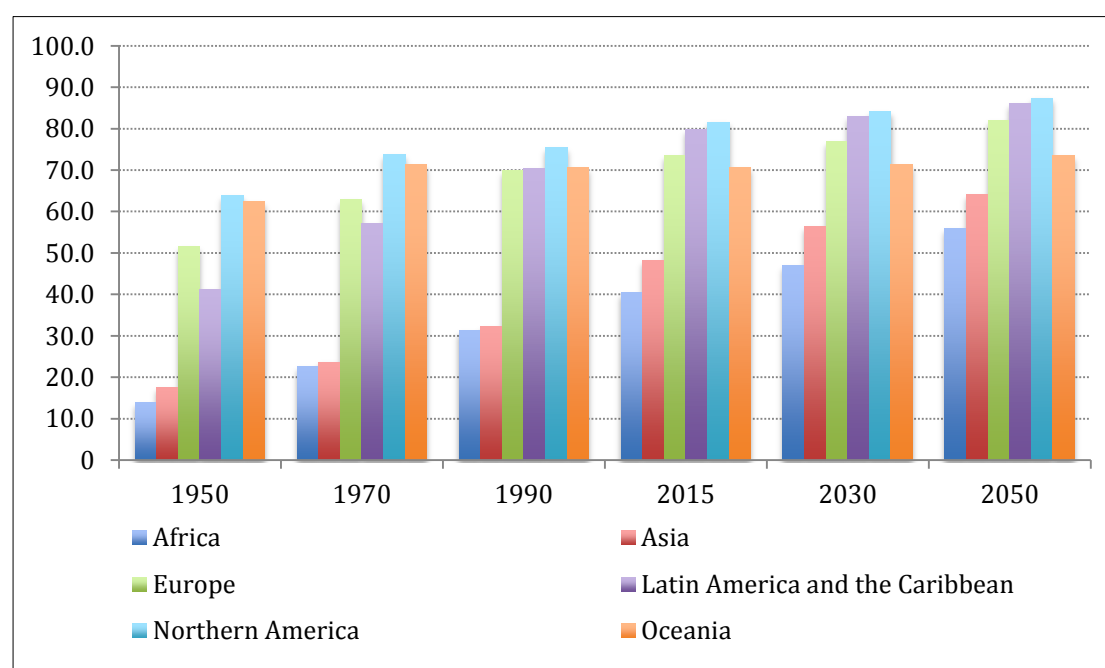


Source: UN DESA (2014).

The most urbanized regions today are Northern America (82 percent living in urban areas), Latin America and the Caribbean (80 percent) and Europe (73 percent) (Figure 13). In contrast, Africa and Asia remain mostly rural, with 40 and 48 percent of their respective populations living in urban areas (UN DESA 2015b). However, these two regions are expected to see the largest and fastest growth of their urban population in the next decades (UN DESA 2014, 2015b), with China, India and Nigeria accounting for over one third of global urban population growth between now and 2050 (UNOCHA 2016b). By 2030, Africa and Asia are projected to become 47 and 56 percent urban, respectively (UN DESA 2015b). Other regions are expected to urbanize further, albeit at a slower pace, with Europe experiencing the weakest urban population growth during this period (UN DESA 2014).

Making human settlements inclusive, safe and resilient lies at the core of SDG 11, which recognizes the crucial role that cities play in sustainable development. Urbanization presents both significant opportunities and enormous challenges, which need to be addressed in the implementation of the 2030 Agenda. On the one hand, urbanization fosters growth, with cities accounting for more than 80 percent of global GDP (UN-Habitat 2016). Urban areas are generally associated with greater productivity due to agglomeration economies, more opportunities, including in employment, and higher quality of life (UN DESA 2014). Among African countries, for example, urban employment grew by an average of 6.8 percent over the last decade, which is more than twice the national rate of 3.3 percent (Turok 2012). Over recent decades, cities have also emerged as the world's economic platforms for innovation, with information and communications technologies promoting efficiencies in urban infrastructure leading to lower cost city services (UN-Habitat 2016).

Figure 13 Percentage of urban population by region, 1950-2050



Source: UN DESA (2014).

On the other hand, urbanization poses many challenges, which include growing inequality and exclusion, concerns about safety and security, changes in family patterns, informal jobs and settlements, provision of affordable and quality services, including adequate housing, and environmental risks. In Latin America, for example, a correlation was found between urbanization and rising crime where municipal institutions were unable to meet the needs of marginalized groups (UNDP 2013a). One of the biggest challenges facing developing countries in the coming decades is the rapid growth of urban populations in the context of urban poverty, which can be reinforced by unemployment, social tensions and disparities, as well as health issues associated with pollution. As urban populations have grown faster than has improvement of housing and infrastructure facilities, the number of slum dwellers has continued to rise, with the absolute number of slum dwellers in developing regions reaching 880 million in 2014 compared with 690 million in 1990 (UN 2015b). In 2014, more than half of urban dwellers lived in slum conditions in 41 countries, of which 83 percent are projected to see the urban population grow by at least 50 percent over the next 15 years (UN DESA 2015b).

In 2016 at Habitat-III, the United Nations (UN) Member States adopted the New Urban Agenda, which sets a new global standard for sustainable and inclusive urban development and represents a roadmap for building cities that can serve as both engines of prosperity and centres of cultural and social well-being while protecting the environment. The main challenge of the Agenda is to ensure that necessary rules and regulations are implemented, urban planning and design within an adequate financing framework are integrated, and cooperation at all levels, including local communities and civil society, is facilitated. Realizing the gains of urbanization also depends on how urban growth is managed, and the extent to which the benefits of urbanization are equitably distributed (UN-Habitat 2016). Moving from sectoral

interventions to strategic urban planning and more comprehensive urban policy platforms will be critical in transforming cities. To achieve SDG 11 on inclusive, safe and resilient cities and communities, mitigation measures to address all these challenges of urbanization, along with the provision of housing, infrastructure and other social services, need to be accelerated. Access to and the use of new technologies related, for example, to transport, energy and communication should also be ensured for sustainable urban development.

2.5 Impacts of demographic trends on achieving the SDGs

It is certain that global demographic trends, including changes in population size, age structures and population movement that will unfold over the next 15 years will have important implications for achieving the SDGs. These are related to economic growth, poverty and inequalities within and between countries, production and consumption patterns, and the use of natural resources and ecosystems, as well as social and cultural interactions.

Some regions and countries, including those in Asia, Europe, Northern America and Latin America, for instance, need to address respective challenges arising from rapid population ageing and shrinking labour forces by strengthening their social protection systems, including pensions (Hujo, ed. 2014). In high-income countries, where improvements in life expectancy are expected to slow down, policies may focus on ensuring universal access to quality healthcare services that include prevention, cure and care, as well as improvements in health-related behaviours (Crimmins et al. 2011).

Regions and countries with growing populations in Africa and Asia will face the challenge of providing quality social services, including health and education, as well as decent employment opportunities. Developing countries with a young population need to convert a demographic opportunity into a demographic dividend by investing in human capital development and promoting job creation. To achieve SDG 3 on healthy lives, it is essential to improve reproductive healthcare services and family planning, particularly in least developed countries (LDCs), so that women and couples can attain their desired family size. Furthermore, in order to fully realize a demographic dividend, it is essential to bring more women into the workforce, ensuring equal rights and safety and security at work, as suggested by SDG 5 on gender equality.

In view of the increasing dynamics between populations within and across borders, the question relevant to achieving the SDGs is whether the unit of measurement is a country or transnational communities.¹⁸ The challenge for policymakers here may be related to looking beyond national borders in analysing the scope, purpose and impact

¹⁸ Transnational communities can be understood as social groups that emerge from mutual interaction across national boundaries and are oriented around a common activity or identity (Djelic and Quack 2010). Historical examples of transnational communities include international cartels, merchant leagues and migrant communities. Modern transnational communities are often based on shared interests and causes such as those structured around financial, governance, labour or environmental standards.

of their policies, whether related to migration, economy, trade or climate change. Cross-border connections between societies resulting from population movements require the formulation and implementation of appropriate policy interventions, which will likely hold implications beyond the domestic sphere. These policy interventions could address the linkages between countries arising from transnational activities and practices by individuals and groups in a comprehensive way to encompass a range of issues, including access to social services and the labour market, while taking into consideration human rights and social integration (IOM 2010). Pertinent to measuring the SDGs in this regard is target 17.18 under SDG 17 on means of implementation, which calls for data disaggregation by migratory status, which will facilitate the comparative assessment of populations within and between national contexts.

3. Environmental Degradation and Climate Change

The rapid—albeit uneven—economic growth and social progress seen over the last decades have been accompanied by mounting environmental pressures and reduction of natural resources. Between 1990 and 2010, for instance, natural capital, i.e. the global stock of natural resources and assets, declined in 116 of the 140 countries with available data (UNU-IHDP and UNEP 2014).¹⁹ Some of the main underlying factors behind environmental degradation include population growth, polluting technologies, and overexploitation of ecosystems driven by unsustainable consumption and production patterns (UNEP 2015b). The growing global middle class with higher consumption levels, as discussed in chapter 1, as well as urbanization dynamics, put pressure on agriculture and industry needs. Given the current resource and energy intensity of production, these activities result in resource depletion along with environmental degradation and climate change (UNEP 2015b). The accelerated climate change, in turn, further exacerbates the damage to ecosystems and harmful effects on human livelihoods.²⁰

It is now widely recognized that the causes of environmental degradation and climate change—and their potential solutions—are essentially linked to human activity (IPCC 2015). The impact of human activity on the environment and the climate is one of the megatrends that will shape future trajectories of—and can potentially undermine—progress on sustainable development, including on eradicating poverty and reducing inequalities. Recognizing this, the 2030 Agenda sees climate change as a cross-cutting

¹⁹ The analysis of natural capital here includes fossil fuels, minerals, forest resources and agricultural land, but not fisheries, water accounts and several ecosystem services, such as estuarine and coastal ecological systems, due to data issues (UNU-IHDP and UNEP 2014).

²⁰ A relevant concept here is that of “planetary boundaries” (Rockström et al. 2009), which entails “a safe operating space for humanity that carries a low likelihood of harming the life support systems on Earth to such an extent that they no longer are able to support economic growth and human development” (Rockström et al. 2013, p. 3). It includes nine global system issues such as climate change, biodiversity loss, biogeochemical cycles, freshwater use, land system change, ocean acidification, stratospheric ozone, chemical pollution and atmospheric aerosol loading. As a result of human activity, four planetary boundaries have already been crossed: climate change, biodiversity loss (e.g. species extinction), land system change (e.g. deforestation) and altered biogeochemical cycles (Steffen et al. 2015). The key message here is that living on Earth is dependent on a basic life-support system in which these nine boundaries play a critical role, and, if crossed, they could generate irreversible environmental changes.

issue and includes important commitments related to environmental sustainability that feature in five dedicated SDGs²¹ as well as in targets related to several other goals.²² Furthermore, the adoption of the Paris Agreement (UNFCCC 2015), the first universal binding global climate agreement, in 2015 by 195 Member States of the UN presents an important call for action towards a low-carbon economy and shows the commitment of countries to reduce greenhouse gas emissions and support adaptation efforts.

3.1 Major environmental trends

Among major environmental issues that the world is facing in the coming decades are degradation of air and land, water scarcity, deforestation, marine pollution and a decline in biodiversity, to name a few. In particular, industrial activities and growing urbanization have led to the deterioration of air quality in many places around the world, with 92 percent of the global population living in places where air pollution exceeds WHO limits.²³ This negatively affects ecosystems and has adverse health impacts on people. For example, outdoor and indoor pollution causes multiple illnesses, including heart diseases, respiratory infections and lung cancer, accounting for 6.5 million premature deaths annually worldwide,²⁴ more than half of which occur in China and India (Brauer et al. 2016). Unless new policies are adopted, premature mortality is projected to double by 2050 due to air pollutants alone, such as fine particulate matter (PM_{2.5}) and ozone (O₃) (Lelieveld et al. 2015).

Increasing pollution, overpopulation, human activity and climate-related changes lead to the deterioration and depletion of available water sources, which together with poor water resource management cause water scarcity. In particular, over the past 50 years, global groundwater withdrawals have tripled, with agriculture accounting for the majority of the global water footprint (UNEP 2012). It is further estimated that around 20 percent of global grain production uses water unsustainably, which also endangers future agricultural growth (UNDP 2011). There is also a serious shortage of clean drinking water. According to the latest data, while the proportion of the global population using an improved drinking water source increased from 76 percent to 91 percent between 1990 and 2015, 663 million people still lack access to an improved source today and over 1.8 billion people drink contaminated water (UNICEF and WHO 2015). Contaminated drinking water can transmit diseases such as diarrhoea, cholera and polio, with diarrhoea alone causing 502 thousand deaths each year globally and constituting one of the leading causes of death among children under 5 years old. Water scarcity is likely to rise, with an estimated half of the world's population projected to live in water-stressed areas by 2025 (Ibid.).

²¹ SDGs 6 (clean water and sanitation), 12 (responsible consumption and production), 13 (climate action), 14 (life below water) and 15 (life on land).

²² SDGs 2 (zero hunger), 7 (affordable and clean energy), 8 (decent work and economic growth), 9 (industry, innovation and infrastructure) and 11 (sustainable cities and communities) also have targets related to environmental sustainability. For instance, target 2.4 is related to sustainable food production systems and resilient agricultural practices that not only increase productivity and production but also help maintain ecosystems and strengthen capacity for adaptation to climate change.

²³ WHO limits for annual mean of PM_{2.5} are 10 µg/m³ annual mean: www.who.int/mediacentre/news/releases/2016/air-pollution-estimates/en/ (accessed 1 February 2017).

²⁴ Ibid.

Land degradation is another major source of environmental stress that has direct implications for agricultural productivity and food security, affecting 1.5 billion people globally.²⁵ Moreover, due to unsustainable land use and extreme weather events, desertification is on the rise, which threatens the livelihoods of 2 billion people living in dryland areas, of whom 90 percent are in developing countries.²⁶ If not harnessed effectively, land degradation may reduce global food production by up to 12 percent in the next two decades resulting in an increase of up to 30 percent in world food prices.

One of the factors that contribute to land degradation, as well as climate change, is deforestation.²⁷ As the global population increases and forest land is converted to agriculture and other uses,²⁸ the world's forests continue to shrink, which causes loss of habitat for millions of species and affects the livelihoods of 1.6 billion people who rely on forest benefits, including food, clothing, traditional medicine and shelter (FAO 2015, 2016a). While over the past 25 years the rate of global deforestation has slowed down as more countries are improving forest management through national legislation (FAO 2016a),²⁹ it is still alarmingly high in many parts of the world. Africa and South America, for instance, had the highest annual loss of forests in the past five years, with 2.8 and 2 million hectares respectively (Ibid.). If current trends continue, up to 170 million hectares of forests could be lost by 2030, the majority of which are located in tropical regions—home to indigenous communities and the world's richest wildlife (WWF 2015).

In fact, threats to biodiversity caused by environmental degradation are not confined to terrestrial ecosystems. Serious concerns are related to the future of marine and coastal species as a result of pollution, overexploitation and acidification of ocean and seas. Marine fishes, for example, have been responding to climate-induced changes in multiple ways, from reduction in body size to changes in community structure and shifts in their distributional ranges by up to hundreds of kilometers (Laffoley and Baxter, eds. 2016). Despite increasing actions to safeguard biodiversity, pressures on biodiversity are expected to grow at least until 2020 (CBD 2014).

3.2 Impacts of environmental degradation and climate change on development

The world is already witnessing the impacts of climate change on natural systems. The rapid change in the world's climate is translating into more extreme and frequent

²⁵ www.unccd.int/Lists/SiteDocumentLibrary/WDCD/DLDD%20Facts.pdf (accessed 1 February 2017).

²⁶ Ibid.

²⁷ Deforestation and forest degradation account for around 11 percent of global greenhouse gas emissions (GCEC 2014).

²⁸ As the Global Commission on the Economy and Climate stresses, while the increasing demand for forest products is a major driver for forest degradation, “the decision on whether to allow degraded forest land to regenerate into forest or to convert it to other uses is driven by the financial viability of alternative uses [such as agriculture], property rights, and governance of markets and resources” (GCEC 2014, p. 35).

²⁹ Global forest cover loss, for example, decreased from 16 million hectares per year in the 1990s to 13 million hectares per year between 2000 and 2010 (FAO 2011).

weather events, including heat waves, droughts, sea-level rise³⁰ and increasing global temperature (IPCC 2015; UNFCCC 2012).³¹ Furthermore, climate change is projected to undermine food security (via both crop failure and increase in food prices), exacerbate existing health threats, adversely affect water availability and supply, slow down economic growth, make poverty reduction more challenging and lead to increased displacement, among many other development impacts (IPCC 2015).

Furthermore, climate change and environmental degradation also intensify inequalities, as they have disproportionate impact on the most vulnerable countries and communities (UNDP 2011). The groups and populations likely to be most harmed by climate change effects are the least responsible for causing them and have limited capacity to cope with the consequences due to the lack of adequate infrastructure, public services and social protection systems (UNRISD 2012, 2016). Countries at the highest risk of climate change are concentrated in sub-Saharan Africa and South Asia (Chen et al. 2015), the regions where the largest proportions of the world's extremely poor people live (5.4 percent and 3.6 percent of the global population in 2013, respectively). It is projected that with climate change the population living in extreme poverty could increase by 122 million by 2030 (Hallegatte et al. 2016). This can be largely attributed to the negative impacts of climate change on incomes in the agricultural sector (FAO 2016b), with global crop yield losses expected to reach 5 percent in 2030 (Hallegatte et al. 2016).

Climate change can also exacerbate health threats such as malnutrition and contribute to outbreaks of infectious diseases, including malaria and diarrhoea, through, for example, poor water and food quality and extreme weather events. In particular, the number of people at risk for malaria could reach up to 5 percent and for diarrhoea up to 10 percent by 2030, with an estimated 48,000 additional deaths among children under the age of 15 resulting from diarrhoeal illness by 2030 (Hallegatte et al. 2016). Natural hazards can directly affect health through fatalities and casualties, particularly in low-income countries, which account for more than 80 percent of all deaths (Kellet 2014).³²

³⁰ The rate of sea level rise observed since 1850 is estimated to be larger than the mean rate during the previous 2000 years (IPCC 2015).

³¹ Records of the annual global near-surface (i.e. land and ocean) temperature show that the decade 2006–2015 was 0.83°C to 0.89°C warmer than the pre-industrial average, which makes it the warmest decade, while 2015 was the warmest year on record—around 1°C warmer than the pre-industrial period. Climate models forecast a further rise in global average temperature over the 21st century as a result of projected increases in greenhouse gas concentrations (www.eea.europa.eu/data-and-maps/indicators/global-and-european-temperature-3/assessment; www.ncdc.noaa.gov/sotc/global/201609 (accessed 1 February 2017)).

³² The simulations of the impact of different environmental scenarios on HDI and the number of people living in extreme poverty show that the consequences of environmental threats are severe and the longer action on addressing environmental degradation and climate change is delayed, the higher the cost will be. Under an “environmental challenge” scenario, which envisions the adverse impacts of global warming on agricultural production, access to clean water and improved sanitation, and pollution, the global HDI value would be 8 percent lower by 2050 (and 12 percent lower for South Asia and sub-Saharan Africa) than in the base case scenario which assumes limited changes in environmental threats and risks. Under an “environmental disaster” scenario, which envisions vast deforestation and land degradation, dramatic declines in biodiversity and accelerated extreme weather events, the global HDI value in 2050 is projected to fall 15 percent below the base case, and is projected to halt or even reverse decades of human development progress in South Asia and sub-

The cost of recovering from natural hazards is particularly high in small island developing states (SIDS). For example, economic losses from the 2004 cyclone in Grenada were almost three times the country's GDP (CRED and UNISDR 2015). SIDS are also heavily affected by displacement associated with floods and storms. Rising sea levels are in fact estimated to be a major driver of future displacement in SIDS and other low-lying coastal areas (IDMC 2015).

3.4 Implications for SDG implementation

Climate change and environmental degradation pose challenges that can be tackled by bringing together adaptation, mitigation and development strategies in a coherent way that will enhance opportunities for low-carbon and climate-resilient development.

The 2030 Agenda highlights the essential role of sustainable management of ecosystems and natural resources (SDGs 6, 14, 15), sustainable consumption and production patterns (SDG 12) and urgent action on climate change (SDG 13). These issues have critical interlinkages with other goals, including eradicating poverty, reducing inequalities and promoting inclusive and sustainable economic growth.

Sustainable management, conservation and restoration of terrestrial and aquatic ecosystems is vital for people who depend directly on natural resources for their livelihoods and jobs. However, the benefits of sustainable ecosystem management also extend to other communities and transcend national boundaries. For example, the management of terrestrial ecosystems can contribute to climate change mitigation and adaptation, combat desertification, land degradation and biodiversity loss, reduce waste generation and the release of harmful chemicals, and enhance disaster risk reduction, e.g. via reducing the impact of droughts, landslides and floods (UNDP 2016f).

Proven technologies and climate-resilient farming methods need to be adopted faster to transform agriculture. Likewise, food loss and waste, which currently account for one third of total food production, must be reduced (Searchinger et al. 2013; UNDP 2015d). Increasing land use productivity will also be essential as global food production by 2050 will need to increase by 70 percent (given the projected world population growth) (Searchinger et al. 2013). To meet these additional food needs, it will be critical to enhance crop and livestock productivity on existing agricultural land in order to avoid deforestation and limit greenhouse gas emissions. In fact, restoring just 12 percent of the world's current degraded agricultural land could potentially feed 200 million people by 2030 (GCEC 2014).

It is widely acknowledged that economies cannot continue to grow with the same consumption and production patterns. Between 1950 and 2010, for example, while the global population increased almost threefold, the use of natural resources, including biomass, fossil fuels, ores, minerals and water, increased sevenfold (UN DESA 2015f; UNEP 2015b). This significant increase in resource use has also led to increasing

Saharan Africa. Under this scenario, around 2.7 billion additional people would live in extreme poverty compared with the base case scenario. For more details about these scenarios see UNDP (2011, 2013b).

waste and emissions and growing environmental impacts (UNEP 2015b). If the current patterns of consumption and production remain unaltered, by 2050 the global use of natural resources will have reached four times the amounts of 2010 (Ibid.). Such quantity of resources is currently not available and is unlikely to be affordable, and also risks potential damage to natural and human systems (Ibid.).

An important step towards a low-carbon economy is the implementation of low-carbon technologies (Ansuategi et al. 2015). To reduce energy demand and increase investments in low-carbon electricity, economically sustainable energy strategies should entail a shift of energy investment flows from conventional fossil fuel technologies towards renewable energy technologies. Increasing energy efficiency in businesses, buildings and transport is also important for environmental sustainability. In the last four decades, developed countries are estimated to have decreased their effective demand for energy by 40 percent thanks to energy efficiency improvements (GCEC 2014). Research and development (R&D) investment in energy and environment also needs to increase worldwide.

Mobilizing sufficient finance for climate adaptation and mitigation as well as ensuring sustainable and resilient infrastructure (SDG 9) are also vital. The reform of inefficient, harmful subsidies plays a critical role here. Current annual global energy subsidies are estimated to account for 6.5 percent of global GDP corresponding to US\$5.3 trillion in 2015 (Coady et al. 2015). Pricing carbon emissions is also important for climate mitigation.

The 2030 Agenda, the Paris Agreement and the Sendai Framework for Disaster Risk Reduction 2015–2030 acknowledge the links between poverty eradication and resilience building and reducing exposure and vulnerability to shocks and disasters, including climate-related events. It will therefore be critical to increase investments in disaster and climate risk reduction, adaptive disaster responses and social protection systems.

For more sustainable outcomes, climate change should be addressed through eco-social policies accompanied by a normative and policy shift towards greater consideration of ecological and social objectives in development strategies (UNRISD 2016). It is also essential that policymakers provide an enabling environment for social innovation, including behavioural change, that aims to protect the environment.

4. Shocks and Crises

4.1 Economic and trade downturn

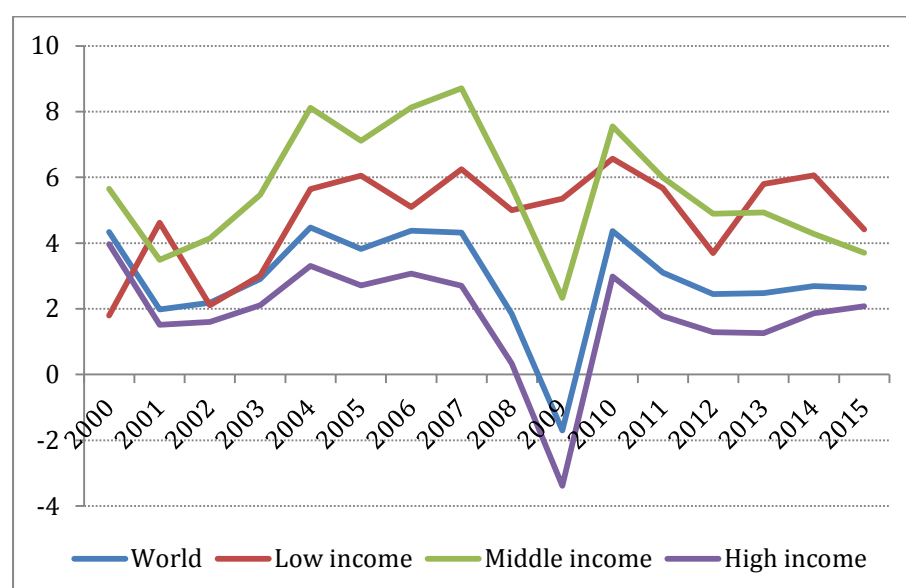
During the MDG period the world economy experienced multiple crises, including the global economic and financial crisis and commodity price shocks. The effects of the 2008 financial crisis, for instance, spread to developing countries, primarily through declines in trade and commodity prices and reduced access to credit, as lower demand in developed countries damaged export revenues and slowed economic growth in developing countries (UN DESA 2011). While developing countries overall

managed to absorb the shock of the 2008 crisis, their responses increased fiscal deficits and deteriorated current-account balances. As these indicators have not reverted to their pre-crisis levels in many developing countries, there will be limited capacity in future to absorb another major economic shock (UN MDG Gap Task Force 2015).

These multiple crises have undermined the already precarious livelihoods of millions of people, depriving them of jobs and income and exacerbating poverty and inequalities. This experience highlights unpredictability and volatility in world markets, continued uncertainties and disruptions in the global economy and in people's lives, and the vulnerability of development progress to external shocks.

In 2015, global economic growth stood at 2.7 percent (Figure 14), amid significant downside risks persisting in developed economies, especially in the euro zone, and broad-based slowdown in developing countries, including some of the major emerging economies such as Brazil, China and Russia, with significant regional spillovers (UN DESA 2015d). Furthermore, severe droughts related to El Niño effects caused a sharp decline in agricultural output and localized spikes in food prices in parts of Africa, Asia, and Latin America and the Caribbean, leading to monetary tightening in several economies (UN DESA 2016d).

Figure 14 GDP growth (annual %), 2000-2015



Source: World Bank, World Development Indicators database (January 2017).

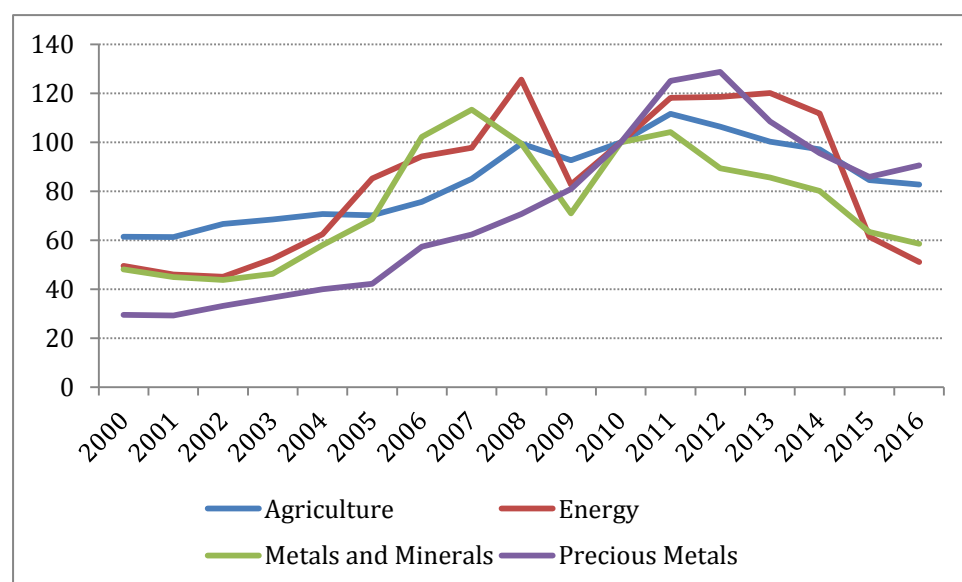
The first year of SDG implementation also marked a challenging year for the world economy due to weak investment growth, stagnant global trade and heightened policy uncertainty (World Bank Group 2017). The global economic growth in 2016 is estimated at 2.3 percent³³, the slowest rate of growth since the global financial crisis (UN DESA 2017; World Bank Group 2017).

³³ The World Bank Group calculates aggregate growth rates using constant 2010 US\$ GDP weights.

Global trade growth, which has been on a downward trend in the past few years, also slowed in 2016 to its weakest pace since the global financial crisis (World Bank Group 2017). Low commodity prices since mid-2014 have exacerbated economic difficulties in many commodity-exporting countries. Overall oil prices, for instance, declined by 7.5 percent in 2014, 47 percent in 2015 and 15 percent in 2016, with the steepest decline seen from mid-2014 to early 2016 (Ibid.). Prices for non-oil commodities, including agricultural products, metals and minerals, have also decreased in recent years (UN DESA 2015d).

Commodity prices have stabilized (at low levels) over the course of 2016 and are projected to recover gradually during 2017–2019, benefiting the commodity exporters (World Bank Group 2017). Despite this moderate increase projected for over the medium term, the likelihood of commodity price shocks and increased volatility (similar to the experience in the MDG period, see Figure 15) cannot be ruled out for the SDG period. Vulnerabilities remain, especially in commodity-dependent developing countries that have not managed to diversify their economies.

Figure 15 Commodity price annual indices, 2000–2016 (2010=100, real 2010 US\$)



Source: World Bank Global Economic Monitor (GEM) Commodities Database, January 2017.

Growth in developing countries as a whole is expected to pick up from 3.5 percent in 2016 to 4.4 percent in 2017 and to 4.8 percent in 2018 as a result of increasing economic activity in commodity exporters and robust demand in commodity importers (despite the continued slowdown in the Chinese economy³⁴) (Ibid.). Mainly because of this recovery expected in developing countries, the global growth rate is projected to increase to 2.7 percent in 2017 and to 2.9 percent in 2018–2019 (Ibid.). World trade is also expected to recover gradually (by 2.7 percent in 2017 and 3.3 percent in 2018) supported by increased import demand from large developing countries (UN DESA 2017; World Bank Group 2017).

³⁴ The Chinese economy registered 7.3 and 6.9 percent growth rates in 2014–2015. The estimated GDP growth for 2016 was 6.7 percent and the projections for the 2017–2019 period are: 6.5, 6.3 and 6.3 percent, respectively (World Bank Group 2017).

Global economic prospects remain subject to various downside risks and uncertainties, including increasing policy uncertainty in major advanced and emerging economies, financial market disruptions, protectionism, heightened geopolitical tensions and a more severe slowdown in China's economic growth (IMF 2017; UN DESA 2017; World Bank Group 2017).

Against this backdrop it is critical for countries not only to be cautious about the downside risks to the global economy but also to focus on long-term inclusive growth and sustainable development. Effective use of monetary and fiscal policies (instead of overreliance on monetary policy only) should be complemented by structural policies that address, for instance, poverty, inequality and climate change (UN DESA 2017).

There is an urgent need for more inclusive patterns of economic growth and more resilient approaches to economic policymaking that enable countries to cope better with volatility and shocks.

One major trend that has been observed over the last decades is that patterns of economic growth, technological change and the nature of global economic integration have not resulted in a balanced distribution of gains across countries and across different segments of the population within societies, as discussed in chapter 1. In recent years, slower growth, displacement of economic activity and a sentiment of being affected by events outside of one's control have collectively resulted in a resurgence of more inward-looking approaches and protectionist tendencies (e.g. with regard to trade and migration policies) in many countries, including in some of the most advanced economies.

For instance, in the area of trade, the Doha round of negotiations (i.e. Doha Development Agenda) which were launched in 2001 under the auspices of the World Trade Organization (WTO) remain stalled. This deadlock has led to the proliferation of regional trade agreements (RTAs) over the last decade (with 423 RTAs in force as of July 2016) (Ibid.). The annual gains from the successful conclusion of the Doha round would far exceed the global benefits of even mega-RTAs, including the Regional Comprehensive Economic Partnership (RCEP), the Trans-Atlantic Trade and Investment Partnership Agreement (TTIP), and the possible Trans-Pacific Partnership (TPP) (Ibid.). In addition, the future of the TPP remains unclear as the United States withdrew from the agreement in January 2017.

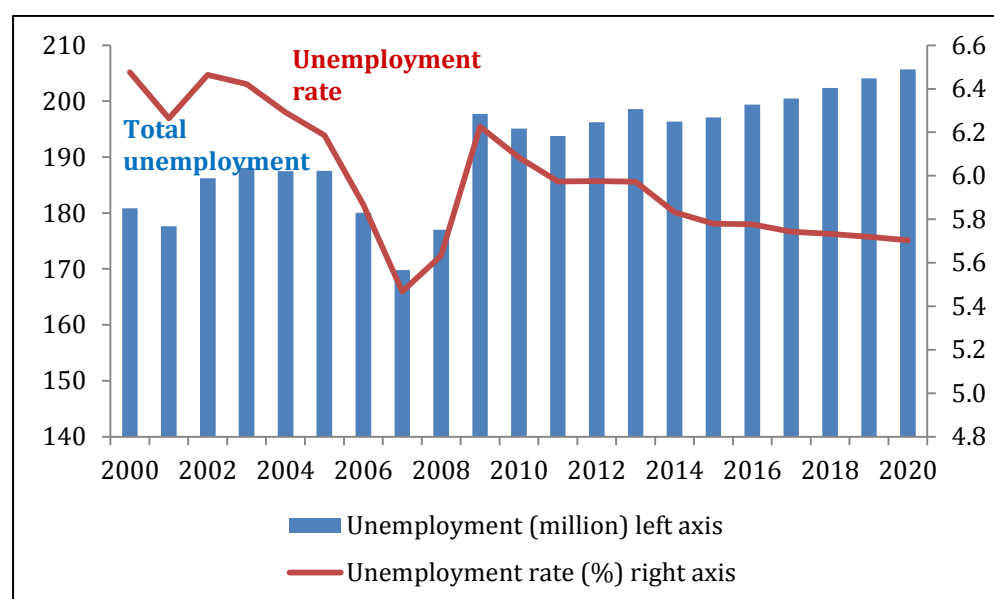
The increase in trade-restrictive measures observed since the global financial crisis is becoming more prevalent, mostly in the form of non-tariff barriers, across both developed and developing countries. For example, the G20 countries implemented 145 new trade-restrictive measures between October 2015 and May 2016, which was the highest average (on a monthly basis) since 2009 (Ibid.).

Each country has primary responsibility for its own economic and social development. However, as recognized in the 2030 Agenda, national development efforts are more effective when supported by an enabling international economic environment, including coherent and mutually supporting world trade, and international arrangements that support monetary and financial systems that are very interdependent.

4.2 Unemployment

The global unemployment rate during the MDG period fell from 6.5 percent in 2000 to 5.5 percent in 2007 but increased to 6.2 percent in 2009 due to the downturn of economic activity during the 2008 financial crisis. Since then, however, the unemployment rate worldwide has been declining steadily, reaching 5.8 percent in 2016, and is projected to fall further in the coming years (Figure 16).

Figure 16 Global unemployment trends for 2000-2014 and projections for 2015-2020 (million)



Source: Authors' adaptation based on ILO's Key Indicators of the Labour Market 2015 Dataset on Total Unemployment.

Despite this progress in reducing the global unemployment rate, nearly 201 million people worldwide were estimated to be unemployed in 2016 (ILO 2016b), including 71 million young people (ILO 2016c). The global youth unemployment rate is expected to account for 13.2 percent of the labour force in 2016, reaching, for instance, up to 47 percent in some parts of the Caribbean (Pedrajas and Choritz 2016).

In developed countries, unemployment remains high, particularly in the euro area, while wage levels continue to be affected by the financial crisis. Unemployment reached close to 49 million people in the Organisation for Economic Co-operation and Development (OECD) area as a whole, or about 7.9 percent of the labour force in 2012 (World Bank Group 2015b). In recent years, however, labour market conditions have been improving in OECD countries overall, but the recovery has been uneven (OECD 2015b). For example, in Germany the unemployment rate in 2015 reached its lowest point in 34 years (4.6 percent), and in Japan it reached an historical low in the past two decades, amounting to 3.38 percent in 2015.³⁵ By contrast, in Greece and Spain nearly one worker in five is unemployed (Ibid.). At the same time, even having a paid job does not prevent people from falling into poverty, with more than 80

³⁵ <https://data.oecd.org/unemp/unemployment-rate.htm#indicator-chart> (accessed 1 February 2017).

percent of the working poor being in salaried employment in advanced economies (ILO 2016b).

In developing countries, despite slower employment growth, unemployment rates have remained relatively stable since 2013, although informal and vulnerable employment are still highly prevalent (UN DESA 2015d). High unemployment levels nonetheless persist in various countries, especially in Northern Africa and Western Asia, as well as in some transition economies in South-Eastern Europe (Ibid.). Although unemployment rates in the Asia-Pacific region are low, averaging 4 percent, underemployment and informal economic activities are widespread, with large numbers of people involved in precarious and poorly paid work (UNDP 2016e).

The above figures suggest that GDP growth over the past few years has not necessarily created a sufficient number of productive jobs, nor has it ensured an equitable distribution of economic gains (ILO 2015b, 2016a). Henceforth, emerging economies are likely to see an increase in unemployment and the share of vulnerable employment, while developed countries may experience continuing or increasing underemployment in the form of involuntary temporary or part-time work, especially among women and youth (ILO 2016b).

Gender gaps are found to persist in the labour market, with women being 15 percent more likely to be unemployed than men globally (UN 2016b). Furthermore, women around the world tend to earn on average 23 percent less than men, which can be attributed not only to differences in education or age but also to the undervaluation of women's skills and work, including care and household work (ILO 2016a). At the same time, women are found to work 50 minutes more a day than men, which includes both paid and unpaid forms of work (WEF 2016a). In fact, between 2000 and 2014 women spent nearly 20 percent of their time daily on unpaid labour compared with 8 percent for men (UN 2016b). Furthermore, significant progress made in educational achievements by women over the past two decades has not translated into considerable improvement in their position at work, as women continue to face challenges in the labour market. On current trends, it may take nearly 70 years to close the gender wage gaps (ILO 2016a).

To achieve sustainable poverty reduction, it is necessary to boost productive employment and support the incomes of the most vulnerable. Without an adequate supply of decent work, as well as access to social protection, including pensions, unemployment benefits and maternity protection, people in both developed and developing countries will have difficulty lifting themselves and their families out of poverty.

4.3 Conflicts and violence

In the post-World War II period, while the number of external or interstate conflicts (conflicts between two or more states) declined, there has been an upsurge in internal or intrastate conflicts (conflicts between a government and non-state actors within a state) (IEP 2016). In 2015, for instance, there were 280 intrastate conflicts, in contrast to 74 interstate conflicts, with internal conflicts constituting about 80 percent of the global conflict count (HIIK 2015, 2016).

Although terrorism accounts for only a small percentage of the total number of violent deaths, its incidence has grown steadily over the past decade. The number of terrorist attacks reached its highest point in recent years, with 14,806 terrorist events and 38,422 fatalities reported in 2015 compared with 651 terrorist events and 171 fatalities in 1970 (National Consortium for the Study of Terrorism and Responses to Terrorism).

Another relevant trend that has emerged in recent years is the increasing “internationalization” of intrastate conflicts (i.e. military involvement of external actors in internal conflicts) (Pettersson and Wallensteen 2015; von Einsiedel et al. 2014). Internationalized internal conflicts made up nearly 33 percent of all internal conflicts in 2014 compared with 3 percent in 1991 (IEP 2016). While the involvement of external actors in internal conflicts is not a new phenomenon, it is notable that the 2014 proportion is the highest recorded since 1945 (Pettersson and Wallensteen 2015).

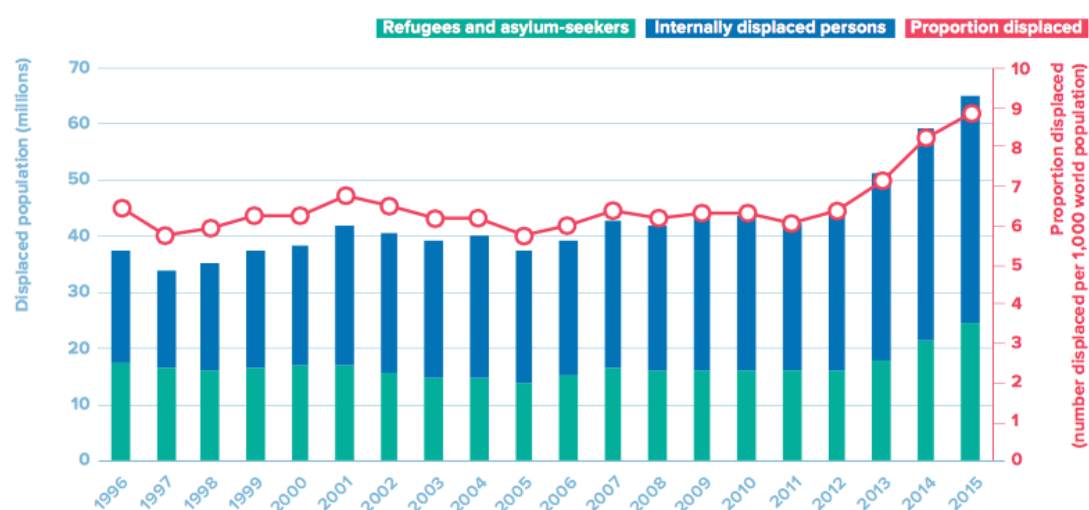
As a result of conflicts, violence, persecution or human rights violations, global forced displacement increased by 75 percent over the past two decades, rising from 37.3 million in 1996 to a record-high 65.3 million people in 2015 (UNHCR 2016). Of these, 40.8 million were internally displaced persons, 21.3 million refugees and 3.2 million asylum seekers.³⁶

There has been a shift in the geography of displacement, with each region facing different challenges in attempting to contain violence (Figure 17).³⁷ Both older unresolved crises and new or reignited conflicts in the Middle East and Africa, as well as increasing violence in some Latin American countries, contributed to the increased number of refugees, of whom 50 percent came from Afghanistan, Somalia and Syria, and half were women and children (Ibid.). In 2015, sub-Saharan Africa hosted the largest number of refugees (4.41 million), followed by Europe (4.39 million) and the Asia and Pacific region (3.8 million). Driven largely by the conflicts in Syria and Iraq, the Middle East and North Africa saw an increased flow of refugees, hosting over 2.7 million in 2015 (Development Initiatives 2015a; UNHCR 2016). Countries in developing regions hosted an average of 86 percent of all refugees under UNHCR’s mandate (Ibid.). In 2015, Turkey alone hosted 2.5 million refugees, which makes it the world’s largest refugee-hosting country; while in Lebanon nearly one in five individuals was a refugee, which is the largest proportion of a refugee population in one country compared with its national population. LDCs, which face significant challenges to meet the development needs of their own citizens, let alone the humanitarian needs of refugees, provided asylum to over 4 million refugees in 2015.

³⁶ As with the numbers of migrants, providing accurate estimations of the number of people affected by conflicts and crises is problematic, as many people go unreached and uncounted, and population data are often lacking in crisis-prone settings.

³⁷ Europe remains the most peaceful region in the world, followed by North America and the Asia-Pacific region, with South Asia and the Middle East and North Africa being the least peaceful areas (IEP 2016).

Figure 17 Trend and proportion of global displacement, 1996-2015



Source: UNHCR (2016).

Apart from conflict-caused displacement, it is also noteworthy that all regions, including Europe, have high rates of violence against women, with 35 percent of women worldwide experiencing physical and/or sexual intimate partner violence or non-partner sexual violence in their lifetime (WHO et al. 2013).

Ongoing conflicts have already had negative impacts on economies and societies at national and regional levels, with poverty being most intense in fragile and conflict-affected states (World Bank Group 2016). And yet they could lead to an even more pronounced slowdown in the world economy (UN DESA 2015d), while threatening global stability and continuing to challenge social progress.

4.4 Disasters

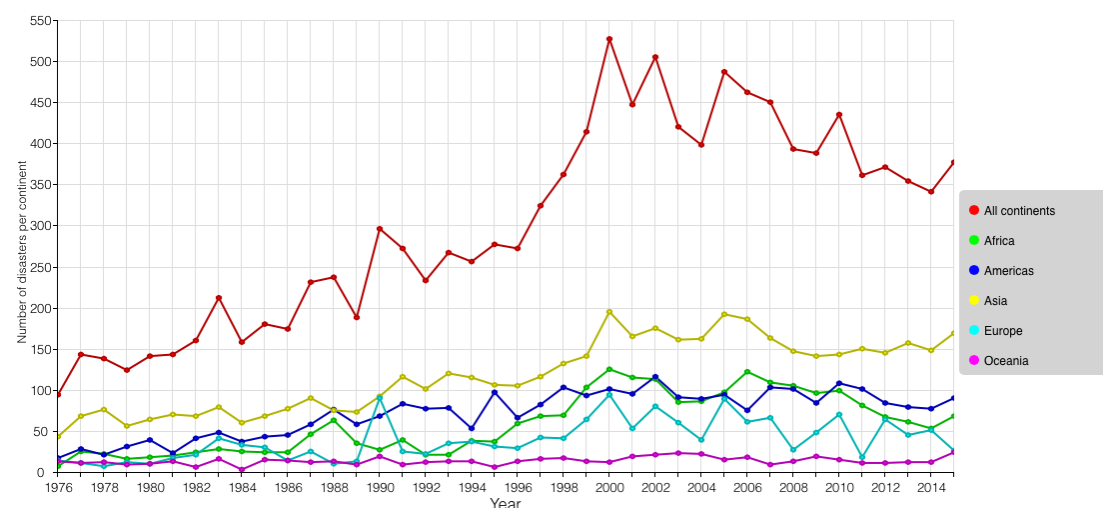
Disasters associated with natural hazards have become more frequent during the past 20 years (Figure 18).³⁸ Between 1996 and 2015, the Emergency Events Database (EM-DAT) estimated a total of 8,104 disasters related to natural hazards across all continents, with 4.1 billion people affected by these events, which is almost twice the level recorded between 1976 and 1995.³⁹ With over 1.5 billion people killed, the

³⁸ Disasters are defined as serious disruptions of the functioning of a community or society that cause widespread human, material, economic or environmental losses, which exceed the ability of the affected community or society to cope using its own resources (www.unisdr.org/we/inform/terminology#letter-d, accessed 1 February 2017). There are two generic categories for disasters: natural hazards (naturally occurring physical phenomena such as earthquakes, floods or wildfires) and human-made hazards (resulting from economic, technological or industrial activities such as transport accidents and industrial pollution, and also from individual and societal behaviours that could cause wars and conflicts). The two categories of hazards are interdependent and are all partially the product of unresolved risk management issues and poor development choices (UNDP 2016d). This chapter presents data on disasters associated with natural hazards.

³⁹ The data generated from the EM-DAT are available from www.emdat.be/database (accessed 1 February 2017).

financial cost of these disasters amounted to over US\$2.1 trillion globally over the last two decades.⁴⁰

Figure 18 Number of disasters associated with natural hazards worldwide and by continent, 1976-2015



Source: Authors' adaptation based on the EM-DAT International Disaster Database.

Looking at the geographical distribution of disasters, the EM-DAT database shows that Asia was hit most often (3,093 occurrences), followed by the Americas (1,832 occurrences) and Africa (1,781 occurrences) during the period 1996–2015. China and the United States recorded the most disasters during this period, which can be mainly attributed to their size and high population density. When looking at the numbers of people affected per 100,000 head of population, however, Eritrea and Mongolia were found to be the world's worst-affected countries (CRED and UNISDR 2015), whereas Haiti and Indonesia lost more lives to natural hazards than any other country, both in absolute terms and relative to the size of their populations (CRED and UNISDR 2016).

While disasters associated with natural hazards occur frequently across the world, affecting both developed and developing countries, the impact of these hazards on human lives is more severe in the latter than in the former. During the past decade, on average 68 percent of deaths in low- and lower-middle-income countries have been due to natural hazards, compared with 32 percent of deaths in high- and upper-middle-income countries (CRED and UNISDR 2015). This underlines the linkage between poverty and vulnerability to disasters and also exposes inequity, as poorer countries are less well equipped with the kinds of resources needed to prevent disasters and cope with their consequences.

In the coming decades, it is likely that the upward trend in the frequency of natural hazards will continue (Ibid.), with more losses expected in livelihoods and assets. For

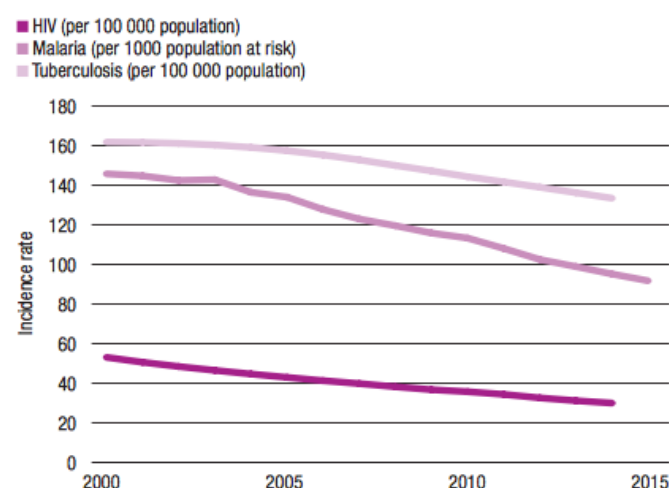
⁴⁰ While this report does not discuss human-made hazards, it is worth noting that, according to the EM-DAT database, over the past 20 years there have been over 5.4 thousand disasters of this type with 2.7 billion people affected and 174 thousand people killed, which is significantly fewer than the numbers for natural hazards.

example, the recent El Niño weather cycle across Africa, Latin America and Asia has had an impact on an estimated 60 million people who are facing food insecurity along with other losses in health and infrastructure and a reversal of development gains (UNOCHA 2016a; WHO 2016b). While climate change is among the major causes of more frequent and severe natural hazards (Mitchell 2012), population growth and patterns of economic development are key in explaining the rise in disasters that natural hazards can lead to (CRED and UNISDR 2015), along with associated risks and losses in human, economic, environmental and other domains. This is likely to pose a significant challenge for achieving the 2030 Agenda, and development progress will be even more contingent on measures to build disaster resilience (Mitchell 2012).

4.5 Disease outbreaks

During the MDG period, unprecedented progress has been made in combating major infectious diseases.⁴¹ Incidence rates of HIV, malaria and tuberculosis (TB) have fallen since 2000 (Figure 19), and the number of deaths due to various types of infectious diseases, including parasitic diseases and respiratory infections, declined globally from 12.1 million in 2000 to 9.5 million in 2012. Target 3.3 under SDG 3 on health is specifically focused on ending the epidemics of major infectious diseases such as HIV/AIDS, TB and malaria. AIDS-related deaths, for instance, have fallen by 42 percent since the peak in 2004 and the number of people globally who are newly infected with HIV has decreased by 35 percent since 2000. The global TB prevalence rate declined by around 40 percent and TB deaths fell by 29 percent between 2000 and 2014. The rate of new cases of malaria and the malaria mortality rate both decreased globally by 37 percent and 60 percent, respectively, between 2000 and 2015 (WHO 2015a).

Figure 19 Global trends in HIV, malaria and TB incidence rates, 2000–2015



Source: WHO (2015a).

⁴¹ This section focuses on outbreaks of infectious diseases that are among the major causes of mortality in many parts of the world. It is recognized that, in addition to epidemic diseases, other health challenges, including noncommunicable diseases and mental health disorders, are also important to address, as stated in target 3.4.

These remarkable achievements can be attributed to political commitment that translated into global and national action; strong global partnerships such as the Stop TB Partnership, which contributed to advocacy, resource mobilization and enhanced engagement of various actors, including civil society; substantial increases in funding, particularly for control of infectious diseases in developing countries; scaling up of new and existing interventions; and better monitoring and use of data (WHO 2015a). For example, increasing access to antiretroviral therapy (ART) through reducing the price of antiretroviral drugs, from around US\$10,000 per person per year in 2000 to around US\$100 by 2011 (UNAIDS 2015b), is considered one of the most successful public health interventions of the MDG era (WHO 2015a). It made HIV treatment more affordable and sustainable, with 14.9 million people living with HIV having received ART in 2014, up from 690,000 in 2000 (UNAIDS 2015b).

Despite this progress, the world continues to face important challenges in addressing health issues. Infectious diseases remain a leading cause of death in Africa and to a lesser extent in Southeast Asia and Eastern Mediterranean regions (WHO 2015a). In 2015, there were an estimated 1.2 million, 1.1 million and 438 thousand deaths caused by AIDS, tuberculosis and malaria, respectively, with more than two thirds of all malaria deaths occurring among children under 5 (Ibid.). The challenge in fighting HIV/AIDS is especially acute in sub-Saharan Africa, home to nearly 70 percent of the world's adults living with HIV (UNAIDS 2015a). Tuberculosis and malaria also remain major global health problems, with nearly 10 million new cases of tuberculosis detected in 2014, and 214 million new malaria cases worldwide occurred in 2015 (WHO 2015a).

Furthermore, the threat of infectious diseases is intensified by rapidly increasing antimicrobial resistance which presents an emerging global health security risk (WHO 2014). For example, *Streptococcus pneumoniae* is showing reduced susceptibility to penicillin, leading to invasive pneumococcal diseases such as pneumonia and meningitis, especially in children and elderly people. This poses a barrier to the effective prevention and treatment of a growing range of infections caused by bacteria, parasites and viruses.

Countries with weak health systems, poor infrastructure and limited resources are more prone to diverse health risks and are often incapable of responding to health emergencies. This was particularly evident in the recent outbreak of Ebola virus disease in post-conflict countries in West Africa, which resulted in around 28.6 thousand cases and 11.3 thousand deaths in 2016 (WHO 2016a). Unlike previous Ebola outbreaks, which generally occurred in remote communities and lasted for a short period of time, this one involved major urban and rural areas, crossed international borders and affected a larger number of people.

The global public health problems, including the recent Ebola outbreak in Africa, the Middle East Respiratory Syndrome (MERS) outbreak in the Arabian Peninsula in 2012 and in South Korea in 2015, the 2009 influenza pandemic, and the 2015 Zika virus disease that started in Latin America and spread to other parts of the world, have emphasized the importance of strong health and governance systems (WHO 2015a).

Global trends such as population growth, increased international movement of people and goods, climate change, urbanization and poverty are likely to continue to affect

the spread of infectious diseases. Climate change, for instance, may alter the distribution of diseases through mosquitoes that carry malaria, enhance the spread of diseases through contaminated water, including cholera, and create conditions favourable to the transmission of other bacteria and viruses (Keesing et al. 2010). Target 3d under SDG 3 calls for strengthening the capacity of all countries to deal with these health risks, which includes mitigation measures that need to be developed in the most vulnerable areas. Furthermore, expanded population coverage with quality prevention, treatment and management services supported by adequate funding will be central to achieving the health targets of the 2030 Agenda.

4.6 Hunger and food insecurity

Substantial progress has been made in reducing hunger over the past decades. Since 1990–1992, the number of undernourished people globally has declined by 216 million, and the proportion of undernourished people in the total global population has fallen by almost half, from 18.6 percent in 1990–1992 to 10.9 percent in 2014–2016 (FAO, IFAD and WFP 2015). Changes in populous countries such as China and India played a large part in the overall hunger reduction trends in the developing regions, accounting for 81 percent of the total reduction of the number of undernourished people between 1990–1992 and 2014–2016, with China alone accounting for almost two thirds (Ibid.).⁴²

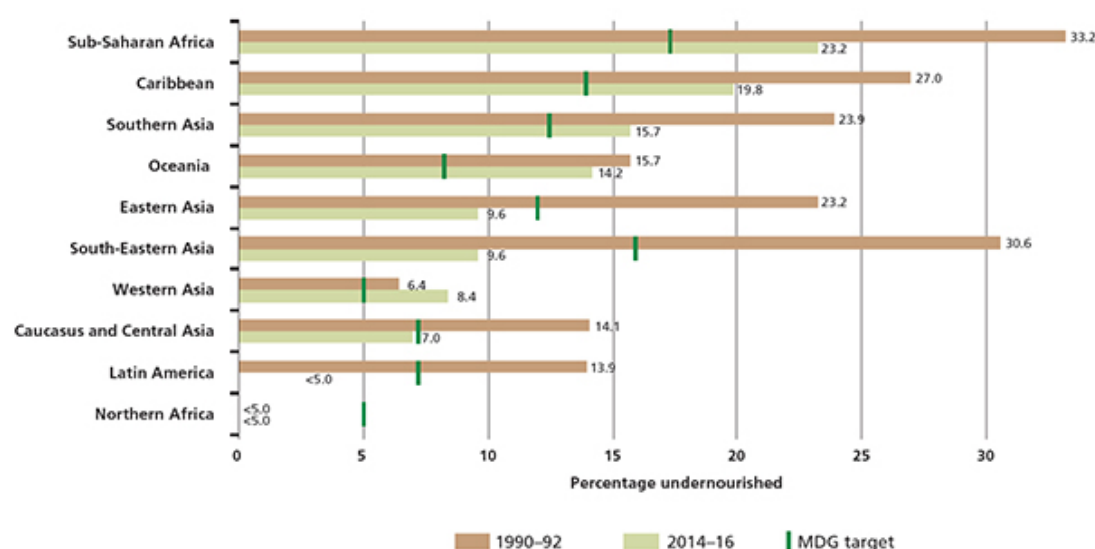
Most countries that achieved hunger targets enjoyed stable political conditions and economic growth accompanied by sound social protection policies (Ibid.). Expansion of social protection across developing countries in particular has contributed to the reduction of hunger and malnutrition through the promotion of income security and access to better nutrition, health care and education. There is evidence that increases in household income have improved the ability of families to obtain a larger quantity and greater variety of foods for infants and young children (Marmot et al. 2008). The Zero Hunger Programme and the Bolsa Família in Brazil, for instance, were essential for achieving inclusive growth and reducing poverty and hunger in the country, while the Productive Safety Net Programme in Ethiopia has had a positive impact on the livelihoods of participating households and increased children's access to food (FAO, IFAD and WFP 2015). Several LDCs and SIDS, such as Cabo Verde and Haiti, adopted strategies including the diversification of crop varieties and introduction of resilient water management systems that proved useful in ensuring food security in the context of climate change (UNDP 2016a).

Yet the progress in reducing hunger has been uneven, with large disparities at the regional, national and subnational levels (IFPRI 2016). Latin America, Eastern Asia, the Caucasus and Central Asia, and Northern Africa made remarkably rapid progress in reducing hunger (Figure 20). By contrast, the pace of reduction in the Caribbean, Oceania, Southern Asia and sub-Saharan Africa has been slower. In the sub-Saharan region, more than one in four people remain undernourished, which is the highest prevalence of any region in the world (FAO, IFAD and WFP 2015). Poor governance and failing markets are among the root causes of sub-Saharan Africa's food insecurity

⁴² Nonetheless, China and India have the highest number of undernourished people in the world, with China alone being home to 134 million people facing hunger (FAO, IFAD and WFP 2015).

(UNDP 2012). Western Asia has made significant progress in improving child undernutrition, but due to recent political instability the prevalence of undernourishment has increased substantially (UN 2015b). Overall, around 795 million people, or one in nine, globally suffered from hunger in 2014–2016, the vast majority of whom are in developing regions (Ibid.).

Figure 20 Undernourishment trends across regions, 1990-1992, 2014-2016



Note: Data for 2014–2016 refer to provisional estimates. Source: FAO (www.fao.org/hunger/key-messages/en/) (accessed 1 February 2017).

The global demand for food is projected to increase by 50 percent by 2030 compared with the current needs in order to meet the increasing demand of the world's growing population (Maggio, Van Criekinge and Malingreau 2015). The growing global population, along with accelerating urbanization and deteriorating natural resources, implies that there are more people to feed with less water, land and rural labour (FAO 2015). Finding a sustainable solution to providing more food to nearly 9 billion people by 2030 without harming the environment thus poses a great challenge for the 2030 Agenda and SDG 2 on ending hunger in particular. Estimates by the International Food Policy Research Institute showed that by 2050 about 50 million more people could be at risk of undernourishment due to climate change alone (FAO 2016b).

Meeting the growing demand for food will require a substantial increase in sustainable agricultural productivity that can improve food availability and economic access by supporting food production and purchasing power (UNDP 2012). The majority of those who suffer from hunger live in rural areas where family farming and smallholder agriculture are key to reducing hunger and poverty. Enhancing the productivity and incomes of smallholder family farmers is thus critical for improving their livelihoods. Combining social protection with complementary agricultural development such as the Purchase from Africans for Africa programme, which links family farmers and smallholders to school feeding programmes, can enhance the impact of these programmes on the reduction of hunger and poverty (FAO, IFAD and WFP 2015). Furthermore, the use of new technologies such as solar-powered drip irrigation systems and building up local infrastructure, including roads, can increase household income and improve efficiency in the rural economy (UNDP 2012). To

reduce hunger and malnourishment, it is also essential to promote equitable access to food, assets and resources, particularly for people living in poverty and for women, and implement more effective nutrition policies, especially for children.

4.7 Actions for SDG implementation

It is probably inevitable that crises and shocks will continue to occur with serious consequences for people and the planet. However, certain actions at the global, regional and national levels can help mitigate myriad risks and build resilience, ensuring that the development progress attained so far is not reversed and the SDGs are achieved.

At the global level, it is imperative to strengthen international policy coordination and cooperation to enhance global financial and macroeconomic stability. In the aftermath of the global financial crisis, various important collective actions have been taken (including those by the G20) to build resilience against and to reduce vulnerability to international financial disruption (UN 2015a). Acknowledging spillover effects that national policy decisions can have on other countries, countries committed to pursuing sound macroeconomic policies and sound regulation of financial markets as well as strengthening the global financial safety net, during the Third International Conference on Financing for Development (FfD3) (Ibid.). Deeper international policy coordination is also needed in integrating macroeconomic policies with social and environmental policies (UN DESA 2017).

In many situations, international trade openness has important potential for promoting investment and growth, as well as improving food security and nutrition (SDG 2). International trade affects domestic availability and prices of goods, as well as production factors such as labour, which has implications for food access. In particular, trade policies related to food exports and imports contribute to determining prices, wages and incomes in the domestic market, and thus shape the ability of people to buy food. International trade can also have impacts on productivity, nutrition and livelihoods of various population groups in different ways.⁴³ International trade agreements should provide effective safeguards and greater policy space for developing countries to avoid detrimental effects on domestic food security (FAO, IFAD and WFP 2015).⁴⁴

⁴³ The effects of international trade on food security are complex and context specific. For example, banning grain exports can increase domestic supplies and reduce prices in the short term. While this can benefit consumers, it has negative impacts on farmers producing for export. Import or export restrictions by major players can affect global supplies and exacerbate price volatility at the global level. Lowering import duties can decrease prices paid by consumers but can negatively affect the earnings of import-competing farmers (FAO, IFAD and WFP 2015).

⁴⁴ On the one hand, international trade can boost imports and increase both the quantity and variety of food available, which in turn can lead to more balanced diets. Greater competition from abroad may trigger improvements in productivity through greater investment, R&D and technology spillover. On the other hand, domestic producers who are unable to compete with imports may have to cut down production, which can have important multiplier effects on agricultural activities in rural economies. In addition, more reliance on imported foods can increase consumption of products that are of low nutritional value (FAO, IFAD and WFP 2015).

To end hunger and achieve food security while eradicating global poverty, it is important to build resilience to climate change in smallholder agriculture through the adoption of sustainable land, water, fisheries and forestry management practices. With other enabling factors in place, such as adequate access to credit and markets and action to eliminate legal, sociocultural and mobility constraints on rural women, these practices can yield significant productivity improvements (FAO 2016b).

Resilient health systems supported by adequate funding and coordinated action need to be put in place to achieve SDG 3, with capable public health surveillance and management functions to prevent, detect and respond to emerging health threats (WHO 2015a). Relevant services include health promotion initiatives, disease prevention activities and the provision of treatment, rehabilitation and palliative care of sufficient quality.

Building resilience to future shocks also requires universal access to basic social services, especially health and education, stronger social protection and, in the case of many developing countries, greater economic diversification and continued efforts to expand formal employment.

To attain sustained economic growth and decent work (SDG 8), monetary and fiscal policies need to be combined with active labour market policies such as public works and training schemes that promote not only job creation but also job quality, update skills and support broad-based participation, including for women and other marginalized groups (ILO 2015b, 2016a, 2016b). In particular, participation should involve not only giving disadvantaged people a voice at the table but also strengthening their capacity to influence decision-making processes that affect their lives (UNRISD 2010a). Furthermore, a set of integrated policy measures that recognize a right and responsibility to work for both women and men and redistribute unpaid care and household work are indispensable to achieve more equitable and sustainable outcomes for economy, society and families (ILO 2016a).

Poverty, exclusion and the lack of development and economic opportunities that lie at the root of conflict and violence need to be addressed through increased efforts aimed at early prevention of crisis situations, peaceful resolution of conflict, greater coordination of humanitarian, development and peacebuilding efforts, the promotion of the rule of law at the national and international levels and the protection of human rights (UNGA 2016c). Policies and institutions that address exclusion and marginalization and offer opportunities of upward mobility can reduce the potential for conflict (UNDP 2014b). Ensuring the implementation of comprehensive legal and policy frameworks that address all forms of violence, including against women, should be among key priorities in all countries (UN Women 2015).

Strengthening humanitarian and development assistance is also relevant in the situations of natural hazards that can be accompanied by population displacements and human losses. To save more lives in the future, it is necessary to strengthen disaster risk governance and invest in prevention and reduction of disasters (CRED and UNISDR 2015). Building capacities for disaster preparedness and recovery, which enable communities to better recover from shocks, along with better mitigation and deployment of early warnings of disasters, are vital (UNDP 2014b).

There is also great potential for effective initiatives that contribute to preparedness and risk reduction through pooling financing and governance. These can include traditional mechanisms such as joint peacekeeping forces, or new cooperation vehicles such as the Coalition for Epidemic Preparedness (CEPI) that intends to invest in potential vaccines for disease outbreaks so as to reduce the loss of human life and economic damage when they inevitably occur.

International policy cooperation and strong political commitment are important, not only for managing disasters but also for fighting diseases and defusing geopolitical tensions. To break the cycles of insecurity and reduce the risk of their recurrence, regional and national reformers along with international partners need to build responsive and fair institutions that can provide a sustained level of security and justice (World Bank 2011).

5. The Changing Context of Development Cooperation and Financing Sustainable Development

Finance is one of the vital means of implementation for the 2030 Agenda for Sustainable Development along with capacity-building, technology, trade, partnerships, and policy and institutional coherence.⁴⁵

Quantifying the financial resources needed to achieve the SDGs is complex and estimates vary widely. However, it is evident that financing needs are vast and that this universal agenda will require trillions of dollars annually over 2015–2030.⁴⁶

In the MDG period most of the international debate focused on how to fill financial resource gaps, while the importance of institutional building and structural transformations received less attention (UN, UN System Task Team 2012). The scale, ambition, and integrated nature of the SDGs demand a fundamental change in the international community's approach to development cooperation and financing sustainable development.

In the SDG period, development finance strategies need to go beyond filling financing gaps. ODA will remain a critical source of external public finance for many

⁴⁵ Policy and institutional coherence entails respecting each country's policy space and leadership to implement policies for poverty eradication and sustainable development, while remaining consistent with relevant international rules and commitments. The 2030 Agenda also stresses that national development efforts need to be supported by an enabling international economic environment, including coherent and mutually supporting world trade, monetary and financial systems, and strengthened and enhanced global economic governance. It also underscores the need to develop and facilitate the availability of appropriate knowledge and technologies globally.

⁴⁶ For instance, during the SDG period additional financing needs for annual infrastructure investments (in the water, agriculture, telecoms, power, transport, buildings, industrial and forestry sectors) are estimated at between US\$5 and US\$7 trillion globally (UNGA 2014). In developing countries alone, UNCTAD estimates that total investment needs in SDG-related sectors range from US\$3.3 trillion to US\$4.5 trillion per year and at current levels of investment an average annual funding shortfall of US\$2.5 trillion remains over 2015–2030 (UNCTAD 2014). UNCTAD estimates include investment needs in basic infrastructure (roads, rail and ports; power stations; water and sanitation), food security (agriculture and rural development), climate change mitigation and adaptation, health and education.

developing countries (especially the poorest and most vulnerable) and ODA commitments should be met; however, they constitute a small part of development finance flows.

In order to achieve the universal 2030 Agenda, drawing on *all* sources of finance—public and private, domestic and international—in *all* countries will be essential. The challenge is to enhance the impact of available resources, while also catalysing additional sources of financing into investments in sustainable development. These issues are at the core of the Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development (FfD3), which provided a financing framework for the 2030 Agenda.

While resources allocated for sustainable development objectives are not adequate, this does not mean that there is a shortage of capital in the global economy. For instance, global annual public and private savings are estimated at around US\$22 trillion (UNGA 2014) and the total stock of global financial assets is estimated to have reached US\$256 trillion at the end of 2014 (UN DESA 2016d). The current international finance system is, however, not efficient in channelling savings and investments to support long-term sustainable development objectives (Ibid.).

As the Intergovernmental Committee of Experts on Sustainable Development Financing stressed, “even a small shift in the way resources are allocated would have an enormous impact” (UNGA 2014). Governments have a key role to play to strengthen national and international policy environments, to develop sound institutional, legal and regulatory frameworks and to develop policies to encourage greater long-term private investment in sustainable development (as discussed further in section 5.3).

5.1 Domestic public resources

As the AAAA underscores, countries have primary responsibility for their economic and social development but they also need to be supported by an enabling international economic environment (UN 2015a), including international cooperation in tax matters.

Domestic public resources are a key source for financing development activities. In aggregate, domestic public resources (the tax and revenue mobilized by developing country governments) are by far the largest source of financing in developing countries, and were estimated at US\$5.3 trillion in 2014 (Development Initiatives 2015b). In the SDG period, effective domestic resource mobilization will be at the core of financing for sustainable development (UNRISD 2016).

Widening the tax base has been instrumental in recent gains in revenue collection in many developing countries (UNGA 2014). While domestic public resources of developing countries as a whole almost doubled between 2005 and 2010, since 2011 progress has been more mixed across countries, with around 40 percent of developing countries witnessing falling revenues because of the vulnerabilities in the global economy (Development Initiatives 2015b).

The performance in domestic resource mobilization varies significantly across countries. Currently only half of all developing countries have tax-to-GDP ratios higher than 15 percent (World Bank Group 2015a). However, resource-rich countries often have a higher share of non-tax income (resource revenues) in their overall revenue mix, in particular those with large extractive sectors. For example, in Africa the revenue-to-GDP ratio in resource-rich countries was 23.3 percent in 2014, compared with 10.2 percent in non-resource-rich countries (AfDB, OECD and UNDP 2016). In recent years, many resource-rich countries experienced significant falls in revenue due to lower commodity prices.

Many developing countries, especially the LDCs and SIDS, face important challenges in raising domestic revenues. For instance, narrow tax bases (mainly because of dependence on a few commodities,⁴⁷ low per capita income, large informal sectors and small manufacturing sectors), weak tax collection and management systems, illicit financial flows⁴⁸ and the underdevelopment of their domestic financial sectors are among the major factors that hinder the ability of most LDCs to raise more domestic resources (UNCTAD 2016). Like LDCs, the economies of many SIDS depend on a few commodities, which makes their tax bases small and their domestic revenues fluctuate with the changes in commodity prices. Increasing trade liberalization further aggravates the situation for SIDS that are highly dependent on trade taxation (Hurley 2015). On average SIDS also have low savings rates and their small populations often widely dispersed over large distances make the provision of public goods more expensive on a per capita basis compared with countries with larger and more concentrated populations (Ibid.).

In addition, some of the recent revenue gains in low-income countries stem from increased global demand for natural resources, which remain volatile (World Bank Group 2015a). Countries that have low tax-to-GDP ratios often also encounter problems such as high levels of capital flight and limited capacity to collect revenues from multinationals, particularly in the natural resource sector (World Bank Group 2013).

According to Development Initiatives (2015b), government revenues are lowest where “depth of poverty”⁴⁹ is highest. In these countries international official finance⁵⁰ is particularly important. For instance, in countries where government revenue per person is less than US\$200, international official finance (primarily

⁴⁷ During the period 2013–2015, primary commodities accounted for more than two thirds of merchandise exports in 38 of the 47 LDCs for which data are available. Since 2000, dependence on primary commodities has increased significantly in about one quarter of the LDCs, while only five LDCs (Afghanistan, Burundi, Comoros, Solomon Islands and Uganda) have experienced any significant reduction in their dependence on primary commodities (UNCTAD 2016).

⁴⁸ According to UN DESA (2016d) “There is no agreed definition of the concept of illicit financial flows (IFFs), but it is generally used to convey three different sources of IFFs: the proceeds of commercial tax evasion, revenues from criminal activities, and public corruption.” UNECA estimates that Africa alone is losing more than US\$50 billion a year in illicit financial flows (UNECA 2015b).

⁴⁹ The report defines “depth of poverty” as a measure of the average gap in incomes for people living below the poverty line spread across the population of each country, and is used as a proxy for the scale of the challenge each country faces in ending poverty.

⁵⁰ Development Initiatives’ category of international official finance includes ODA, development cooperation from other providers, other official flows, additional lending and other activities by development finance institutions, and peacekeeping activities.

ODA) exceeds 50 percent of total international resources (Ibid.). Many of these countries rely heavily on international grants. Excluding resource-rich countries, the Development Initiatives report finds that in almost one third of countries where “depth of poverty” is highest, international grant funding makes up more than 25 percent of total revenue (Ibid.).

Enhancing the capacity of tax administrations and widening the tax base are vital for effective resource mobilization. Moreover, reforms that phase out harmful subsidies such as inefficient fossil fuel subsidies can play a critical role not only in creating fiscal space for development activities but also in “getting prices right” to reflect their environmental impacts.⁵¹

In developing countries where there are capacity constraints in raising domestic resources, ODA can have a more catalytic impact if it supports strengthening capacities of tax administrations.⁵² ODA specifically allocated to boosting taxation capacity or domestic resource mobilization-related projects is estimated at 0.06 percent of total ODA flows in 2012 and 2013 (Development Initiatives 2016; UN DESA 2016d). It should be noted that in 2013, whereas this “core” aid for domestic revenue mobilization (i.e. for projects for which increased revenue mobilization is the primary objective) is estimated at US\$92.6 million, “wider” aid for domestic revenue mobilization (i.e. for projects where increased revenue mobilization is one identifiable objective among many) totalled US\$600.5 million (Development Initiatives 2016).

During the FfD3 more than 30 countries signed the Addis Tax Initiative, through which donors committed to collectively double their support for technical cooperation in the area of taxation/domestic revenue mobilization by 2020 and participating developing countries committed to step up their efforts to mobilize domestic resources (UN, Inter-Agency Task Force 2016).⁵³

Many developing countries also do not have necessary resources and capacity to participate effectively in international tax cooperation. Addressing challenges such as international tax evasion and avoidance as well as illicit financial flows requires global cooperation.⁵⁴

5.2 International public finance

Developing countries receive international official finance from either other governments or international organizations that are funded by governments. Therefore

⁵¹ It is estimated that energy subsidies alone cost US\$300 billion (World Bank Group 2015a).

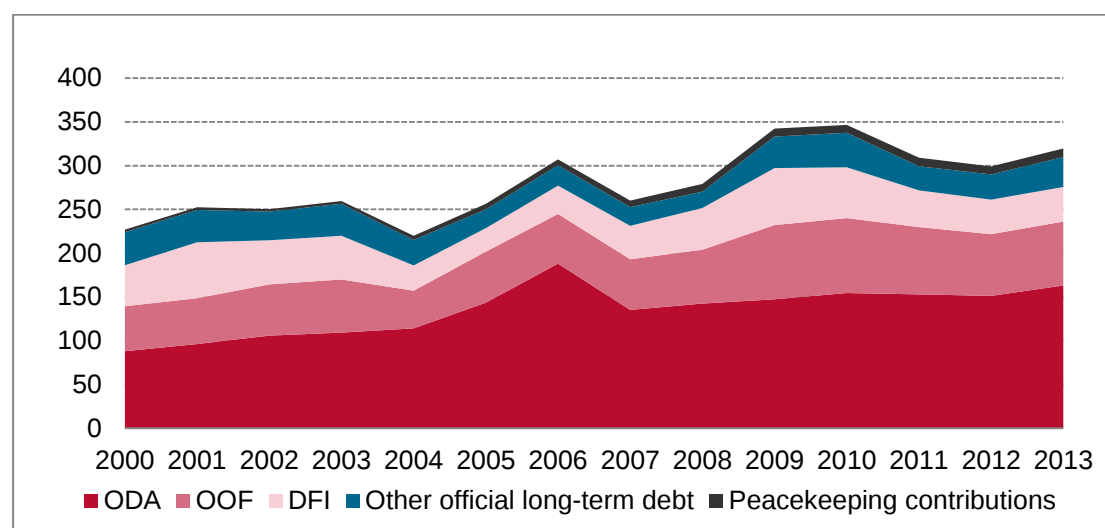
⁵² It should be noted that raising more domestic resources will require changes not only to tax administration but also to tax policies.

⁵³ See the website of the Addis Tax Initiative for further details: www.addistaxinitiative.net/.

⁵⁴ In recent years there has been some progress on exchange of information (led by the OECD and Global Forum on Transparency and Exchange of Information for Tax Purposes) and on addressing base erosion and profit shifting (BEPS) (led by the G20/OECD BEPS Project). These two initiatives have seen more inclusion of developing countries in making changes to the international rules. More recently, the IMF, OECD, UN and World Bank Group have established the Platform for Collaboration on Tax to boost their cooperation in tax matters.

this category of flows includes not only ODA but also development cooperation from Southern partners, other official flows (OOFs) that are less concessional than ODA, additional lending and other activities by development finance institutions (DFIs), and contributions to peacekeeping operations (Figure 21).

Figure 21 International official finance (billions of 2012 US\$)



Note: Peacekeeping data are in current prices and refer to peacekeeping budgets attributable to missions, including those of ECCAS, ECOWAS, OAS, CIS and other bilateral or independent peacekeeping missions, excluding the multinational force in Iraq (2003–2006). Source: Development Initiatives (2015b).

ODA remains the single largest type of international official finance; however, in 2013 other international official finance flows represented close to half of all flows in this category (Development Initiatives 2015b). Henceforth, ODA will continue to play an important role, especially in the poorest and most vulnerable countries.

5.2.1 Official development assistance

Since 2000, net ODA from OECD's Development Assistance Committee (DAC) members to developing countries increased by 82 percent⁵⁵ in constant prices (OECD 2016b). However, as a whole, net ODA, which reached US\$131.4 billion in 2015 (in current prices), corresponded to only 0.3 percent of OECD-DAC countries' total gross national income (GNI). If all donors reached the longstanding 0.7 percent of GNI commitment⁵⁶, annual ODA levels would more than double.

⁵⁵ In constant 2014 prices, net ODA increased from US\$80.3 billion in 2000 to US\$146.5 billion in 2015, according to the final 2015 ODA data released by OECD in December 2016 (data extracted on 9 January 2017 from OECD.Stat (www.oecd.org/dac/financing-sustainable-development/development-finance-data/)).

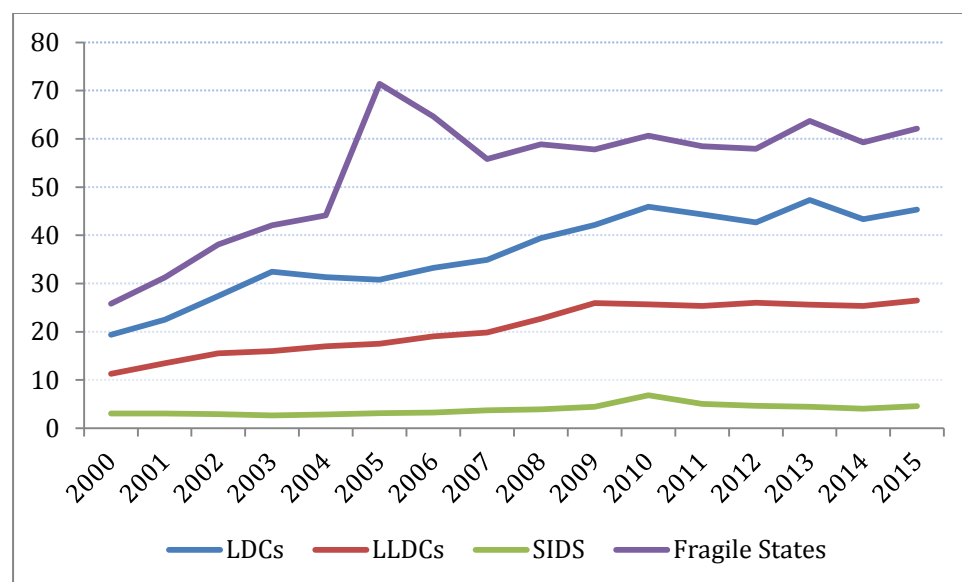
⁵⁶ In 2015, only five DAC members (Denmark, Luxembourg, the Netherlands, Norway, Sweden and the United Kingdom,) met the ODA target of 0.7 percent of GNI. For background on this target, see www.oecd.org/dac/stats/ODA-history-of-the-0-7-target.pdf.

Since 2007, net ODA has increased each year (in constant prices), with the exception of 2011 and 2012⁵⁷ when aid flows decreased due to the impact of the global financial crisis and fiscal problems in several major European donors. In 2015, most of the rise in net ODA was because of higher in-donor refugee costs (Ibid.) (see also sub-section 5.2.3).

ODA allocation varies considerably across regions. In aggregate, in the MDG period the majority of ODA flows went to Africa and Asia. ODA, however, has been concentrated on a relatively small number of countries. In 2013, for instance, the share of the 10 countries receiving the highest ODA flows was 37 percent. Four of these top 10 recipients are middle-income countries (Egypt, Syria, Turkey and Viet Nam). According to Development Initiatives (2015b), currently 30 percent of ODA goes to countries with a “depth of poverty” of less than 1 percent.

Among countries in special situations, fragile states have been receiving the highest ODA levels (US\$62.1 billion in 2015). Overall during the 2000–2015 period, total net ODA flows to the group of fragile states increased by 140 percent in real terms, despite some sharp fluctuations due to debt relief programmes. On the other hand, ODA flows to SIDS (already very low during the entire MDG period) declined steadily from 2010 to 2014, before increasing slightly in 2015. ODA received by landlocked developing countries (LLDCs) has remained in the US\$25 billion to US\$26.5 billion bracket for the last seven years (Figure 22).

Figure 22 Net ODA (bilateral and multilateral) received by LDCs, LLDCs, SIDS and fragile states 2000-2015 (billions of 2014 US\$)



Note: Net ODA levels in 2005 and 2006 included large Paris Club debt relief operations for two fragile states, Iraq and Nigeria. Source: Authors' elaboration based on OECD-DAC data.

ODA remains a critical source of external public financing, especially in LDCs. Despite an overall 134 percent increase since 2000, ODA received by LDCs

⁵⁷ See “Net ODA from DAC countries from 1950 to 2015” table at www.oecd.org/dac/financing-sustainable-development/development-finance-data/ (accessed 1 February 2017).

experienced some fluctuations, especially since 2010 (in real terms). With the exception of 2013, when ODA to LDCs increased mostly because of the debt relief granted to Myanmar, LDCs witnessed falls in ODA levels in the years leading up to FfD3 (UN MDG Gap Task Force 2015).

In FfD3, member states committed to reversing this decline (UN 2015a) and subsequently net ODA to LDCs in 2015 increased by 4.6 percent in real terms, marking a slight rebound.⁵⁸ However, the share of ODA allocated to LDCs (at 0.09 percent) still falls well short of the 0.15–0.20 percent of donor GNI target.

Henceforth, ODA should be better targeted to the poorest countries and to those where the capacity to raise resources is weakest, including LDCs, LLDCs, SIDS and countries affected by conflict. The need to enhance effectiveness of development cooperation by improving country ownership, transparency and results, which became a major priority for development actors during the MDG period, will also remain essential in the years ahead.

Since 2000 sectoral allocation of ODA has also evolved. In line with the MDGs' focus on basic social needs, the proportion of total bilateral ODA dedicated to basic social services increased from 15.5 percent in 2000 to 21.2 percent in 2009 (UN MDG Gap Task Force 2015). However, in recent years, there have been three major developments regarding the sectoral allocation of ODA:

- The share of bilateral ODA dedicated to basic social services has been declining (it fell to 18 percent in 2013 (Ibid.));
- There has been a considerable increase in bilateral climate-related ODA, which reached 20 percent of total bilateral ODA in 2013–2014 (OECD 2015a) (see sub-section 5.2.2);
- Given the number of emergencies and protracted crises, humanitarian aid has also been increasing, albeit insufficiently (see sub-section 5.2.3).

These trends imply a major shift in the years ahead in terms of which countries will get access to the most ODA. The terms under which finance is supplied will also likely change as there is a strong move to make more climate-related finance loan based. They also underline the need to better integrate humanitarian and development finance (see sub-section 5.2.3).

5.2.2 Climate-related ODA and climate finance

In the 2009 Copenhagen Climate Change Conference, developed countries committed to jointly mobilize US\$100 billion per year by 2020 to address the needs of developing countries from a wide variety of sources—public and private, bilateral and multilateral, including alternative sources of finance (UNFCCC 2010). This pledge includes both mitigation and adaptation costs, where the latter alone in developing countries are estimated at US\$70 billion to US\$100 billion annually (UN DESA 2016a).

⁵⁸ Authors' own calculations based on OECD.Stat data (bilateral net ODA from OECD-DAC members and multilateral net ODA).

OECD estimated that the aggregate volume of public (bilateral and multilateral) and private climate finance mobilized by developed countries for developing countries reached US\$62 billion in 2014, up from US\$52 billion in 2013 (OECD 2015a). This marks approximately two thirds of the Copenhagen pledge.

According to UNFCCC's 2016 biennial assessment, total *public* climate finance from developed to developing countries increased from US\$17 billion in 2011 to US\$26.6 billion in 2014 (UNFCCC 2016). In 2014, in addition to these bilateral flows, multilateral development banks (MDBs) also provided US\$25.7 billion to developing countries from their own resources (Ibid.). In 2013–2014, adaptation finance provided to developing countries accounted for only 25 percent of the total finance.

Based on recent pledges by several countries and MDBs, the OECD projected that public climate finance flows from developed countries to developing countries in 2020 will be close to US\$67 billion (of which US\$30 billion will be multilateral) (OECD 2016a).

The current climate finance flows have several important implications for countries that are most vulnerable to climate change. According to the above-mentioned OECD estimates, there is a considerable imbalance between funds that are allocated for mitigation and adaptation purposes, with 77 percent of climate finance being allocated to mitigation and only 16 percent being allocated to adaptation and 7 percent to activities that target both (OECD 2015a). As climate finance for mitigation is largely geared towards middle-income countries, they benefit disproportionately from available climate finance. While mitigation efforts are indispensable and need to be adequately financed, this current imbalance raises concerns given the urgent adaptation needs of countries that are poorer and more vulnerable to climate change, particularly LDCs and SIDS.

Even adaptation-related ODA requires better targeting as the majority of adaptation-related ODA is found to be allocated to countries with relatively low levels of vulnerability to climate change. In 2013, for example, only 9 percent of adaptation-related ODA commitments were targeted at the upper quartile of countries most vulnerable to climate change (Development Initiatives 2015b). In 2014 just five countries (Bangladesh, Brazil, India, Morocco and Turkey) received 36 percent of the overall support and the 14 countries with the deepest levels of poverty (over 20 percent) received among the lowest amounts of total adaptation finance (Beecher 2016).

Another challenge is that due to the absence of an international system for defining and tracking climate finance, most public climate finance is double counted as ODA. For instance, ODA accounted for 84 percent of bilateral public climate finance in 2013–2014 (OECD 2015a). Whereas eradicating poverty and addressing climate change are interconnected objectives and most ODA should be climate sensitive, it is critical to report and count these flows separately to ensure additionality and complementarity.

It will be critical to simplify and facilitate access to climate finance, especially for the poorest countries with the least capacities to cope with the impacts of climate change. Current climate finance architecture is very complex, including 29 implementing

agencies, 21 multilateral funds and initiatives and 7 bilateral funds and initiatives (UNCTAD 2016), adding to the burdens on the limited administrative and technical capacities of the poorest countries (for instance to design and develop projects or to follow the procedures of the funds to access finance). Recently the Green Climate Fund (GCF) stepped up its efforts to facilitate countries' access to climate finance (UNFCCC 2016).

5.2.3 Humanitarian financing

During the last decade and a half, humanitarian aid (from both traditional and emerging donors) increased more than twelvefold, reaching US\$24.5 billion in 2014 (UN, High-level Panel 2016). This overall humanitarian aid budget for 2014 was the largest ever recorded by the UN until that year.

However, it is striking that the world also witnessed the biggest-ever humanitarian funding gap in 2014 because of the number and scale of conflicts and disasters and the fast-growing numbers of people in need. Overall, 38 percent of the UN's humanitarian appeals were not met in 2014 (Ibid.).

The funding shortfall widened even further in 2015, when 45 percent of the UN's appeals for humanitarian aid were left unmet (the shortfall corresponding to US\$8.9 billion), which had severe implications (Development Initiatives 2016). For instance, in 2015, 1.6 million Syrian refugees had their food rations cut and 750,000 Syrian refugee children were out of school (UN, High-level Panel 2016).

A further development that raises concern is that some European donor countries announced plans to cut their overall development aid, because of the current response to the refugee crisis (UNSG 2015). In 2015 net ODA from six European donors decreased when their in-donor refugee costs are excluded (OECD 2016b).

Overall among OECD-DAC members, the share of in-donor refugee costs counted as ODA increased from 4.8 percent of total net ODA in 2014 to 9.1 percent in 2015 (Ibid.). One of the biggest ODA providers, Germany, counted US\$3 billion that it spent to host refugees as ODA, corresponding to 17 percent of its total ODA in 2015, as opposed to only 1 percent in 2014 (Ibid.). For five DAC members⁵⁹ the share was over 20 percent, rising to 34 percent in Sweden (Ibid.).

5.2.4 South-South development cooperation

Many Southern partners have been gaining prominence in the international development cooperation landscape. South-South development cooperation (SSDC) is playing an increasingly important role, complementing traditional development cooperation. Estimating South-South development financing flows is challenging as many Southern development actors do not publish data on a regular basis, and there is no standard definition for such flows.

⁵⁹ Austria (26.8 percent), Greece (20.6 percent), Italy (25.5 percent), the Netherlands (22.8 percent) and Sweden (33.8 percent).

According to the estimates by the UN, official concessional loans, grants, debt relief and technical cooperation provided for development purposes within the South exceeded US\$20 billion in 2013 (ECOSOC 2016). Estimates by other institutions point to even higher volumes. For example, Development Initiatives (2015b) estimates that development cooperation from non-DAC providers increased almost fourfold in real terms between 2004 and 2013, reaching close to US\$25 billion.

Many non-DAC countries report the concessional flows they provide for development cooperation to the OECD⁶⁰ on a voluntary basis. These flows increased significantly from US\$8.9 billion in 2011 to US\$24.7 billion in 2014; however, they decreased to US\$17.7 billion in 2015. The recent decline was mainly because of the volatility of such flows from Saudi Arabia⁶¹ (after more than a twofold increase in 2014, to reach US\$13.6 billion, these flows were cut by half in 2015). The largest flows in 2015 were from Saudi Arabia (US\$6.8 billion), followed by the United Arab Emirates (US\$4.4 billion, corresponding to 1.18 percent of its GNI) and Turkey (US\$3.9 billion) (OECD 2016c). It should be noted that this overall figure does not include development finance from several important Southern partners, such as China and India, which also increased their development assistance over recent years. OECD-DAC estimates that in 2014 concessional finance for development (ODA-like flows) provided by China reached US\$3.4 billion and those from India reached US\$1.4 billion (Ibid.).

Under the SSDC category, Southern partners often provide concessional or semi-concessional loans (rather than grant funding) focusing mostly on infrastructure development (World Bank Group 2013). It is estimated that 55 percent of SSDC is to support infrastructure investment, while over one third is allocated to social sectors. Recent trends in SSDC suggest “increasing involvement in social protection to combat inequality, accelerated investment in infrastructure for growth, sustainable green energy and land/water use, and strengthening smallholder agriculture” (UN MDG Gap Task Force 2015, p. 19). In recent years many Southern partners have also become increasingly important providers of humanitarian assistance. For instance, in 2015, Arab states accounted for around 7.4 percent of global humanitarian aid, which is likely an underestimate (ECOSOC 2016, p. 11).

Looking ahead, many Southern partners have committed to increase their contributions to SSDC. For instance, China set up a fund with an initial contribution of US\$2 billion to support developing countries to implement the SDGs and also launched its China South-South Climate Cooperation Fund (ECOSOC 2016; UN DESA 2016d). India also announced a US\$10 billion concessional line of credit to Africa for the next five years along with its US\$600 million grant assistance

⁶⁰ The non-DAC providers of development finance that voluntarily report to the DAC are Bulgaria, Croatia, Cyprus, Estonia, Hungary, Israel, Kazakhstan, Kuwait, Latvia, Liechtenstein, Lithuania, Malta, Romania, Russia, Saudi Arabia, Taiwan Province of China, Thailand, Timor Leste, Turkey and the United Arab Emirates.

⁶¹ Saudi Arabia’s reporting to the OECD on its development cooperation programme consists of aggregate figures on humanitarian and development assistance by region, multilateral aid, contributions to special programmes and societies, and loan disbursements and repayments by the Saudi Fund for Development.

(ECOSOC 2016). In addition to SSDC, non-concessional South-South flows, such as FDI or bank loans, have also been increasing in recent years (UNGA 2014).

In the SDG period it will be critical to improve the quality, impact and effectiveness of not only North-South development cooperation but also South-South and triangular cooperation. In the AAAA, countries committed to pursue these efforts in the Development Cooperation Forum of the UN's Economic and Social Council, taking into account complementary efforts under the Global Partnership for Effective Development Cooperation. Greater transparency around development finance flows will be essential.

5.2.5 International development finance institutions

Multilateral and regional development banks have an important role to play especially where private financial institutions are insufficient and ineffective in channelling resources into sustainable development objectives. With their long-term development objective, multilateral and regional development banks are particularly important for “financing infrastructure, agriculture, small and medium-sized enterprises (SMEs), capital market development, and stimulating sustainable private finance” (UN DESA 2016d).

In order to leverage public funds to mobilize additional private finance, Southern partners have also set up new institutions, including the New Development Bank and the Asian Infrastructure Investment Bank which have subscribed capital bases of US\$50 billion and US\$100 billion, respectively (Ibid.). The annual lending capacity of the New Development Bank is estimated to reach US\$3.4 billion by 2024 and almost US\$9 billion by 2034 (ECOSOC 2016). Over the next 15 years, the Asian Infrastructure Investment Bank is also projected to provide between US\$10 billion and US\$15 billion in loans annually (Ibid.).

The creation of new development banks and regional financial safety nets stems partly from the delayed and insufficient reforms of the main international financial institutions.

As the UN MDG Gap Task Force report (2015) states, “together with existing Southern financial institutions, such as the Islamic Development Bank, Banco del Sur and the Banco de Desarrollo de America Latina, coupled with the World Bank Group and the regional development banks, the family of international development finance institutions is increasingly positioned to offer a substantial range and volume of financial resources” for the SDG period.

5.3 Domestic and international private business and finance

5.3.1 Role of the private sector in sustainable development

It is widely recognized that all sources of finance will need to be mobilized in support of the SDGs. Private sector resources are crucial to complement public sector

investments and to contribute to economic growth and job creation, as well as innovations in areas critical for sustainable development.

Private sector actors, ranging from micro-enterprises to multinationals to financial sector actors, will all have an important role to play in achieving sustainable development objectives.

As argued earlier in the chapter, there is no shortage of capital in the global economy; however, investments in long-term sustainable development objectives are not at sufficient levels. For example, institutional investors with long-term liabilities, such as pension funds, life insurance companies, endowments and sovereign wealth funds, are particularly well-suited to provide long-term finance. International institutional investors hold an estimated US\$80 trillion to US\$90 trillion in assets, which is a significant potential source of finance for sustainable development objectives (UNGA 2014). However, their long-term investment in sustainable development has been low. Pension funds, for instance, invest only 3 percent of their global assets in infrastructure (Ibid.). Concerns about policy and regulatory regimes or lack of “bankable projects” are among the major impediments in many developing countries.

In the SDG period, it will be critical to better align private sector incentives (in the real economy and the financial sector) with sustainable development objectives through strengthened policies and sound institutional, legal and regulatory frameworks (UN 2015a). The role of public policy will also be vital in creating the domestic and international enabling environment for inclusive and sustainable private sector investment. It will include a wide range of public policy measures not only to lengthen investment horizons but also to incorporate sustainability criteria, such as the adoption of mandatory environmental and social impact reporting.

As a positive trend, the interest of the private sector in linking investments to sustainability objectives has been growing. Since its launch in 2006, the Principles for Responsible Investment⁶² (PRI) initiative has attracted around 1,500 signatories from more than 50 countries; these signatories have assets under management of US\$60 trillion (PRI 2016). They aim to incorporate environmental, social and governance (ESG) factors into investment decisions, to better manage risk and generate sustainable, long-term returns.

During the last decade the private sector’s involvement in philanthropic giving, corporate social responsibility initiatives and impact investing—which combines a return on investment with social and environmental objectives—has expanded in both developed and developing countries (UN 2015a). Results- and performance-based financing coupled with private–public partnerships have been used to fund services for many decades. Over recent years, new instruments such as social and development impact bonds have emerged and created a certain momentum for outcome-based financing with return on investment modalities (Gustafsson-Wright, Gardiner and Putcha 2015). Moreover, an increasing number of private sector actors are investing in inclusive business approaches, which include low-income people in the value chain

⁶² The six Principles for Responsible Investment are a voluntary and aspirational set of investment principles that offer a menu of possible actions for incorporating environmental, social and governance (ESG) issues into investment practice. See www.unpri.org/.

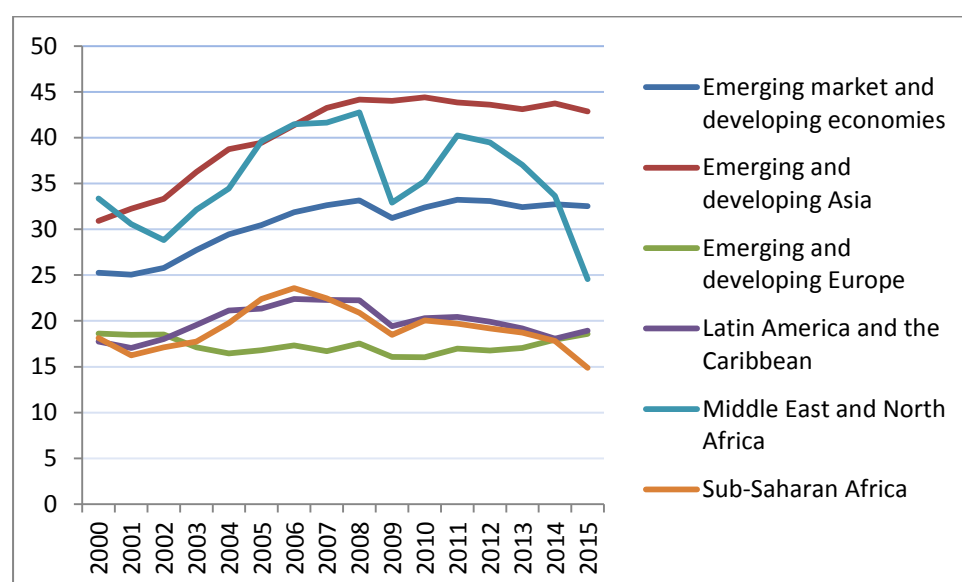
of companies' core business as suppliers, distributors, retailers, or customers (G20 2015).

5.3.2 Domestic private finance and capital markets

In aggregate, developing countries have significant domestic private resources. Excluding China, for which no data are available, domestic commercial finance⁶³ of the developing world is estimated at US\$2.2 trillion (Development Initiatives 2015b).

Gross national savings for developing countries as a whole also increased from 25 percent of GDP in 2000 to 32.5 percent in 2015 (IMF 2016c). However, data disaggregated by regions show that savings are highly concentrated in Asia (around 43 percent of GDP in 2015). Gross national savings for sub-Saharan Africa as a whole decreased from 23 percent of GDP in 2006 to 15 percent in 2015 (Figure 23).

Figure 23 Gross national savings (% of GDP), 2000-2015



Source: IMF World Economic Outlook Database, October 2016.

Developing domestic capital markets, including long-term bond and insurance markets, is critical to help meet long-term financing needs, especially for the vast investments needed in resilient and sustainable infrastructure. Many developing countries, particularly LDCs, LLDCs, SIDS and conflict-affected countries, may need international support to develop their domestic capital markets.

5.3.3 International private finance

International private finance, such as FDI, portfolio investment and bank loans, is also important for channelling resources to support sustainable development objectives.

⁶³ The calculation that Development Initiatives applied is: gross fixed capital formation minus FDI (to estimate total domestic investment) minus government capital investment (to separate public and private sources of domestic investment).

Among these external private sources of finance, FDI has been the most stable and preferred modality for most developing countries because of its potential to increase productive capacity in host countries. However, as with other financial flows, it is geared towards specific regions, country typologies and sectors. Among developing regions, Asia and Latin America receive the highest FDI flows, which are enjoyed mostly by middle-income and upper-middle-income countries (UN DESA 2016d). In sub-Saharan Africa and in LDCs as a whole FDI remains concentrated in a small number of mineral-rich countries.

Over the past decade many developing countries have had increased access to international capital markets and international private finance, which brings both opportunities and challenges with it. Certain flows, such as portfolio investment and bank loans, tend to be very volatile, and can decrease sharply, especially during episodes of economic and geopolitical shocks and uncertainties.

According to UN DESA estimates, net resource transfers⁶⁴ to developing countries as a whole was negative over the period 2004–2016 (UN DESA 2017). The highest number was recorded in 2008 when net resource transfers from developing countries reached US\$800 billion (Ibid.). It is estimated that in both 2015 and 2016 around US\$500 billion of capital left developing countries (Ibid.). In recent years lower commodity prices, the slowdown in the Chinese economy and other major emerging economies, and the expected increase in United States interest rates also contributed to this trend (UN DESA 2016d).

While FDI has been the most stable external private finance for developing countries, it has also been affected by the latest developments in the global economy. Net FDI flows to developing countries are estimated to decrease from US\$431 billion in 2015 to US\$209 billion in 2016; while portfolio flows were negative in both years (UN DESA 2017). The biggest decline in 2015–2016 was in interbank loans and other investment flows as commercial banks continued to reduce their exposures to higher risk economies, including emerging economies (UN DESA 2016d, 2017).

International assistance will be important, especially in countries that have constraints to diversify or manage the risk of volatile private capital flows, such as small and fragile states (UN MDG Gap Task Force 2015).

5.3.4 Remittances

Remittances constitute important sources of foreign exchange earnings and help recipient households to increase consumption and meet their needs. Once China is excluded, remittance inflows to developing countries exceed FDI inflows (World Bank 2016a). Remittances are also found to be more stable than other external flows during periods of financial volatility.

Over the last 15 years, developing countries have witnessed a massive increase in remittances from US\$73 billion in 2000 to US\$441 billion in 2015 (Ibid.). The actual

⁶⁴ The net flow of capital and capital servicing, the net foreign earnings of labour plus the net change in reserves.

volume of remittances is believed to be even higher as there are also significant unrecorded remittance flows transferred through informal channels.

Some developing countries are highly dependent on remittances. For instance, remittance flows are equivalent to 42 percent of GDP in Tajikistan and around 30 percent in the Kyrgyz Republic and Nepal (Ibid.). In volume terms, these countries are not among the large remittance-recipient countries such as China, India and the Philippines (Ibid.).

There are many examples of how remittances can be crowded in to finance development. For instance, the PARE 1+1 programme in Moldova matches remittances invested (by migrants or recipients) in local development activities with the same amount (of government/donor funding), in order to support small business start-ups by financing training and consulting services, among others (UNDP 2015b). This programme was developed on the basis of the Tres por Uno programme in Mexico financed by central and local government agencies, under which returning migrants who open businesses in their home country may receive interest-free loans of up to a predetermined amount (UNDP 2015b). These examples are part of a broader development finance trend, under which financial institutions are increasingly developing specialized financial services and products that cater to migrants and remittance recipients, such as dispora bonds (e.g. Ethiopia, India, Israel), the creation of dual bank account systems in two different countries to facilitate transfers, and savings plans targeting remittances (e.g. with a focus on financing children's education, in the Dominican Republic and Guatemala) (Ibid.).

The global average transaction cost of sending remittances remains around 8 percent, which is substantially higher than the “less than 3 percent” target⁶⁵ contained in the SDGs (World Bank 2016a). The highest remittance costs are observed in sub-Saharan Africa and in the Pacific Island countries (Ibid.). For instance, it costs over 20 percent to send US\$200 from Australia to Vanuatu (Ibid.). While the costs are declining in bigger volume corridors, they remain high, especially in low-volume corridors, including transfers to smaller countries that are usually more dependent on remittances as a share of GDP (World Bank Group 2013).

5.3.5 Philanthropy

During the last decade, philanthropic finance from foundations, individuals and other organizations to developing countries has grown rapidly in its scope and scale. Based on partial data available on these flows, it is estimated that philanthropic finance amounted to around US\$60 billion in 2013 (UNGA 2014). Large philanthropic foundations, such as the Bill and Melinda Gates Foundation, have been particularly engaged in the health sector with substantial contributions to vertical funds (Ibid.).

One important challenge ahead will be to improve data on philanthropic finance in order to help better assess its impact and improve coordination. The AAAA also calls for increased transparency and accountability in philanthropy, while welcoming the

⁶⁵ Target 10c is “by 2030, reduce to less than 3 percent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 percent”.

rapid growth of philanthropic giving. Moreover, it encourages “philanthropic donors to consider managing their endowments through impact investment” (UN 2015a, para. 42).

5.4. Innovative financing mechanisms and partnerships

Over the last decade, there has been an increase in so-called innovative financing mechanisms for development.⁶⁶ Some have demonstrated important results. For instance, the UNITAID micro-levy on airline tickets raised €1.6 billion between 2006 and 2011 to help fund treatments and diagnostics for HIV/AIDS, malaria and tuberculosis (UN, High-Level Panel 2016).

The MDG period has also witnessed increasing numbers of innovative multi-stakeholder partnerships, including several large vertical funds. The Global Fund to Fight AIDS, Tuberculosis and Malaria, and Gavi, The Vaccine Alliance, are the two most notable multi-stakeholder partnerships in the area of health. These partnerships bring together governments, philanthropic actors, international organizations, civil society and the private sector. They also use innovative financing mechanisms. For instance, since 2006, the International Finance Facility for Immunisation (IFFIm) set up by Gavi has raised US\$5.2 billion on the capital markets through its vaccine bonds (Gavi 2016).

In FfD3, countries encouraged exploring innovative mechanisms that combine public and private resources, including green bonds and vaccine bonds (UN 2015a). Diaspora bonds and Islamic finance instruments are further examples that have potential to raise important resources for sustainable development (UNGA 2014; World Bank 2016a).

Some of these financing mechanisms have experienced a rapid rise in recent years. For instance, bonds labelled as “green” (which earmark their proceeds to finance projects with environmental benefits⁶⁷) are estimated to increase from less than US\$10 billion in 2013 to more than US\$42 billion in 2015 (Climate Bonds Initiative 2016). Green bonds are estimated to increase even further, to reach US\$100 billion in 2016 (Ibid.).

However, many of the existing innovative financing instruments remain small in size and scope or are focused in a few sectors (Hurley 2012). Their use is also limited in the poorest countries, including in LDCs (Hurley and Voituriez 2016). Therefore, the challenge is to scale up proven mechanisms and explore how new instruments can be developed.

⁶⁶ Hurley (2012) notes that “There is no internationally agreed definition of ‘innovative financing for development’. In reality, the term encompasses a heterogeneous mix of innovations in fundraising and innovations in spending, i.e. innovative financing for development comprises both innovations in the way funds are raised as well as innovations in the ways funds are spent on international development”.

⁶⁷ See Climate Bonds Initiative 2016 for a discussion on Green Bond Principles and the Climate Bonds Standard scheme.

It would also be critical for these mechanisms to provide additional resources for sustainable development (as currently some of the resources raised through innovative finance are counted as ODA). In recent years there has been an increasing emphasis on using ODA and SSDC in a catalytic way to raise additional resources, and to help countries access a broader range of financing instruments, including for climate finance. Examples of innovative financial uses of ODA include combining it with non-concessional public finance or using ODA in specific market-like instruments that leverage private financing (UN DESA 2016d; UN MDG Gap Task Force 2015). Such uses have the potential to leverage important resources for development. At the same time, it would be important to ensure that they do not come at the expense of ODA allocated to the poorest countries and to social services. As UN DESA cautions, these market-like instruments used mostly by development banks and development finance institutions “are less suitable in sectors and areas where private returns are limited—such as social spending—and in the poorest countries” (UN DESA 2016d).

5.5 Importance of risk-informed finance

As discussed in chapter 4, shocks and crises such as disasters, conflicts, disease outbreaks, and economic shocks can threaten and even reverse human development progress.⁶⁸ Therefore, investment in risk mitigation, preparedness to cope with shocks and building greater resilience is crucial. Development and financing strategies should integrate risk management, i.e. they need to be risk informed.

The human and financial costs of shocks and crises are high and rising. For example, since 2005, disasters due to natural hazards have affected more than 1.5 billion people (UNISDR 2015). Economic losses from disasters are estimated at US\$250 billion to US\$300 billion each year (CRED and UNISDR 2015).

The UN’s Secretary-General’s High-Level Panel on Humanitarian Financing (2016) estimates that, if current trends continue, the cost of humanitarian assistance will have risen to US\$50 billion by 2030 and 62 percent of the world’s poor could be living in fragile and conflict-affected countries. The Panel further notes that, given the growing intensity and frequency of climate-related disasters as well as a deterioration of peace indicators over the past decade, the costs could be even higher than current estimates (Ibid.). In addition to emergency response, reconstruction and recovery efforts are very costly. As ODA can be slow to materialize, governments often resort to extra loans to cover emergency expenses and investments.

It is critical for the international community to ensure that humanitarian needs are met, while also addressing simultaneously the root causes of crises, fragility and instability. The need for humanitarian interventions in the first place should be reduced. Investments in peace, security, human rights, resilient health systems, and sustainable and resilient infrastructure must increase significantly, especially in fragile contexts. Investments in climate change adaptation and mitigation are also

⁶⁸ For instance, Syria has lost decades of human development achievements since the beginning of the conflict. Syria’s HDI is estimated to have lost 20.6 percent of its value compared with 2010 and 23.1 percent from its potential by mid-2013 (Syrian Centre for Policy Research 2013).

vital to reduce the impact of climate-related shocks and avoid catastrophic impacts of climate change.

Risk-informed development and finance strategies need to take into account a diverse range of risks. For example, investments in sustainable and resilient infrastructure will be critical to build resilience against shocks such as earthquakes and extreme weather events. At the same time, it is also essential to ensure that financing instruments used for these investments do not exacerbate other risks such as macroeconomic instability and debt distress.

Whereas, since the early 2000s, external debt-to-GDP ratio of developing countries has decreased considerably, this aggregate performance masks the increasing debt levels and vulnerability, especially in many SIDS and fragile states (UN MDG Gap Task Force 2015). As of November 2016, among the developing countries that are eligible for the IMF's concessional lending, three (Grenada, Sudan and Zimbabwe) were classified as in debt distress, 17 were at high risk, 35 were at moderate risk, and 12 were at low risk of debt distress (IMF n.d).⁶⁹ While 36 of the 39 countries⁷⁰ eligible for the Heavily Indebted Poor Country (HIPC) Initiative completed the process and received debt relief of around US\$136 billion (UN 2016b), and risk ratings for low-income countries generally improved after 2007, there has been some deterioration since 2013 (IMF 2016a). According to the IMF "inadequate fiscal discipline under less favorable external conditions", such as low commodity prices, was the leading cause of the downgrades in 14 countries since 2013 (eight of which are commodity exporters) (Ibid.).

In the aftermath of a major shock, providing debt relief is one way of supporting the poorest and most vulnerable countries. For instance, in response to the latest Ebola outbreak in West Africa, the IMF established the Catastrophe Containment and Relief (CCR) Trust to provide grant assistance to pay off future debt service payments totalling US\$100 million for Guinea, Liberia and Sierra Leone (IMF 2015).⁷¹

State-contingent financial instruments, such as GDP-linked bonds that link debt service payments to countries' economic performance, can also contribute to improve debt sustainability and help countries manage risk and cope with shocks more effectively (Warren-Rodriguez and Conceição 2015). Counter-cyclical loans, which allow debt service to automatically fall or become zero when a major shock occurs, also aim at building flexibility ex ante for borrowers and contributing to reduce the likelihood of a debt crisis (Hurley and Voituriez 2016). The use of these state-contingent instruments is limited, especially in LDCs; however, there is a strong case for increased use of such instruments as they have the potential to help countries manage risk and deliver resources in a counter-cyclical manner (Ibid.).

⁶⁹ The list of LIC DSAs includes the countries that are eligible for the Poverty Reduction and Growth Trust (PRGT), which is the IMF's concessional lending vehicle.

⁷⁰ Eritrea, Somalia and Sudan have not started the process of qualifying for debt relief under the HIPC Initiative and Zimbabwe did not qualify for debt relief based on 2013 data (IMF 2016b).

⁷¹ In the wake of a catastrophic natural disaster or public health disaster, the IMF assistance through the CCR Trust will be available to a broader set of low-income countries than are eligible for its concessional lending (IMF 2015).

6. Technological Innovations for Sustainable Development

Rapidly developing technologies have reshaped the lives of communities, families and individuals around the world through providing new goods and services, including to “bottom of the pyramid”⁷² consumers, creating new industries and markets, and changing demand for labour and capital (Ramalingham et al. 2016). New technologies have been recognized by the 2030 Agenda as an important means for implementing the SDGs across economic, social and environmental dimensions, and as a critical instrument to address existing and emerging challenges. However, while technologies can bring many benefits to communities in both developed and developing countries, they can also carry significant risks, as discussed later in this chapter. It is therefore important to ensure that these technologies are contextually appropriate, responsive to the needs of local people, inclusive in both their development and usage, and conforming to safety, security and privacy standards.

The technologies will affect the implementation of all SDGs. The current chapter presents some of the major technologies that have been developed in recent years that have an impact on food and water security, health, education, climate change and environment, and briefly discusses their opportunities and challenges, along with implications for the 2030 Agenda.

6.1 Technological opportunities

6.1.1 *Technologies for food and water security*

Increasing natural hazards, changes in food production and rising costs of water treatment and distribution, along with escalating conflicts, limit the supply of water and cause food shortages globally, leaving many people in developing countries without access to good nutrition and safe drinking water. Various technologies have emerged to address the challenges of food and water scarcity. Nanotechnological applications, for instance, are considered to be an essential tool in decreasing waste, increasing productivity in agricultural processes, and improving the quality of food and water by removing bacteria, viruses and pesticides (ECOSOC 2015). Improved seeds and practices, including conservation agriculture and drought-resistant crops, are increasingly adopted in farming. In particular, drought-resistant seeds are more adaptable to water-stress situations and use water more efficiently (Nicol et al., eds. 2015). Resource conserving technologies such as zero tillage are more affordable and easily accessible than nanotechnology, and over the past years their use has been accelerated in conservation agriculture, which is seen as a more sustainable and environmentally friendly management system for cultivating crops (Hobbs, Sayre and Gupta 2008).

Technological innovations have also led to considerable advances in desalination processes that turn saline into fresh water, thus potentially revolutionizing water supply globally (de Rooij 2015). These innovations range from more effective

⁷² The “bottom of the pyramid” refers to the world’s largest but poorest socio-economic groups, who live on less than US\$2.5 per day.

filtration materials to renewable energy-based desalination methods. One of these methods is solar desalination, which is seen as a new source of fresh water and a sustainable means to access it, particularly in the countries that have abundant solar energy and yet face severe water stress (Ramalingham et al. 2016). Those countries that, on the contrary, experience frequent rainfalls can consider using atmospheric water collectors as a source of clean drinking water.

While the potential and opportunities for nanotechnologies in food and water is recognized, there is a need for further rigorous research into the behaviour and effects of nanoparticles. Furthermore, challenges in applying desalination and water-cleaning mechanisms relate to their sustainable use, as it requires skilled staff, relevant infrastructure, accessibility and service networks and, above all, the capacity of local communities to adopt and develop these technologies (El-Bialy et al. 2016). In addition, the sustainable uptake of drought-resistant crops is constrained by high rural poverty levels and its performance can be hindered by low soil fertility (Nicol et al., eds. 2015).

6.1.2 Technologies for health

Health care has seen one of the biggest technological advancements over the past decades, from electronic medical records and telehealth services to nanosensors and neuroprosthetic limbs, which have contributed to people's well-being through improved access and provision of medical care. For example, the development and availability of new vaccines against infectious diseases such as hepatitis B, pneumonia and polio are estimated to save nearly 3 million lives every year and prevent millions of others from contracting deadly viruses and diseases.⁷³ Furthermore, patients in an intensive care unit equipped with audio-visual communication technologies were found to have a 26 percent lower mortality rate than patients in a regular unit (Lilly et al. 2014).

Medical technology has also introduced new equipment that can connect patients and doctors, collect data and provide care in rural and low-income settings through mobile devices, with around 500 million patients using mobile health applications in 2015 (Adibi 2015). This may help address spatial inequalities by bridging the rural–urban divide in healthcare service provision. Mobile devices can also enable patients to monitor their vital signs and can function as an early detection tool. Wearable sensors in particular can be helpful in treating patients with chronic conditions through monitoring their heart rate and blood pressure and by doing so providing timely information to medical staff about emerging problems.

In addition to greater efficiency, digital technologies can also reduce costs for both patients and healthcare providers. During the recent Ebola virus disease outbreak, for instance, Ebola response workers were paid through digitized payment systems using mobile phones, which ensured that payments were made correctly and on time during a period of crisis (UNDP 2015c).

⁷³ www.who.int/mediacentre/factsheets/fs378/en/ (accessed 1 February 2017).

However, having technological capabilities alone is not sufficient to make health innovation work for people. Despite the development of vaccines, an estimated 19.4 million infants worldwide were not reached with basic vaccines in 2015.⁷⁴ Challenges also exist with regard to the actual use, distribution, scaling up and financing of health care innovation.⁷⁵ In particular, the utilization of new technologies in developing countries may require the conditions and resources of local communities. Furthermore, while legislation can facilitate the development and use of innovative treatments, they can also hinder it (Herzlinger 2006). In addition to fulfilling the safety requirements of regulatory agencies, healthcare innovators are also expected to show the cost-effectiveness and efficacy of their products or services to consumers who are increasingly demanding accountability from these providers (Ibid.).

6.1.3 Technologies for education

Technology has had a considerable impact on education, providing new ways of learning, teaching, communicating and working collaboratively. It has also expanded access around the globe through web-based platforms, including online courses, video conferences and interactive applications, and provided flexibility in terms of location, time and costs, including for women and other disadvantaged groups (West 2015). Mobile learning, for instance, has become one of the most popular technologies in education because of its innovative take on traditional learning methods, with mobile devices having increasingly overtaken personal computers as the information device.

Technology has also transformed education by offering lifelong learning, which is a valuable tool in today's knowledge-driven society to meet the demands for professional development, particularly in view of the volatile nature of the labour market. Educational institutions around the world are offering a wide range of online resources that can update skills and broaden knowledge. Various educational tools and e-learning activities have also been created to address the needs of students with different learning styles, including those with special needs.

One of the innovative technologies that have been applied to education is augmented reality, which incorporates digital information into the real-world environment, allowing users to interact with both digital and physical objects through headsets, eyeglasses or other devices. It can have impact on the learning process by locating students in any imaginable place across the universe while enabling them to visualize different systems or elements, including those of the human body and the solar system, thus bringing them to the deeper levels of cognition (Johnson et al. 2016).

While many technologies are affordable, largely for audiences in advanced countries or for more affluent urban areas in other parts of the world, some technologies are increasingly applied in less developed contexts. Technologies such as radio and TV programming have been used in developing countries for informational and

⁷⁴ Ibid.

⁷⁵ Financing through research grants for R&D, for instance, is one of the incentive mechanisms for the development of medicines, including for neglected infectious diseases. In addition to financial incentives, it is also important to strengthen local health systems and set an appropriate legal framework to reduce the disease burden in developing countries (Mueller-Langer 2013).

educational purposes, including for reaching students located in underserved and remote areas (UNESCO 2015). For example, the Somalia Interactive Radio Instruction Programme worked to advance stabilization in Somalia by providing formal education in math and reading to local children through interactive radio programmes (EDC 2011).⁷⁶ The Educopedia online platform created by Rio de Janeiro's Municipal Department of Education in 2010 to improve public school teaching provides materials for teachers and gives students access to multimedia learning resources, including videos, interactive quizzes and digital libraries. Together with other reforms, it likely contributed to better educational performance by students (Bruns and Luque 2014). New education models with a blended design that combines online courses with classroom instruction are increasingly adopted in countries such as India and Pakistan, albeit with some policy and regulatory restrictions (EIU 2015).

In fact, educational technology uptake can be slow in countries in developing regions where the connectivity, whether digital or electrical, needed to run technological devices is not widely available or affordable. Increased accessibility is unlikely to occur without commitment by governments and the involvement of private enterprises such as mobile phone operators. Furthermore, local teachers and students require training and support before they can effectively use online resources. At the same time, simply providing more and better technological devices and connectivity is not sufficient to harness technology in developing settings. It is also important to address equity, including gender divides, and the quality of teaching and learning. Furthermore, as most resources are in English, language can act as a technological barrier and thus it is essential to not only provide materials and training in local languages but also build the capacity of local developers who can take forward resource innovations (Passey et al. 2016). In any situation, understanding the local context is a critical first step before proposing a technology-driven solution. The One Laptop per Child project in Peru, for instance, provided thousands of low-cost computers to students in rural areas but this has not led to increased learning in math or language (Cristia et al. 2012). More fundamentally, many of these efforts may not necessarily be technology failures per se but could, rather, result from poor planning and an inability to adapt (World Bank 2016c).

6.1.4 Technologies to address climate change and environment

An adequate response to the risks posed by climate change will require the deployment and development of environmentally sound technologies that contribute to climate change adaptation and mitigation efforts. Many technologies, namely renewable energy technologies such as wind and solar energy technologies, have an important role in combating climate change and its negative impacts.

⁷⁶ Rural radio stations, which have seen considerable growth over the past decades, can also be used for sharing agricultural information with remote farming communities. The growth of rural radio broadcasting reflects not only an improvement in information technologies but also a shift towards a more participatory style of information and knowledge transfer. This is carried out, for example, by encouraging the active participation of local people in the radio programmes, which contributes to empowering them and ensures local ownership (Chapman et al. 2003).

Solar energy that converts sunlight into usable energy forms can potentially make electricity affordable to 1.2 billion people who do not have access to it (UNDP 2015a), with the sun predicted to become the world's largest source of electricity by 2050 (IEA 2014). Direct solar energy technologies harness the energy of solar radiation to produce electricity using photovoltaic (PV) systems (Edenhofer et al. 2012), which are more beneficial for both the environment and health (UNEP 2015a). Solar-powered portable lights, for instance, offer a better service at lower cost and can save the US\$27 billion that is currently spent annually on lighting and mobile-phone charging using kerosene, candles or other fossil-fuel-powered technologies (Orlandi, Tyabji and Chase 2016).

As renewable energy technologies are becoming more economically viable and affordable alternatives to fossil-based systems,⁷⁷ there are more opportunities for deployment of these technologies (UNECA 2015a), which also contributes to expansion of domestic energy production (GCEC 2014). In China, for instance, the wide development of PV cells has driven costs down while contributing to the diversification of its energy economy (Mastny 2010). Some countries have provided fiscal incentives that have both lowered supply barriers and encouraged demand for solar technology. In Kenya, for instance, all imported LED-lighting equipment and solar components are exempt from taxation (Lighting Africa 2010).

Current agricultural and food consumption patterns are seen as unsustainable and are shown to be one of the most important drivers of environmental pressures (Hertwich et al. 2010). Climate-smart technologies and practices can lower emissions from agriculture. For example, water-conserving alternatives to the flooding of rice paddies can reduce methane emissions by 45 percent, while emissions from the livestock sector can be cut by 40 percent through the adoption of more efficient practices such as the use of nitrogen-efficient and heat-tolerant crop varieties and zero-tillage and integrated soil fertility management (FAO 2016b).

Other essential environmental technologies include those that address air pollution through smog-reducing mechanisms such as catalytic converters, photocatalytic oxidation materials and smog-reducing towers, which can contribute to better quality of life and improved health outcomes (Ramalingham et al. 2016).

Countries are able to reap economic and social opportunities if they pursue low-emission climate-resilient development. Renewable energy will assist in the achievement of SDG 7 on affordable and clean energy, and attaining this goal will vastly improve the chances of achieving other development objectives, including reduction of poverty and inequalities, job creation, and environmental and health benefits (UNDP 2015d). The transformation of energy systems, however, remains a big challenge, particularly for low-income countries (Vos and Alarcón, eds. 2016). Without political will and appropriate financial and regulatory incentives, it will not be possible for companies to develop and deploy cost-effective energy solutions (Ramalingham et al. 2016).

⁷⁷ Investment costs of wind onshore technologies, for instance, cost around US\$1,200–US\$2,100/kW and solar PV amounts to US\$2,700–US\$7,300/kW, which has become comparable to those of fossil fuels (US\$1,000–US\$3,000/kW) and large hydropower (US\$1,000–US\$3,000/kW) (UNECA 2015a).

6.1.5 Other technologies for development

Some of the technologies that are essential for achieving more sustainable outcomes also include drones, formally known as unmanned aerial vehicles (UAVs). They have a wide range of applications and are increasingly playing an important role in mitigation of disasters and in humanitarian response by serving as an early warning mechanism and a resilience-building tool. Mapping generated by UAVs can, for example, contribute to flood and agricultural monitoring, support disaster risk reduction, and enable improved logistics and damage assessments during crises, as was the case with Haiti's Hurricane Sandy in 2012 and the Philippines' Typhoon Haiyan in 2013 (Gilman 2014). UAVs can also be used to support disaster response, as in the Maldives (Jegillos 2017).

Another innovative technology that has great potential for development is 3D printing. It is reshaping the nature of work as it can potentially produce anything from industrial prototypes to human tissue. This may permanently change the previous model of long runs of identical goods in factories, opening opportunities for individuals and smaller companies to participate in decentralized production (UNDP 2015a). Developing countries could use it to leapfrog industrial development processes, bypassing traditional manufacturing elements that are less efficient, more polluting and expensive (Ramalingham et al. 2016). This in turn could reduce dependencies on foreign goods, as many vital products could be produced locally. At the same time, automation, and 3D printing in particular, poses significant risks. In particular, 3D printing alone can affect the jobs of 320 million manufacturing workers in the world today—12 percent of the global workforce—by displacing people in favour of automated production (UNDP 2015a).

Platforms that combine both demand and supply are changing industry structures, such as those within the sharing economy. For example, Airbnb, an online marketplace for lodging, available in 191 countries, Uber, a transport company that operates through a mobile application in 66 countries, or Yoza, a locally developed Ugandan application that allows users to find laundry services, provide alternative low-cost ways to access services and goods, thus improving incomes and livelihoods. However, some of these platforms have created monopolies and anti-competitive behaviour that can harm the poorest workers and consumers (Ramalingham et al. 2016).

New technology has also given voice to marginalized people, as the proliferation of mobile phones and satellite television, along with widening access to the Internet, has significantly increased the availability of information and the ability to express opinions (UNDP 2010).

6.1.6 Data revolution⁷⁸

To enable well-informed decision-making and support the implementation of the 2030 Agenda, it is important to provide timely, relevant and high-quality information that could foster and monitor development progress. Despite significant efforts so far, critical data are still lacking and knowledge gaps remain, with many people and groups, particularly the most vulnerable and marginalized, still not being measured (IEAG 2014). It is estimated that as many as 350 million people worldwide have been neglected by household surveys (Stuart et al. 2015).

Furthermore, more data need to be available at the level of disaggregation, including by gender, age, income, location, education or disability, to inform policymakers about allocations or monitoring of outcomes within and between countries, as well as across regions. For instance, on the goal of maternal mortality, only 11 percent of developing countries have available data (World Bank Group 2016). This is partly due to incomplete civil registration systems on births and deaths, with coverage ranging from 50 percent in Latin America to 25 percent in South Asia, and a mere 6 percent in sub-Saharan Africa (Boerma and Stansfield 2007; Devarajan 2013; Murray 2007).

Thanks to the development of new technologies such as smartphones and digital or visual survey methods, including in developing countries, there are unprecedented opportunities for data collection, analysis and dissemination. The new data sources and technologies, however, must be applied carefully to avoid a reporting bias favouring more advantaged people and thus widening the gap between the “data poor” and the “data rich” (IEAG 2014).

To be able to monitor and achieve the SDGs, more investment is needed in statistical systems, especially at the national and local levels. This includes basic administrative data such as censuses and household surveys but also technology-driven big data or qualitative participatory data and perception studies that can assess well-being beyond GDP. It also involves the increase in building the capacity of governments, private and public institutions and individuals to deliver and use these data.

The data revolution will also need to be facilitated both top down, with new checks, balances and legal frameworks, and bottom up, as citizens create, access and analyse data in innovative ways, using these data to hold governments, companies and international organizations to account. A real data revolution can only take place if the right kinds of data are produced, if people can use them and if the political will is there to act upon the knowledge imparted by the data (Stuart et al. 2015).

⁷⁸ The data revolution is referred to as “an explosion in the volume of data, the speed with which data are produced, the number of producers of data, the dissemination of data, and the range of things on which there is data, coming from new technologies such as mobile phones and the ‘internet of things’, and from other sources, such as qualitative data, citizen-generated data and perceptions data” (IEAG 2014).

6.2 Risks of technologies

While technologies have provided innovative solutions to many development problems, they have also added new challenges and risks. For example, information and communication technologies have allowed huge advances in health, education and agriculture, but they have raised security and privacy concerns. Increasing eco-efficiency of technology use has reduced the amounts of resources consumed and pollution produced per unit of output over the long run, but absolute amounts of consumption and pollution have continued to increase unsustainably (UN 2016a).

Furthermore, despite the positive impacts of the digital revolution, its gains have not been widely shared, contributing to the rise of inequalities and exclusion (UNDP 2015a; WEF 2016b; World Bank 2016c). For instance, in 2015, 3.2 billion people around the world were using the Internet. However, 81 percent of households in developed countries had Internet access, compared with only 34 percent in developing countries and 7 percent in LDCs (ITU 2015). Furthermore, in the same year, 89 percent of the world's urban population had 3G mobile broadband coverage, compared with just 29 percent of its rural population (UNDP 2015a). In fact, the largest beneficiaries of the digital revolution tend to be people who are better educated, “tech-savvy” and already enjoy material and other advantages, while those from lower socio-economic and marginalized groups with limited resources and low skills receive less than their fair share of benefits.

In addition, some argue that rapid technological change has been destroying jobs faster than creating them (Brynjolfsson and McAfee 2014), while polarizing work opportunities and incomes (UNDP 2015a). For example, in the United States, despite high productivity and innovation, the median income and number of jobs have fallen (Brynjolfsson and McAfee 2014). Moreover, technological innovations pose a risk of reducing or even replacing human labour. The global robot population is expected to double to four million by 2020 (Johnson et al. 2016), which will affect economies, businesses and societies globally. Robots and 3D printers in particular are expected to replace many jobs in manufacturing, the automotive industry and the sale and distribution of goods, while by 2025 computers could do the work of 140 million knowledge workers (Dobbs, Manyika and Woetzel 2015). Forecasts of labour market changes caused by innovation in artificial intelligence suggest that 30 percent of middle-income jobs could be eliminated (Autor 2015).

To manage risks posed by technologies, policy actions need to focus on bridging the digital divide (Broadband Commission 2015). It is also necessary to counteract “the tendency of technological advance to outpace the social control of technology” (Posner 2004, p. 20), through, for instance, investing more in people and the human force, and adjusting workers' skills to the new demands of the labour market (Rotman 2013). State-funded social protection floors, including minimum income security, are also essential in addressing some disruptive impacts of new technologies.

6.3 Technological implications for sustainable development

Scaling up existing proven technologies and investments in new technologies will play an important role for SDG achievement in all countries. Developing countries

lacking in technologies or capacity need to be able to adopt the existing technologies and also innovate new technologies in cooperation with others, while harnessing local and indigenous knowledge. To address disparities created by technology and enhance international cooperation in this area, a Technology Facilitation Mechanism was launched as part of the 2030 Agenda, which will support the SDGs through a collaborative annual multi-stakeholder forum on science, technology and innovation and an online platform that will facilitate knowledge-sharing.

To ensure that emerging technology trends produce benefits, an improved business climate, good governance, stimulating entrepreneurship and increased investment in research are needed to fully realize the opportunities. While it will mainly be the private sector that will drive the deployment of new technologies, the public sector, through national regulation, as well as development financing, will play a major role in mediating the pace and direction of technological change, in terms of both achieving development goals and protecting potential losers (Ramalingham et al. 2016). The public sector will need to invest in education for all and ensure that everyone in a society has the chance to acquire digital skills. Developing countries in particular will have to work on broadband plans and policies, invest in infrastructure and make Internet access affordable, open and safe. A key priority is strengthening the “analogue foundations” of the digital economy. At the same time, public institutions, including universities and government laboratories, have an essential role in R&D related, for example, to medicines for neglected infectious diseases (Mueller-Langer 2013).

For governments and international organizations alike, the increasingly fast pace of technological advancements necessitates larger investments in R&D with a strong focus on the adoption of context-adequate technologies and addressing last-mile problems.

Above all, it is important to focus on the processes by which these technologies are managed, in order to ensure users’ needs and interests are at the forefront of development, deployment and scaling efforts. This implies effective engagement with local stakeholders, including governments, the private sector and communities, not only as targets but also as creators, in determining problems and finding solutions (Ramalingham et al. 2016).

III. Concluding Remarks

The six areas explored in this report—poverty and inequalities, demography, environment, shocks, finance and technology—are fundamentally important to whether the world makes progress in the 2030 Agenda period and far beyond. Some of the trends displayed currently are positive and supportive, including on the reduction of absolute poverty and technological innovation. Yet negative trends in several of the other target areas pose a significant risk to the realization of the SDGs.

The proactive management of the policies and institutions that shape, support or mitigate developments in these areas will therefore be very important. All can potentially be shaped so that they become positive dynamics in SDG

implementation—and all are interrelated. For example, technological innovation in the area of renewable energy can limit sea-level rise, land loss and human displacement expected because of climate change. The early management of conflict flashpoints, or viral outbreaks, can prevent populations sliding into a state of poverty that endures for generations.

The building blocks of the policy responses to these interrelated challenges are those determined at national (and local) level. This requires, within governments, and populations more generally, an awareness of the evidence on the causes and consequences of trends in these areas. It requires a sophisticated and informed discussion on the costs and benefits of different courses of action, or indeed inaction.

Yet the dynamics associated with these issues do not stop at the border of any one country. The prospects for poverty reduction are shaped by the distribution of the benefits of global growth, of natural resource use, of trade and finance, and of the ability of people to move to better opportunities. Effective responses to these challenges therefore require significant additional effort at the regional and global levels.

Four factors for more effectively managing these trends are common to all, and therefore are particularly deserving of attention:

Evidence

There has been much debate recently on the role and importance of facts and evidence in decision-making. Both the creation and reception of evidence is a complex process, and not seen by all as neutral or apolitical. The possibility of achieving greater certainty is more likely in the natural sciences, but this has not stopped contestation in the areas of human-induced climate change or the efficacy (and risks) of vaccination programmes. Contestation is even greater in the social sciences, where decisions are shaped not just by objective facts but also by beliefs, culture, ideology and cognitive biases. Nevertheless, accurate and triangulated information should be seen as a vital input into decision-making processes.

The 2030 Agenda is intended to be integrated, with the relationships between different sectors explicitly recognized. This suggests that evidence-generating processes should be designed so as to take these interactions into account, whether that be through the use of interdisciplinary teams who can bring different insights to research, or through modelling and simulations of complex interactions.

The 2030 Agenda also places much emphasis on leaving no one behind, which will require a greater degree of disaggregation in terms of impacts of policy or events on different groups of people. Formal (and yet sometimes expensive) tools such as household surveys may need to be complemented by non-traditional forms of data, whether generated by the interaction of people and technology (big data) or participatory, qualitative and perceptions-based data. In doing so, researchers and policymakers will need to understand the trade-offs between sample size and representivity, privacy and public good.

Policy coherence

The potential for policy coherence manifests itself in two ways in the 2030 Agenda.

First, there is the issue of coherence across the breadth of the Agenda—what we could call horizontal coherence. This reflects the intention of pursuing progress across goals at the same time (e.g. employment guarantee programmes that focus on the provision of the safeguarding of environmental goods and services), while recognizing and minimizing the negative interactions. This may not be possible to achieve perfectly, and so while “win–win” policy pathways are self-evidently good, societies need to be aware of any trade-offs and discuss their distributional implications.

Second, there is the issue of coherence at different levels of decision-making and implementation, primarily local, national, regional and global—for example, whether local policies on education service provision are supported by fiscal policies at the national level, especially the decentralization of tax policy. Where a country may be expected to pursue over time a greater degree of coherence for policies within its borders, there is a natural limitation when space for decisions depends on the cooperation of others—for example, when levels of air pollutants are augmented by a neighbouring country rather than generated internally. There is no easy solution where areas of disagreement arise, except for participants discussing and operating within governance structures that make these cross-border impacts more explicit, so that new policy pathways or compensation can be agreed.

Collective action

All of the issues discussed in this report point to the need for collective action so as to maximize the positive dynamics in these areas and minimize risk. Stronger evidence and strengthening governance mechanisms at all levels are prerequisites to collective action, yet in and of themselves do not guarantee it. Continued dialogue and trust are also very important in moving towards mutually beneficial cooperation.

In a world of interdependence, no country acting alone will be able to fully manage the gamut of risks and threats to stability that exist today, from global illicit activities to violent extremism, from economic shocks to displacement crises. Multilateral engagement provides unprecedented opportunities to tackle these challenges, in a world where so many global resources and aspirations are shared—from the oceans to the atmosphere, to the global stock of scientific knowledge to the universal aspirations for peace and dignity.

Seizing the opportunities for multilateral engagement, in turn, depends on a strong and widely shared “global commons” of international governance—institutional frameworks and sets of rules that establish a foundation on which to design and implement international collective action. Yet formal institutions of global governance are being challenged, both by global forces and by national movements.

It is essential to strengthen the global governance institutions that embed universal aspirations for peace and dignity in order to manage collectively the global commons and challenges that are beyond the ability of any individual country to manage on its own. Realizing the commitment of the 2030 Agenda “to broaden and strengthen the

participation of developing countries in the institutions of global governance” will also be critical for building a truly global partnership for sustainable development.

Participation and Politics

The design and negotiation phase of the 2030 Agenda for Sustainable Development was characterized by considerable engagement on the part of many stakeholder groups, which enhanced the quality of technical inputs, generated new forms of partnership and increased ownership of the agenda.

The complexity of the challenges faced—and opportunities offered—by the areas addressed in this report mean that all resources will have to be brought to bear to ensure the inclusiveness of participation. To date there has been to some extent a continuation of this participatory trend in the implementation phase of the Agenda, with the engagement of civil society, business, and the academic and scientific community. Henceforth, it would be essential to ensure that the poorest and most vulnerable populations, including in developed countries, are able to exercise their rights, have their voices heard, and benefit from progress. Balanced multi-stakeholder participation is likely to generate more practical and durable solutions that have greater political traction and ownership.

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