DEVELOPMENT AND GLOBALIZATION
FACTS AND FIGURES

UNITED NATIONS
UNCTAD

DEVELOPMENT AND GLOBALIZATION
FACTS AND FIGURES
2016

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'Sustainability' must now be viewed from a broader perspective that includes social and economic dimensions.

Foreword

Since the 1990's, 1 billion people have been lifted out of extreme poverty and the proportion of undernourished people in the developing regions has fallen by almost half. During the same period, the global under-five mortality rate has declined by more than half, dropping from 90 to 43 deaths per 1000 live births. Millions of young girls are in school now as gender disparity in primary, secondary and tertiary education has been eliminated in developing countries as a whole[1]. Despite the achievements of the Millennium Development Goals (MDGs), there remains more work to be done. We have seen how war, famine or natural disasters can undermine or undo years of progress almost overnight. For this reason, the Sustainable Development Goals (SDGs) renew our resolve to combat global poverty and ensure inclusive prosperity, but also strengthen our determination to tackle climate change and environmental degradation.

The 2030 Agenda for Sustainable Development sets out a very ambitious programme of work. In September 2015 the 17 goals and 169 targets of the SDGs were agreed. The challenge is now to measure these goals and targets with the most appropriate and comprehensive indicators available.

In March 2016, 230 indicators were adopted by the United Nations Statistical Commission and now await ratification. As these indicators have not yet been ratified, this first statistical report on the SDGs provides a tentative situation review, for the goals and targets that fall under UNCTAD's mandate. Although tentative, the report nevertheless puts down an early benchmark, providing a very useful early indicator of the gaps, which must be closed in order to achieve the SDGs.

Despite dramatic improvements in many aspects of development over the past two decades and over the lifespan of the MDGs, progress was uneven and several countries and regions remain vulnerable. By demonstrating that irrespective of the target, many of the same countries and regions are identified as struggling, this report highlights in a graphic and informative way, the interconnectedness of people, planet and prosperity. In doing so, the report reinforces a key message of the 2030 Agenda - that everything is interdependent and interconnected, and that we cannot look at one aspect of progress in isolation from all others, but rather we must look at things in the round and from a more holistic perspective. The determinants of development are invariably plural and inter-related, not mono causal.

The word 'sustainability' has most often been understood from a purely environmental perspective. By highlighting the interlinkages between different goals and targets, this report also illustrates how 'sustainability' must now be viewed from a broader perspective that includes social and economic dimensions. In doing so the report provides a timely reminder of some of the challenges facing economists and statisticians, not least, how to put a value on nature and ecosystems in a way that usefully allows trade-offs to be understood and helps integrate environmental and biodiversity issues to be mainstreamed into policy decisions. Equally, how to merge location and space with mainstream data and statistics, so that the interactions between economy, society, environment and location can be better understood, in such a way that confidentiality is not compromised but where the importance of geography is recognized in decision making.

As this is a statistics report, I feel I should say a few words about data in the context of sustainable development. The data demands arising from the SDGs are huge and cannot be realistically met by official data alone. Consequently a variety of data sources have been utilized to compile this report, leading to a key message from the report - there are insufficient data available at the moment to provide data to populate all 230 indicators. Thus, in order to provide benchmarks and measure subsequent progress, what I describe as 'complementary evidence' must be harnessed and utilized. This is in keeping with the philosophy of the Data Revolution report 'A World that Counts'. Naturally, using such a wide variety of sources can lead to legitimate concerns regarding data quality, but what has been presented here is plausible and provides, I think, an excellent example of how data sources can be integrated and blended to identify coherent messages. The report also clearly illustrates the links and interconnectedness of what at first reading may seem to be disparate or unconnected goals and targets. Furthermore, I would remind readers that no indicator perfectly reflects reality, each has limitations. We also see that some areas have an abundance of data and many competing indices. In other areas, there are no data at all and no indices. This SDG statistics report can play a useful role in identifying what data are available and where the data gaps are.

There is one very important gap identified in this report, which I believe merits readers' particular attention. The importance of North-South, South-South and triangular aid and cooperation is clear from the 2030 Agenda, as are the data gaps in this area. A significant lacuna exists with regard to South-South Cooperation, and the SDGs bring in to sharp focus the need to address these data gaps as a matter of urgency. The past two decades have seen South-South and Triangular cooperation grow rapidly in scale and intensity. Yet, the availability of information and quality of research on the scale and impact of this cooperation has not kept pace with the growing demand among Southern partners for peer learning to further improve. Knowledge gaps and uneven access to solutions are currently major obstacles hindering the scaling-up of South-South Cooperation and the maximization of its impact on sustainable development.

Finally, this report illustrates in a very concrete and informative way, the strength and depth of UNCTAD's expertise on measuring and monitoring SDG achievement, and re-affirms the relevance of UNCTAD's comprehensive approach to development, which has long argued that we must take into account not just economic factors, but also social, institutional and environmental factors too.

Mukhisa Kituyi

Secretary-General of UNCTAD

Notes and references

Note

1 See http://www.un.org/millenniumgoals/gender.shtml for more facts.

Introduction

Welcome to the 2016 edition of the UNCTAD Development and Globalization: Facts and Figures. This edition is dedicated to the Sustainable Development Goals that were adopted by the United Nations in September 2015 (2030 Agenda Declaration) (United Nations General Assembly, 2015). At the time of writing (June 2016), the indicators for measuring progress towards these Goals that have been proposed by the Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) and accepted by the United Nations Statistical Commission (United Nations Statistical Commission, 2016) have not yet been endorsed by the General Assembly. Nevertheless, we think it is useful to give an early or preliminary assessment of progress for a selection of the 17 Sustainable Development Goals and 169 targets.

The 2030 Agenda Declaration stresses the importance of quality, accessible, timely and reliable disaggregated data to measure progress and to ensure that no one is left behind. The Declaration also states that data and information from existing reporting mechanisms should be used where possible. This report is in keeping with that philosophy; it has been compiled using a wide variety of data sources, both official and unofficial, to present a broad overview. The purpose of this report is not to present an in-depth review or analysis, but rather to provide a situation summary and highlight some key facts and messages, and give a fair synopsis of how things stand today, at the beginning of this 15-year agenda.

The selection of the targets presented in this report reflects UNCTAD's mandate. UNCTAD is responsible for dealing with economic and sustainable development issues with a focus on trade, finance, investment and technology. Through these actions, UNCTAD contributes to progress on 52 specific Sustainable Development Goal targets, grouped under 10 of the 17 Sustainable Development Goals. Nevertheless, the report presents some general statistical analysis for all 17 Goals, as it is considered desirable to highlight the interdependencies of all the Goals, just as it is to underline the interconnectedness of all aspects of development. Readers will note that two themes, prosperity and partnership, are given priority in this report, as these are the areas where UNCTAD's expertise contributes most.

The report is organized in five broad themes or sections:

- People: Goals 1–5
- Planet: Goals 6 and 12–15
- Prosperity: Goals 7–11
- Peace: Goal 16
- Partnership: Goal 17

Along with the Goals, selected targets are discussed. The full list of the Goals and targets presented in this report is given below. A special note is also included in the report on global and regional population projections and demographic changes. This has been included as, over the lifetime of the 2030 Agenda for Sustainable Development and in the years following, the global population will increase significantly. These changes provide an important context for the implementation of the Agenda.

There are many important messages highlighted in this report. We would like to emphasize just two: one regarding data and one regarding the not-unrelated issue of resources. The 2030 Agenda has placed much greater emphasis than the Millennium Development Goal agenda on the need for improved data and statistics. In the lead up to adopting the 2030 Agenda, the High-Level Panel of Eminent Persons (United Nations, 2013) called for a data revolution. The United Nations Secretary-General Ban Ki-moon subsequently established an Independent Expert Advisory Group on a Data Revolution for Sustainable Development. In its 2014 report A world that counts – Mobilizing the data revolution for sustainable development (Independent Expert Advisory Group on a Data Revolution for Sustainable Development, 2014), the question was raised of whether unequal access to data should in fact be a recognized form of inequality. A dilemma exists concerning the fact that data availability is usually weakest for the poorest countries of the world, while these are the countries for which they are needed the most in the context of monitoring sustainable development. This leads to the second message. The cost of implementing the 2030 Agenda will be significant. Estimates of how many additional resources will be required vary. Ambassador Macharia Kamau of Kenya, one of the co-facilitators of the intergovernmental consultative process, anticipates that the implementation of the 2030 Agenda could cost between US$3.5 trillion and US$5 trillion per year (Inter Press Service, 2016). Ibrahim Thiaw, United Nations Assistant Secretary-General and Deputy Executive Director of the United Nations Environment Programme, estimates it will cost at least an additional US$1.5 trillion annually over the Millennium Development Goals (Thiaw, 2016). One thing is clear – these sums are far in excess of existing funding. We would ask readers to think about data as infrastructure; infrastructure every bit as important as broadband or electricity networks. These issues are touched on in Goals 9 and 17. In order to provide policymakers around the world with the coherent information they need to inform their decisions, a lot of investment is required behind the scenes. This investment in data infrastructure will require additional resources but will yield a return consisting of a broader knowledge base, and ultimately more efficient policy formation and a better-informed public.

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PEOPLE

"We are determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment."

The People section of this report consists of Sustainable Development Goals 1 - 5 along with selected targets from those goals.

The international community's re-commitment to "end poverty in all its forms everywhere" has been enshrined in the first Goal of the United Nation's Agenda 2030 and is essentially a continuation of Millennium Development Goal 1. While the priority is to end extreme poverty, Goal 1 of the Sustainable Development Goals encompasses a broader view of poverty, recognizing it as a multifaceted and multidimensional phenomenon with a complex mix of economic, social and environmental causes.

Hunger can mean very different things in different parts of the world and to different people. Hunger can express various degrees of eagerness or craving for food, ranging from simply being "hungry" between meals to starving after not having eaten in days; the distinction between day-to-day hunger and chronic hunger.

Today people are living longer both in developing and developed countries leading to significant changes in demographic patterns, with important implications for the length of working lives, pension provision and access to health-care services. The importance of physical health has been long recognized, but in recent years there has been increasing attention given to improving our understanding of what constitutes subjective well-being and the factors that influence it.

Education is critical to self-reliance and self-determination. But education is more than simply the key to overcoming hunger; it is the key to overcoming baseless superstition and illogical argument. Education is essential for good decision-making, accountability and understanding. It is the seed from which ethics, cooperation, growth and health all grow.

Article 1 of the 1948 Universal Declaration of Human Rights states: All human beings are born free and equal in dignity and rights. All men and women are entitled to live in dignity, in freedom from want and from fear. But gender equality is also a precondition for development and poverty reduction. Empowered women contribute to the health and productivity of families, communities and nations.

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Goal 1: No poverty

End poverty in all its forms everywhere.

Target 1.a of the Millennium Development Goals set out to halve, between 1990 and 2015, the proportion of people whose income was less than US$1.25 a day (the threshold used to define extreme poverty). In 1990, about 1.9 billion people or more than one third of the world's population lived on less than that amount per day. By 2015 this proportion had fallen to 12 per cent, meaning that more than 1 billion people had been lifted out of extreme poverty. While a very significant achievement, approximately 836 million remain in extreme poverty (United Nations, 2015a).

China and India, the most populous countries in the world, were the leading contributors to reduction of extreme poverty. Although extreme poverty has been declining globally and in many countries, poverty reduction has been unequal across regions and countries. Extreme poverty remains most concentrated in sub-Saharan Africa and Southern Asia, with 80 per cent of people in these regions still surviving on less than US$1.25 a day. In 2011, the United Nations (2015a) reported that almost 60 per cent of the world's extremely poor people lived in just five countries: Bangladesh, China, the Democratic Republic of the Congo, India and Nigeria. The progress of Caribbean regions in poverty reduction between 1990 and 2011 has also been far slower than other regions of the world. Poverty within youth populations will remain a major challenge in coming decades for countries with rapid population growth[1.1] (United Nations, 2015c).

"Like slavery and apartheid, poverty is not natural. It is man-made and can be overcome and eradicated by the actions of human beings."

- Nelson Mandela (2005)

The international community's recommitment to "*end poverty in all its forms everywhere*" has been enshrined in the first Goal of the United Nation's 2030 Agenda (United Nations, 2015b) and is essentially a continuation of Millennium Development Goal 1. But while the priority is to end extreme poverty, Goal 1 of the Sustainable Development Goals encompasses a broader view of poverty. The Sustainable Development Goals recognize that poverty is a multifaceted and multidimensional phenomenon with a complex mix of economic, social and environmental causes. The diversity of targets included in Sustainable Development Goal 1 illustrates this complexity, addressing several aspects of poverty or contributing factors to continued poverty; targets address the eradication of extreme poverty; the reduction of child and gender-specific poverty; the introduction of social transfers to protect the poor and vulnerable; equal access and rights to economic resources and services; reducing the impact of climate, social and economic shocks; ensuring countries implement policies to reduce poverty and also invest in poverty eradication actions.

Defining poverty

The scale of poverty differs greatly around the world and so it can be confusing or even misleading to apply the same word to all these various states of hardship. While some level of poverty exists in every country and society, the extent or level of that poverty can differ greatly; for example, when we talk about poverty in Western Europe or in sub-Saharan Africa, we are typically talking about very different things. As a consequence, poverty can be defined in several different ways, such as relative poverty, consistent poverty and absolute poverty. If we think about poverty as the inability to participate in society, then concepts of relative poverty are appropriate. If, however, we are concerned with people not having enough to eat or not enjoying good health, then absolute poverty is a more appropriate measure. So for the purposes of measuring extreme poverty at a global level, a measure of absolute poverty is used as the barometer. The US$1.25-per-day threshold articulated in target 1.1 of the Sustainable Development Goals is such an absolute measure[1.2].

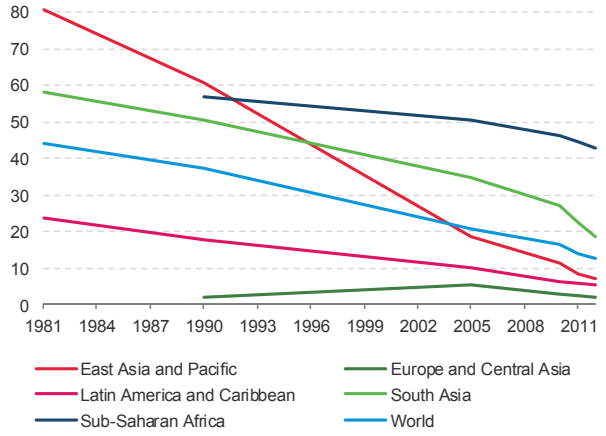
The US$1.25-a-day threshold

In 1991 the World Bank introduced the "*dollar-a-day*" international poverty line (Ravallion et al., 1991a; Ravallion et al., 1991b) to try to reflect the standards of absolute poverty in the world's poorest countries. This international line was "*anchored*" or calculated as an average of the national poverty lines of the 15 poorest developing countries. These absolute national poverty lines are typically set by determining the cost of a bundle or basket of essential goods and services necessary to meet basic needs. Two methodologies are typically used. The first, the "*cost-of-basic-needs method*" is typically calculated on the basis of pricing 2,100 calories per person per day[1.3] plus other costs associated with basic essentials such as heat, shelter and clothing. When price information is unavailable, a second approach, the "*food-energy-intake method*" is often used (Deaton, 1980; World Bank, 2005). To make these national averages comparable, they are converted to United States of America dollars using purchasing-power-parity exchange rates (PPPs) rather than nominal rates.

The World Bank has updated the international poverty line a number of times to reflect changes in PPP and inflation rates – the original US$1 line was updated to US$1.08 in 1993, US$1.25 in 2005 and again in 2015 (based on 2011 prices) to US$1.90[1.4].

Over the next 15 years we can expect the international poverty line to be updated again. It is for this reason that the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected the "*Proportion of population below the international poverty line disaggregated by sex and age group and employment status*" rather than the specific US$1.25 or US$1.90 measure as the appropriate indicator to measure progress towards target 1.1[1.5].

Figure 1.1. Share of population living in absolute poverty, 1981-2012
(Percentage of total population)



Source: World Bank, Poverty and Equity Database
Note: Regions are aggregated using 2011 PPP (except Bangladesh, Cabo Verde, Cambodia, Lao People's Dem. Rep. and Jordan which use $/day in 2005 PPP) and $1.9/day poverty line. World Bank region definitions.

As noted above, significant progress has been made in reducing global extreme poverty. Figure 1.1 shows the progress towards this target over the past 35 years at a regional level. While there have been improvements everywhere, that progress has been uneven. Dramatic improvements are evident in East Asia and the Pacific, where the proportion of the population living in extreme poverty has fallen from more than 80 per cent in the 1980s to less than 8 per cent today.

Less dramatic, but nonetheless impressive, those experiencing extreme poverty in South Asia have fallen from 59 per cent in the early 1980s to around 19 per cent today. In sub-Saharan Africa reductions in extreme poverty have been more modest but still notable, falling from 57 per cent in the 1990s to 43 per cent today.

Poverty and inequality

Despite the improvements made, in 2015 there were still approximately 830 million people (or 11 per cent of the population) still living below the international poverty line. If this poverty line were to be adjusted slightly, say increasing the threshold from $1.90 to $2.50 a day, then 25 per cent of the population would fall below the line – some 1.8 billion people. While the poverty line is a very useful instrument in that it is a relatively easy concept to understand and can be used to set a clear, definable target, it does not tell us much about income inequality. As populations lift out of extreme poverty, this is likely to become a more pressing issue.

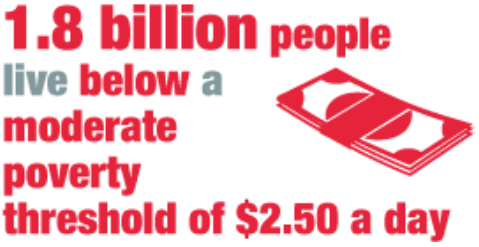
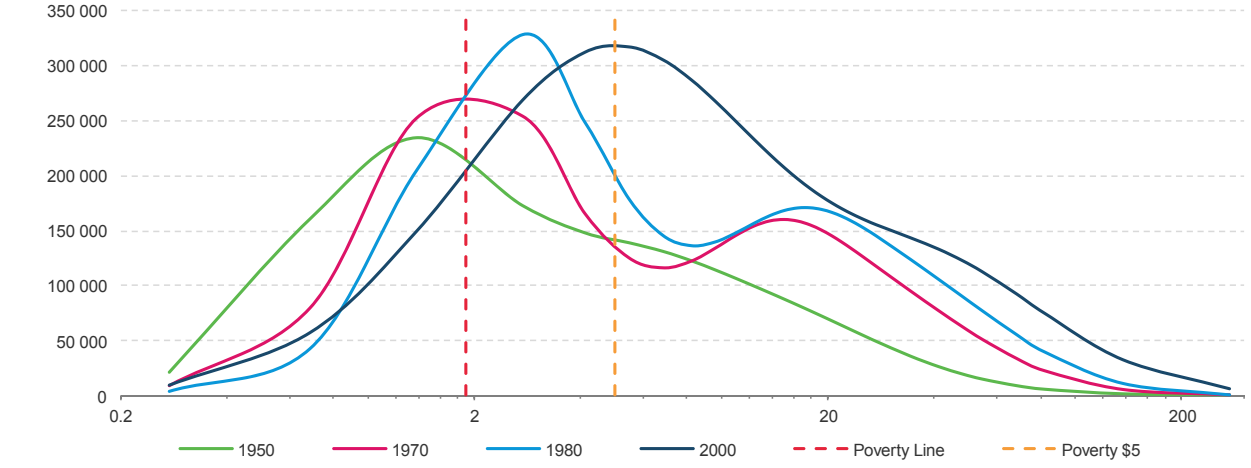


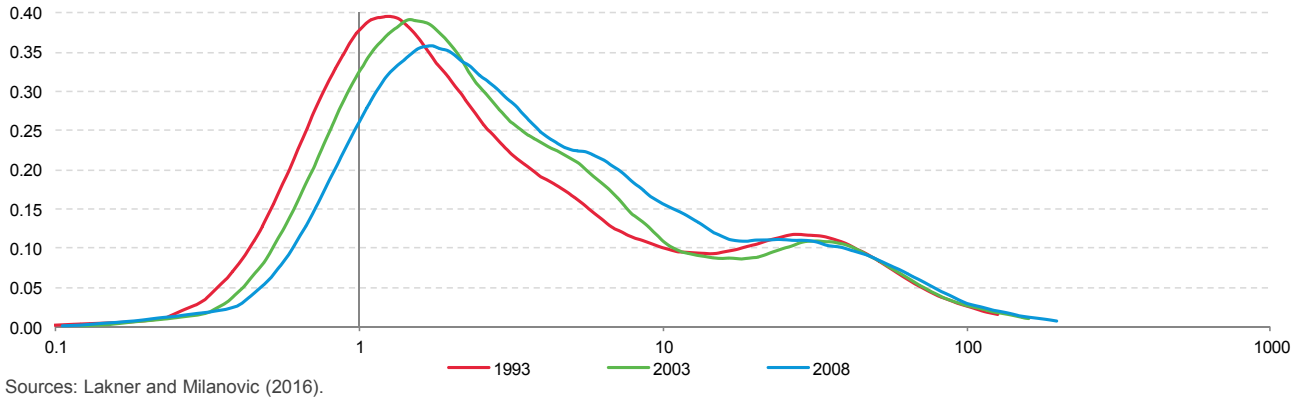
Figure 1.2 shows how the income distribution has shifted to the right between 1980 and 2000, illustrating an improvement in global income. Although the income distribution for the year 2000 has moved to the right and has flattened somewhat relative to the 1970s, it is still quite steep, signifying persistent global inequality. Today, the top percentile (top 1 per cent of the population, accounting for approximately 4.5 million people) live on an average income of about US$290 a day. In contrast, the poorest 50 per cent of the population (approximately 3.4 billion people) live on an average income of US$7 a day.

Figure 1.2. Global income distribution, 1950-2000
(Thousands of people at given level of income, per day, in US$ at 1990 PPP)



Sources: van Zanden et al. (2014), Gapminder and OECD (2014).

Figure 1.3. Global income distribution, 1993-2008
(Per day, US$ at 2005 PPP, logarithmic axis, population-weighted)

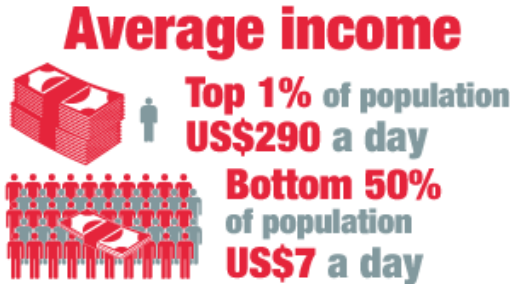


Sources: Lakner and Milanovic (2016).

The skewed income distribution is not limited to historic data, the uneven distribution is evident in more recent data also. Figure 1.3 depicts average income at the top of the distribution that has seen gains while little improvement has been observed at the very bottom of the global income distribution. The 1993 distribution had two peaks, one centred around $PPP 1.2 per day and another around $PPP 27 per day. By 2003, the second peak had flattened out, whereas the distribution centred around $PPP 1.5 per day peak had broadened.

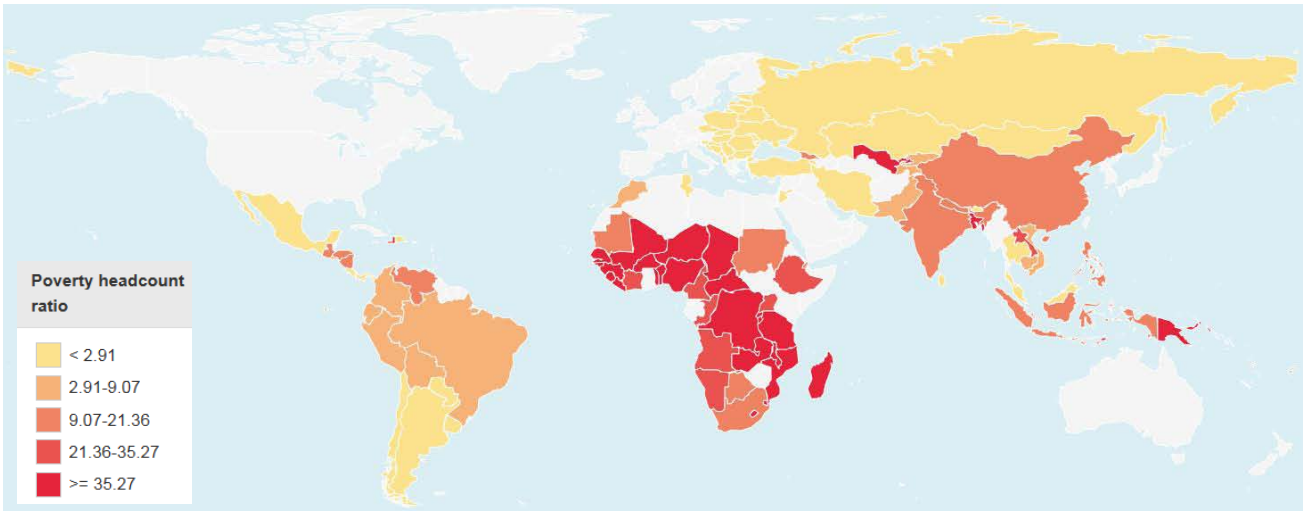
The top 1 per cent of the population, accounting for approximately 4.5 million people, live on an average income of about US$290 a day. The poorest 50 per cent of the population (approximately 3.4 billion people) live on an average income of US$7 a day.

As figure 1.4 illustrates, extreme poverty is still a global issue and still persists in parts of Asia, the Caribbean and in particular in sub-Saharan Africa. It is very difficult to get up-to-date information for all countries of the world, but some of the following facts illustrate the challenge. According to the latest available information, in Madagascar the proportion of the population living in extreme poverty is 82 per cent, in Burundi it is 78 per cent, in the Democratic Republic of the Congo 77 per cent and in Malawi 71 per cent.



In fact, according to the latest data available, at least 15 sub-Saharan countries have at least 50 per cent of their respective populations living in extreme poverty. But there are many countries for which no up-to-date information is available. Nor is it an exclusively African problem; in Haiti and many of the Micronesian islands the proportion of the population living in extreme poverty also exceeds 50 per cent.

Figure 1.4. Extreme poverty around the world, latest available data
(Percentage of population, 2011 PPP)



Sources: World Bank, Poverty and Equity Database.
Notes: Poverty headcount ratio at $1.90 a day is the percentage of the population living on less than $1.90 a day at 2011 international prices.

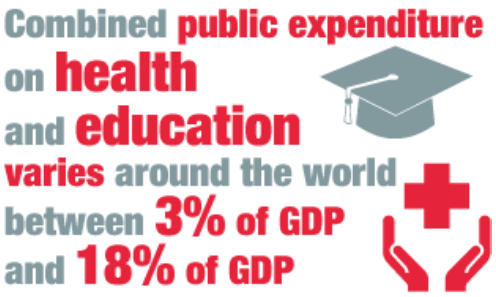
Target 1.a: Resource mobilization

Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries

Improving the education and health of people not only leads to a better quality of life but also has positive impacts on economic development. Consequently, the provision of education and health is a key element for policies that promote broad-based economic growth. Provision of education and health services leads to improved productivity and earnings of workers. Education also helps to mitigate many of the problems faced by developing countries. Similarly, the linkages of health to poverty eradication and long-term economic growth are strong. Education and health are important tools to empower poor people and overcome exclusion based on gender, location and other correlates of poverty (United Nations Economic and Social Commission for Asia and the Pacific, 2003). The challenge, of course, is to ensure that public expenditure is productive and not unproductive.

"At no time has a total, coordinated and fully adequate programme been conceived. As a consequence, fragmentary and spasmodic reforms have failed to reach down to the profoundest needs of the poor." - Martin Luther King (King, 1967)

For example, a study conducted by Maitra and Mukhopadhyay (2012) in Asian Pacific countries found that the impact of education and health-care spending on gross domestic product (GDP) was not uniform. In the majority of countries education spending has been found to exert a positive impact on GDP. A similar result was found for health-care spending.



However, in some countries, public expenditure on education and healthcare was found to have a negative impact on GDP. The study also found that the impact of education and health-sector spending on GDP growth is instantaneous and that the length of the time lag varies across countries depending on the state of the socioeconomic and administrative structure in a country. The authors also note the importance of good governance, efficient institutions and skilled manpower for positive outcomes. The European Parliament commissioned research (Eichhorst et al., 2010) that reinforced the importance of social protection, both as a stabilization measure during times of recession, helping to maintain overall demand for goods and services produced in the economy and protecting employment, and also as an important contributor to the reduction of social and economic inequalities.

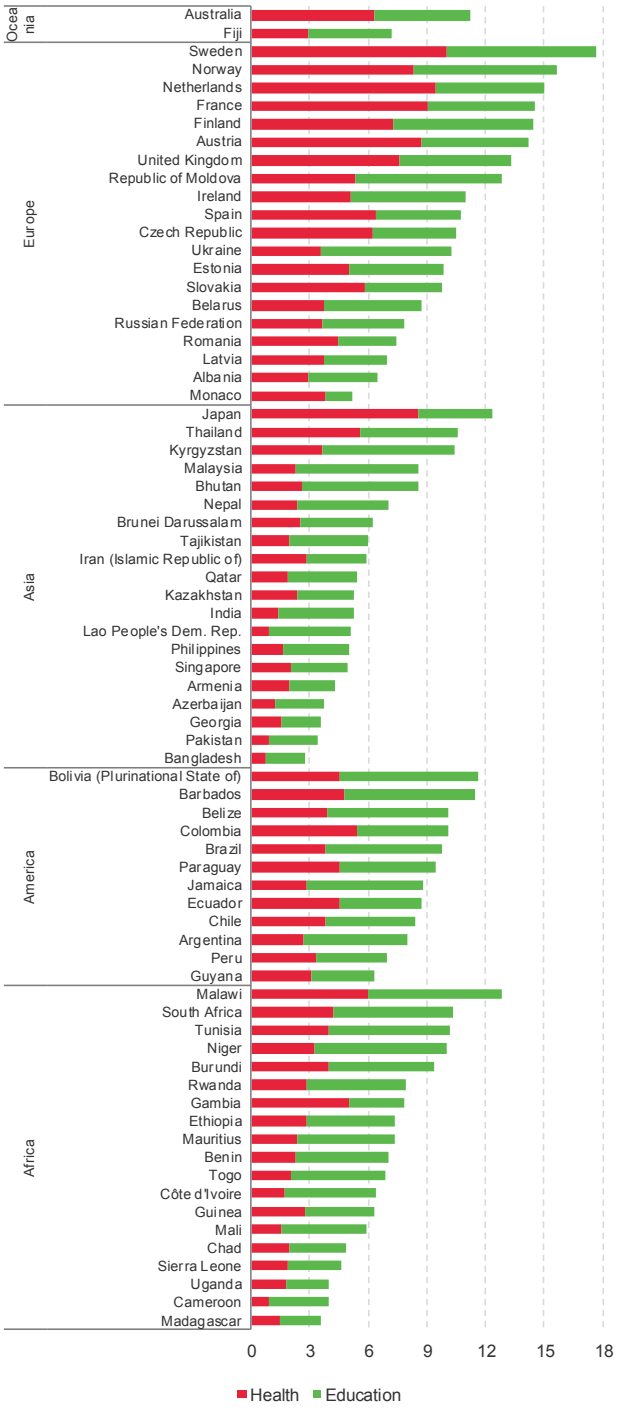
Two indicators were selected by Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) to measure progress towards this target, these being, first, "*The percentage of resources allocated by the government directly to poverty reduction measures*" and second, "*Spending on essential services (education, health and social protection) as a percentage of total government spending*". Unfortunately, at the time of writing, data to populate these indicators are unavailable (United Nations Statistics Division, 2016). However, some data are available from the World Bank World Development Indicators database. Data on expenditure on education as a percentage of total government expenditure and as a percentage of GDP are available, but data on expenditure on health are only available as a percentage of GDP. No data on expenditure on social protection are available. For this reason, government spending on health and education as a percentage of GDP is used here.

While the data on health expenditure are quite complete, the same cannot be said for education expenditure. Only a limited set of countries have data for the year 2000 and at the same time data for one of the three years 2012, 2013 or 2014. In 2014[1.6], for the selected group of countries presented, public expenditure on education ranged between 1 per cent (Monaco) and 8 per cent (Sweden) of GDP, whereas spending on health ranged between 1 per cent (Azerbaijan, Bangladesh, Cameroon, India, Lao People's Democratic Republic, Madagascar and Pakistan) and 10 per cent (Sweden) of GDP. Figure 1.5 shows there was a wide range of public spending on health and education as a percentage of GDP across countries in all regions.

While, between 2000 and 2014, public spending on health and education as a percentage of GDP increased in most countries for which comparable data are available (but most particularly in Burundi, Ecuador, Gambia, Malawi, Netherlands, Niger and Republic of Moldova), it also fell in several countries, most notably Belarus, Bhutan, Fiji, Guyana, Madagascar and Sierra Leone.

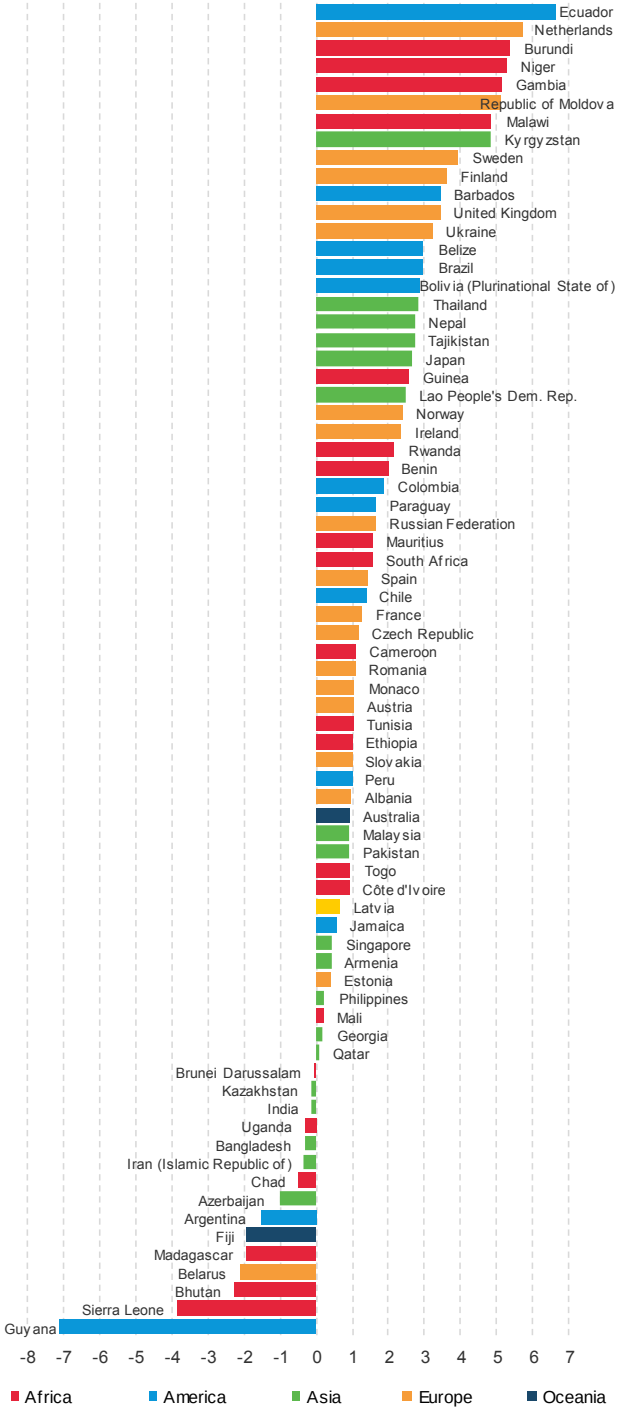
Average public expenditure on education in the countries of the Organization for Economic Cooperation and Development (OECD) in 2012 as a percentage of GDP was 5.3 per cent (OECD, 2015a). The comparable percentage for health expenditure was 8.9 per cent in 2013 (OECD, 2015b). As noted above, there are no data available on global social-protection spending. However, these data are available for OECD countries. In 2014, average social spending for OECD countries as a percentage of GDP was 21.6 per cent (OECD, 2016).

Figure 1.5. Government spending on health and education in 2014, selected countries
(Percentage of GDP)



Source: UNCTAD calculations based on World Bank, World Development Indicators
Notes: Health expenditures are for 2014. For education expenditures, data refer to the latest year available during the period 2012–2014.

Figure 1.6. Government spending on health and education as percentage of GDP in 2000 and 2014, selected countries
(Percentage point change)



Source: UNCTAD calculations based on World Bank, World Development Indicators
Notes: Health expenditures are for 2014. For education expenditures, data refer to the latest year available during the period 2012–2014.

Target 1.b: Policy frameworks

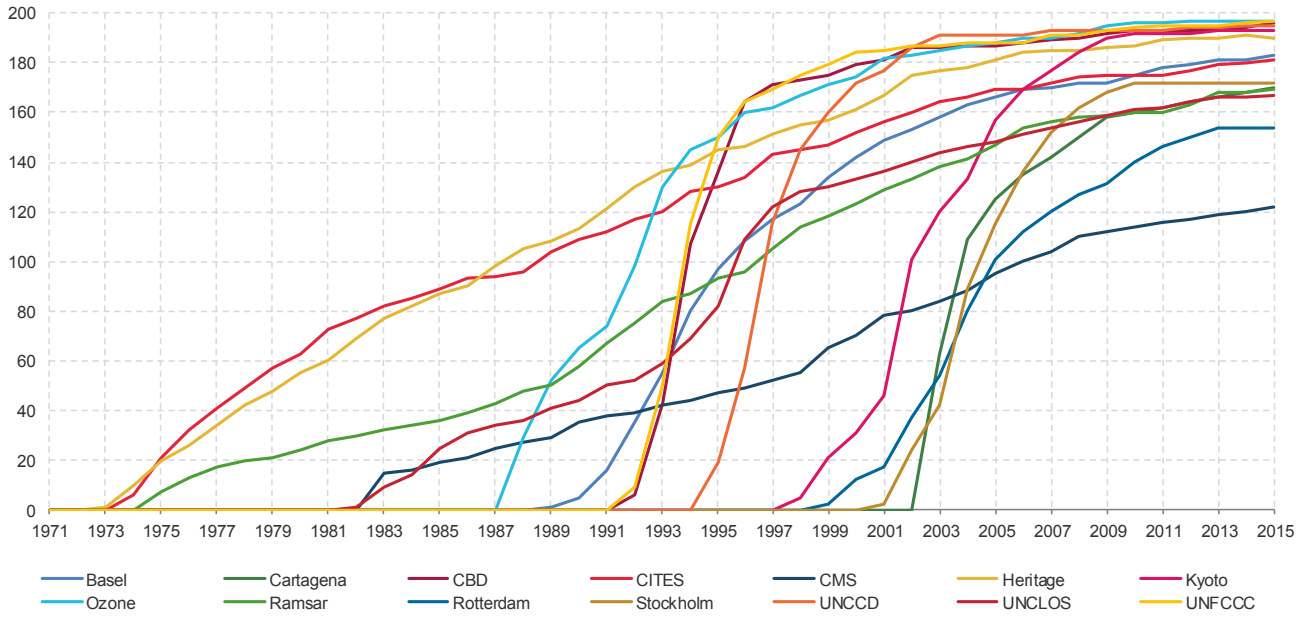
Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender sensitive development strategies, to support accelerated investment in poverty eradication actions.

Everything is interconnected and interdependent. Improvements in health, education, our environment and climate, trade and investment, and conditions of employment will all in one way or another contribute to improved development and well-being. For this reason, Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected a very wide-ranging indicator, the "*Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups*" to measure progress towards this target. This is a very broad-ranging indicator, for which there are currently no data available.

While all aspects of development are important, in many respects the health of our planet is fundamental to all development. In 2015, 7.3 billion people lived on earth. By the end of the century, projections suggest there could be as many as 11.2 billion people – almost an additional 4 billion people competing for the basic requirements of life – food, water, heat and shelter (see Special note on population). This growth will naturally place additional pressures on an already strained environment – more food and water will be required, more waste generated and more energy consumed (see Goal 13, Goal 14, Goal 15). It will be important to meet these demands in as an environmentally sound way as possible. Consequently, the number of countries adopting multilateral environmental agreements is one metric or benchmark of sound policy frameworks that will impact on all aspects of development, not just environmental. Figure 1.7 shows the adoption rates for some of the most important environmental agreements over the past 45 years.

Some treaties, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) or the World Heritage Convention were introduced in the 1970s but have taken a long time to reach a high level of adoption. Others, such as the Convention on the Conservation of Migratory Species of Wild Animals (CMS) are still a long way from universal adoption with only 122 signatories in 2015. Agreements such as the Vienna Convention for the Protection of the Ozone Layer was adopted by a majority of countries within about five or six years as the urgency of the situation emerged. Equally, the United Nations Framework Convention on Climate Change (UNFCCC) and its successor, the Kyoto Protocol, the Convention on Biological Diversity (CBD) and the accompanying Cartagena Protocol on Biosafety to the CBD have enjoyed relatively fast rates of adoption.

Figure 1.7. Number of parties to multilateral environmental agreements, 1971-2015
(Number of countries)



Source: United Nations Treaty Collection
Notes: CBD: Convention on Biological Diversity. CMS: Convention on the Conservation of Migratory Species of Wild Animals. UNCCD: United Nations Convention to Combat Desertification. UNCLOS: United Nations Convention on the Law of the Sea. UNFCCC: United Nations Framework Convention on Climate Change. Stockholm: Stockholm Convention on Persistent Organic Pollutants. Cartagena: Cartagena Protocol on Biosafety. CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora. Heritage: World Heritage Convention. Kyoto: Kyoto Protocol. Ozone: Ozone Vienna Convention. Ramsar: Ramsar Convention. Rotterdam: Rotterdam Convention.

Of course there is a big difference between signing a convention and implementing it. For example, the steady growth and concentration of CO2 emissions in the atmosphere and the rise in average global land–ocean temperatures (see Goal 13) suggest that the Kyoto Protocol has not been implemented successfully. But this is not universally true. Several countries in Europe, for example, have reported significant progress (European Environment Agency, 2012). However, some contest the view that emissions have really stabilized or fallen in the developed world and argue that in fact they have simply been offshored to the developing world (Harvey, 2012). However, Brunel (2014) finds little evidence to support this pollution-offshoring hypothesis and argues that, in both the United States and the European Union, emissions reduction has been largely due to improvements in production techniques. Evidence of the benefits of the Vienna Convention for the Protection of the Ozone Layer have also recently emerged. A recent study published by Solomon et al. (2016) in the journal Science provides clear evidence that the thinning of the ozone layer above Antarctica has been retarded. The authors note that the hole in the ozone layer was approximately 4 million square kilometres smaller in 2015 compared with 2000. This improvement has been credited to the long-term phasing out of ozone-destroying chemicals.

Notes and references

Notes

1.1 According to an United Nations Economic Commission for Africa (2015), 72 per cent of the youth in Africa were living on less than $2 a day.

1.2 Several alternative measures of poverty have also been proposed, including: the "*international food poverty line*" (Kakwani and Son, 2006); the "*ethical poverty line*" (Edwards, 2006); the "*minimum income for healthy living*" (Morris et al., 2000); the "*capability-based approach*" (Reddy and Pogge, 2010); the "*rights-based poverty line*" (Woodward and Abdallah, 2010); and more recently, the "*multidimensional poverty index*" (Alkire and Foster, 2011).

1.3 The World Food Programme recommends, for an average person, that an intake of 2,100 kilocalories is required to lead a healthy life. See https://www.wfp.org/hunger/what-is.

1.4 For a simple explanation of how this is done, see Ferreira et al (2015).

1.5 Target 1.1 – By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 per day.

1.6 Or the latest year available during the 2012–2014 period.

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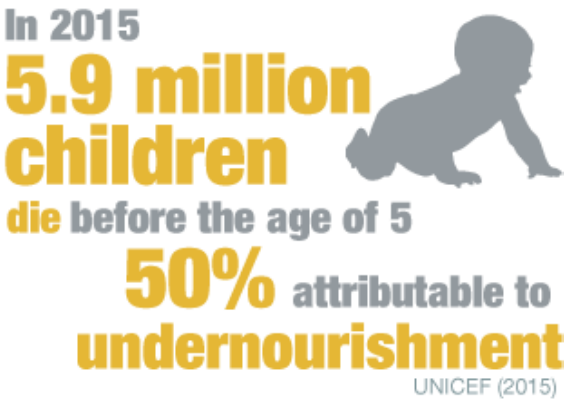
Goal 2: Zero hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

The struggle to end hunger is to some extent a continuation of Millennium Development Goal 1, in particular target 1.c. But Sustainable Development Goal 2, introduced by Agenda 2030, is now more detailed and has a broader scope, outlining some of the component elements that are directly related to hunger, which demand that we achieve food security and improved food nutrition as well as "*promote sustainable agriculture*".

Hunger can mean very different things in different parts of the world and to different people. As Masset notes, "*hunger is a fuzzy concept that can be defined and measured in different ways*" (Masset, 2011). Hunger can express various degrees of eagerness or craving for food, ranging from simply being "*hungry*" between meals to starving after not having eaten in days. For this reason, many dictionary definitions draw a distinction between day-to-day hunger and chronic hunger. This distinction is sometimes explained as the difference between physiological hunger and resource-constrained hunger.



The World Food Programme (WFP) defines hunger as "*not having enough to eat to meet energy requirements" but also notes that "hunger can lead to malnutrition, but absence of hunger does not imply absence of malnutrition*" and warns that daily undernourishment, that is, less than 2,100 calories per day[2.1] is a very important but less visible form of hunger[2.2]. The United Nations Inter-agency Group for Child Mortality Estimation (IGME)[2.3] estimates for 2012 that almost 7 million children die every year before reaching the age of five and that malnutrition is a key factor in over a third of these deaths (IGME, 2012).

The WFP also explains that prolonged hunger and lack of proper nutrition weakens the immune system, making children in particular especially vulnerable to disease and common infections such as measles and diarrhoea. Requirements for energy and protein will depend on a variety of factors, including age, sex, body size, physical activity and also climate, but the link between hunger and food nutrition is clear. Undernourishment is generally considered the most important challenge for the poor and victims of catastrophes as it may lead to low birth weight, retarded growth, infant and child mortality, and lowered immunity.

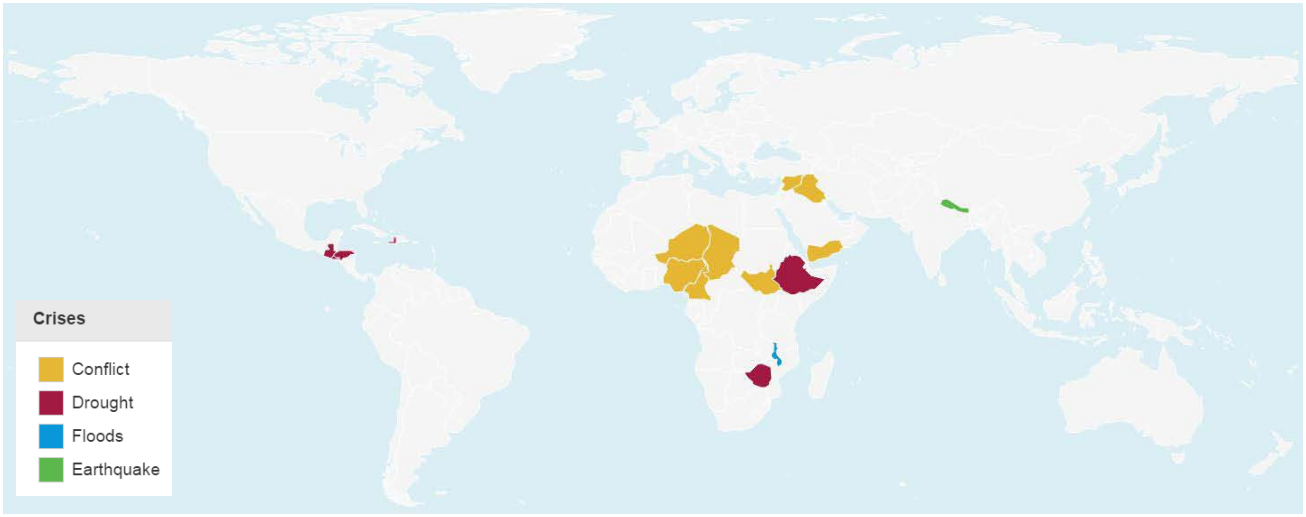
"One billion people in the world are chronically hungry. One billion people are overweight."
- Bittman (2009)

Like hunger, food security is a somewhat flexible concept with many definitions available. WFP defines people as being food secure when "*they have available access at all times to sufficient, safe, nutritious food to maintain a healthy and active life*". Using this definition, food security is comprised of three separate elements: food availability[2.4], food access[2.5], and food utilization[2.6]. The WFP food security analysis identified a number of "*food insecurity hotspots*" in 2015. This analysis highlights how food insecurity can be triggered by a range of different natural and human-induced crises: war, political instability, natural disasters or climate. The report identifies crises in Central America, namely El Salvador, Guatemala, Haiti and Honduras owing to drought; in sub-Saharan Africa, Cameroon, Chad, the Niger, Nigeria and South Sudan due to conflict; in Ethiopia and Zimbabwe owing to drought, and in Malawi because of floods; in the Middle East, Iraq, the Syrian Arab Republic and Yemen owing to conflict; and in Asia, Nepal due to the earthquake in April 2015[2.7] (see figure 2.1).

There is a direct link between food security, international trade and market access. There are mixed views on whether agricultural trade liberalization helps or hinders food security. Some argue trade liberalization reduces the level of self-sufficiency in food, threatening food security. A counter argument is that a higher degree of liberalization improves food security by reducing consumer prices of food. Thus, the removal of trade restrictions may not unambiguously improve food security. "*Border measures*" such as non-automatic licences and quotas directly influence the availability and affordability of food. "*Behind the border*" measures such as technical non-tariff measures can also have a significant influence on a country's imports and thus can have a short-term impact upon the country's food security (UNCTAD, 2016).

An alternate overview of this complex topic can be presented using the Global Hunger Index[2.8] compiled by the International Food Policy Research Institute at Harvard University (figure 2.2). This index was designed to explicitly address hunger as a multidimensional phenomenon. It is a composite index of four standardized component sub-indicators: undernourishment; child mortality; and two measures of child undernutrition: child wasting and child stunting. In contrast to the WFP food security analysis of "*food insecurity hotspots*", this index, along with identifying crisis points, also identifies regions with longer-term serious structural problems or vulnerabilities.

Figure 2.1. Geographic distribution of food security crises, 2015

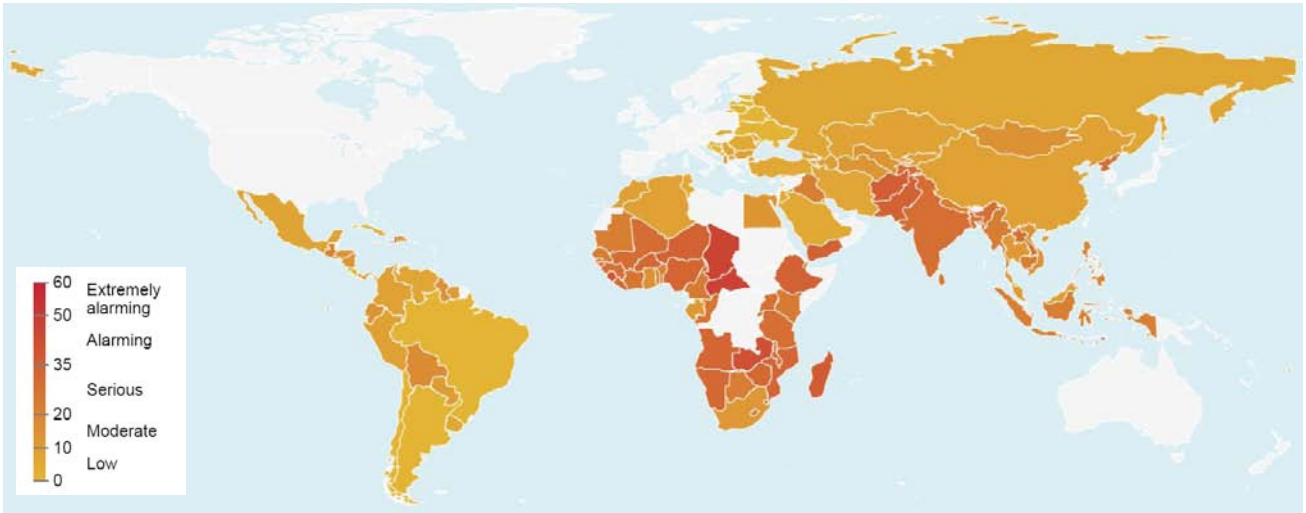


Source: World Food Programme (WFP), food security analysis.
Notes: The shaded areas refer to "food insecurity hotspots" as identified by WFP in January 2016. The occurrence of "food insecurity hotspots" can rapidly change from one month to the next.

The map in figure 2.2 shows that in 2015 the Global Hunger Index identifies the situation in Afghanistan, the Central African Republic, Chad, Madagascar, Sierra Leone and Zambia as alarming. But the index also classifies the situation for large swathes of sub-Saharan Africa and Asia as being serious.

FAO also compiles a State of Food Insecurity Index that maps out undernourishment. This index measures hunger as the fraction of the population with per capita dietary energy consumption below standard nutritional requirements. The Economist Intelligence Unit in collaboration with DuPont compile a Global Food Security Index that combines 28 indicators covering the elements of affordability, availability, quality and safety. The non-governmental organization ActionAid also compiles a HungerFREE Scorecard Index. This index combines hunger outcomes with anti-hunger policies across four dimensions: legal commitment to the right to food; investments in agriculture; investments in social protection; and hunger outcomes. While all of these indices contribute to the debate, Masset (Masset, 2011) argues that the proliferation of hunger indices is also a source of confusion for policymakers and the public as each index produces a contrasting estimate for the state of hunger in the world.

Figure 2.2. Global Hunger Index, 2015



Source: International Food Policy Research Institute (IFPRI) ; Welthungerhilfe (WHH) ; Concern Worldwide, 2015, "2015 Global Hunger Index Data", http://dx.doi.org/10.7910/DVN/JL16EW, Harvard Dataverse, V1

Target 2.1: Food for all

By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

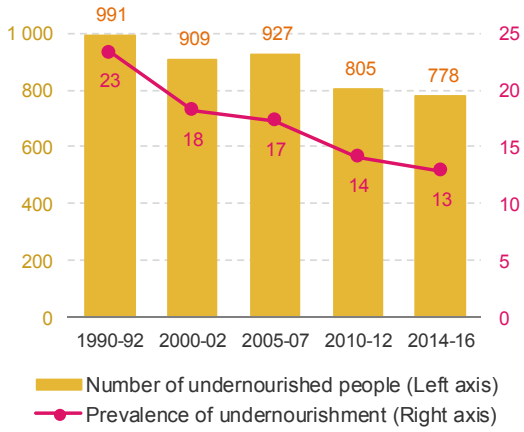
The ambition of ensuring access to safe, nutritious and sufficient food is in large measure an extension of target 1.C of the Millennium Development Goals, which sets out to "*halve, between 1990 and 2015, the proportion of people who suffer from hunger*". This has almost been achieved, with the proportion of undernourished people in the developing regions having fallen by almost half since 1990. But today almost 800 million people are still estimated to be undernourished and more than 90 million children under the age of five are still undernourished and underweight (United Nations, 2015).

The Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) recommends the "*prevalence of undernourishment*"[2.9] as one of two appropriate indicators to measure progress towards this target[2.10].

From a global perspective, the prevalence rate has fallen from 18.6 per cent in the early 1990s to 10.8 per cent today. For developing countries the improvement has been more dramatic, falling from 23.3 to 12.9 per cent during the same period (figure 2.3).

However, the global population has continued to rise and consequently the absolute number of people still suffering from undernourishment has fallen at a more modest rate, from just over 1 billion in the early 1990s to slightly less than 800 million people today (see special note on population).

Figure 2.3. Number of undernourished people and prevalence of undernourishment in developing countries, 1990–2016
(Number of undernourished people in millions; prevalence of undernourishment in percentage)



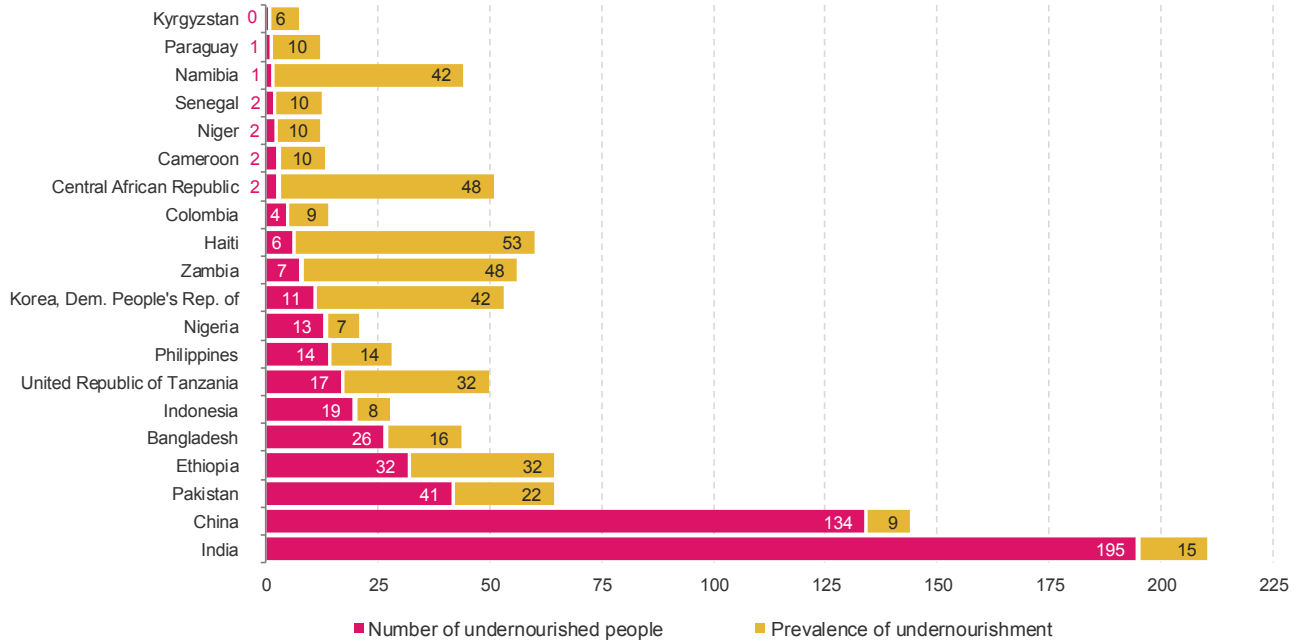
Source: UNCTAD calculations based on FAOSTAT data.

Not surprisingly, the changes in global prevalence rates of undernourishment and the numbers enduring undernourishment are driven by changes in developing countries, as roughly 98 per cent of all undernourished people live in these countries (UNCTAD calculations based on FAOSTAT data).

The global picture hides a wide variety of national experiences, however. In particular the impact of large countries is very evident. Figure 2.4 shows the prevalence rates of undernourishment and the numbers with undernourishment for a selection of developing countries, representing about 67 per cent of the global total. Although the prevalence rates for China and India are far from the highest, the absolute numbers affected in these countries are very large, combining to a total of approximately 330 million people and accounting for over 40 per cent of the global total.

In contrast, some of the countries with the highest prevalence rates (the Central African Republic, the Democratic People's Republic of Korea, Haiti, Namibia and Zambia) have a relatively small impact on the global total.

Figure 2.4. Number of undernourished people and prevalence of undernourishment for selected developing countries, 2014–2016
(Number of undernourished people in millions; prevalence of undernourishment in percentage)



Source: FAO, FAOSTAT.

Target 2.4: Sustainable food production

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

World Resources Institute (2014)

There has been considerable discussion over the past thirty years on how to define "sustainable agriculture". While the word "*sustainability*" has often been understood from a purely environmental perspective, sustainable agriculture must also be considered from a wider perspective that includes social and economic dimensions. As threats to sustainable agriculture can vary across countries and regions, and as these threats can be both socioeconomic and biophysical, any measure of progress must incorporate this broad multidimensional nature. The indicator adopted by IAEG-SDG, the "*Proportion of agricultural area under productive and sustainable agriculture*" is intended to do just that.

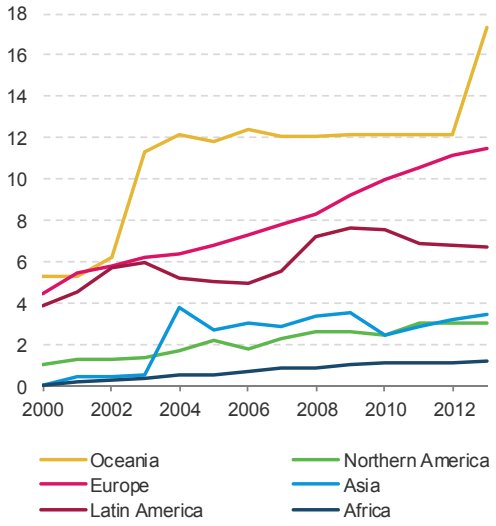
At the time of writing, this indicator does not yet exist. FAO notes that such an indicator could indirectly measure a number of factors, such as whether a sufficient natural resource base is being maintained to ensure future productivity, and whether income levels are sufficient to sustain the livelihood of an entire family above the poverty line, and could also measure ownership and tenure rights[2.11]. FAO also points out that the methodological development of such an indicator could benefit from the support of the Global Strategy to Improve Agricultural and Rural Statistics (United Nations Statistics Division, 2015).

In the absence of data to populate the proposed indicator, the proportion of land under organic agriculture[2.12], which is a subset of the broader indicator, is presented. In 2013, there were 170 countries with certified organic agriculture, with almost 2 million producers[2.13] farming just over 43 million hectares of organic agricultural land. Organic agricultural land today accounts for about 1 per cent of total agricultural land.

Global sales of organic food and drink were valued at US$72 billion in 2013. About one quarter of the world's organic agricultural land and more than 80 per cent of the producers are in developing countries. About two thirds of organic agricultural land (27 million hectares) were used for grassland/grazing, and almost 20 per cent (8 million hectares) given over to arable land (cereals including rice, oilseeds and vegetables). A large part of the residual land was used for permanent crops such as coffee, olives, nuts, grapes and cocoa (Research Institute of Organic Agriculture (FiBL) and International Federation of Organic Agriculture Movements (IFOAM), 2015).

The growth in land certified for organic agriculture has been significant over the past decade and a half, rising from just under 15 million hectares in 2000 to more than 43 million hectares in 2013 (see figure 2.5). There has been a very pronounced increase in Oceania since 2012 owing to an additional 5 million hectares of rangeland that were moved to organic production. A steady increase in organic agricultural land over the past decade in Europe is also evident.

Figure 2.5. Area of organic agricultural land, 2000-2013
(Millions of hectares)



Source: FiBL (2015): Data on organic agriculture 2011-2013. The Organic-World.net website maintained by the Research Institute of Organic Agriculture (FiBL), Frick, Switzerland.
Note: FiBL region definitions.

Target 2.a: Agricultural productive capacity

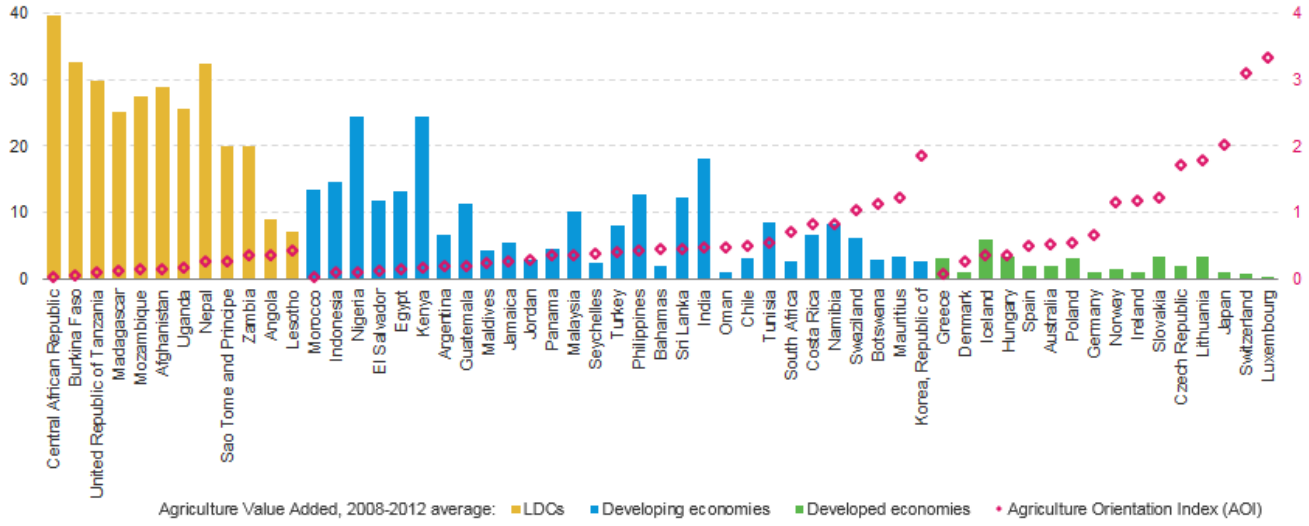
Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.

The Agriculture Orientation Index (AOI) for government expenditures has been selected by IAEG-SDG as the appropriate indicator for this target (United Nations, 2016). The AOI, compiled by FAO, is the ratio of the share of government expenditures on agriculture over the contribution of agriculture to the economy. It shows the extent to which government expenditures on agriculture reflect (or not) the importance of agriculture in the overall economy. While coverage is high (150 countries), some countries have not yet provided data. FAO also cautions that the level or definition of government to which expenditures pertain can differ, affecting comparability. An AOI with a value greater than 1 indicates that a government has given more prominence to agriculture relative to its contribution to the economy (as measured by gross domestic product (GDP)). An AOI of less than 1 indicates that governments of these countries give greater prominence to non-agricultural sectors. The index gives another perspective on government investment in this sector of the economy compared with the individual measures of the share of agriculture in government expenditures or the contribution of the agricultural segment to the overall economy.

Figure 2.6 illustrates that, in general, while the contribution of agriculture to economies in developing countries, in particular least developed countries (LDCs), is higher compared to that in the developed world, their AOI is lower. In Europe, for example, countries such as Luxembourg and Switzerland invest three times more in agriculture compared to its contribution to GDP. At the other extreme, for some LDCs and developing countries, such as Burkina Faso, the Central African Republic and Morocco the agricultural sectors received less than one tenth as much in public expenditures as their contribution to the countries' respective GDPs. The figure, which also provides each country's agricultural sector value added, shows an inverse relationship between the agriculture value added and the orientation of government expenditures, with a Pearson correlation coefficient of −0.42.

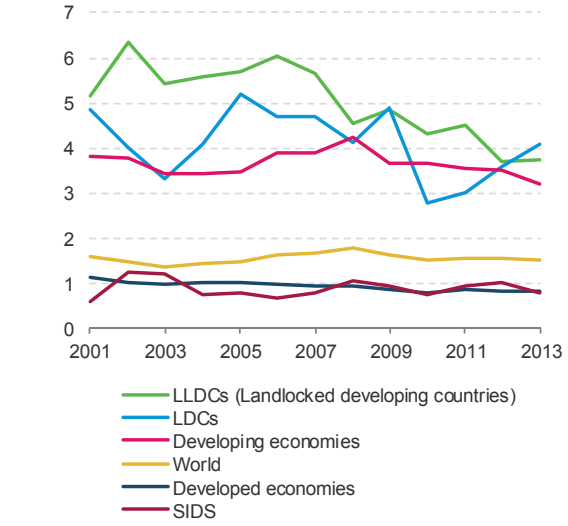
Furthermore, FAO data (figure 2.7) show that governments in developing countries, LDCs and in particular landlocked developing countries devote a much higher share of total expenditure on agriculture in comparison to governments in developed countries and also small island developing states.

Figure 2.6. Agriculture value added and AOI for selected countries, 2008–2012 average
(Agriculture value added in percentage of GDP)



Source: FAO, FAOSTAT and UNCTAD calculations.
Note: The AOI provides a ratio of the agriculture share of government expenditures over the agriculture contribution to the economy. The higher the index, the closer is the agriculture expenditure share to the share of agriculture in GDP.

Figure 2.7. Agriculture share of total government expenditures by region, 2001–2013
(Percentage)

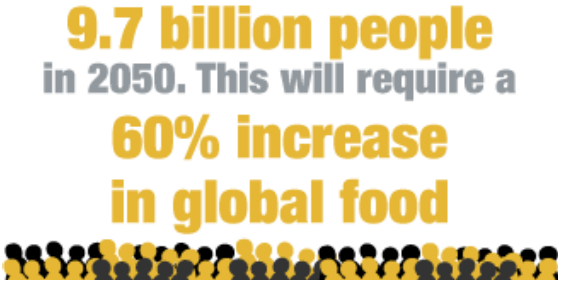


Source: FAO, FAOSTAT.
Note: Agriculture share of total government expenditures refers to the expenditure of central government only. Millennium Development Goals region definitions.

Over the past decade, government expenditure invested in agriculture in developing countries has been relatively stable (at around 3 or 4 per cent of total expenditures), but with growing emphasis being placed on industrialization and privatization there is often pressure to reduce investment in the agricultural sector. What the optimum level of investment is will depend on many factors, but there are clearly risks for environmental sustainability and food security, and also for agricultural research and public infrastructure if government expenditure on agriculture is reduced too far (Mogues et al., 2012).

Using an approach presented by FAO in 2001, figure 2.8 examines the correlation between the AOI and the prevalence of undernourishment in developing countries employing updated data averaged for the years 2010, 2011 and 2012.

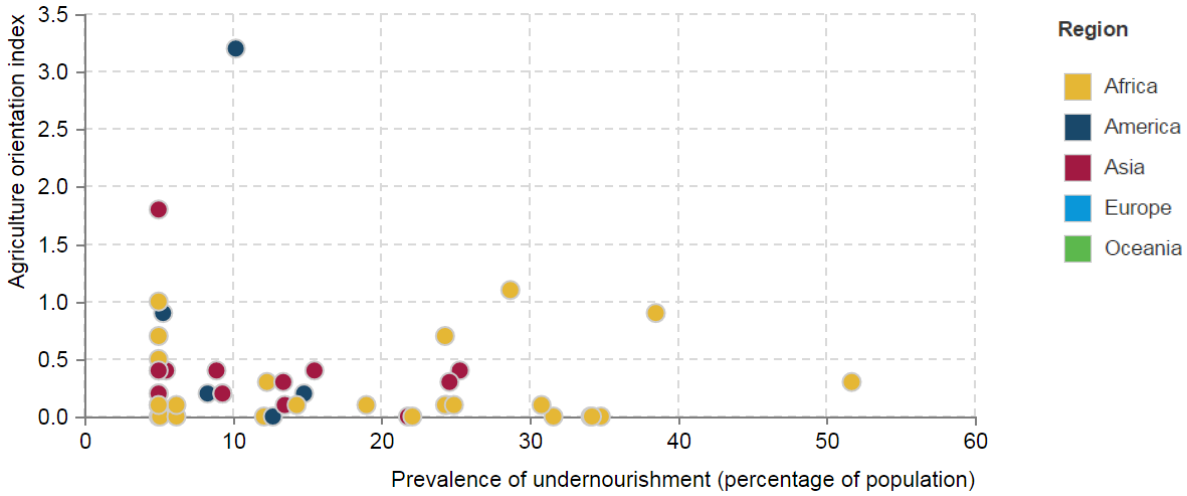
The analysis suggests there is no clear correlation between the two.



For example, there are many countries with undernourishment prevalence rates of around 5 per cent but with a wide range of AOI values, ranging from countries such as Argentina and Egypt, both with AOI values of 0.1, to the Republic of Korea with an AOI of 1.9. Nevertheless, as already noted, many developing countries have an AOI value of less than 1, signifying that governments place greater prominence on non-agricultural sectors.

The AOI may be important in the context of future population projections (see special note on population) .If the median population projections are broadly correct and the global population in 2050 rises to approximately 9.7 billion, then FAO estimates that this will require a 60 per cent increase in global food production (FAO, 2011)[2.14]. It should be noted that when FAO calculated this estimate, the median population projection for 2050 was only 9.2 billion. With the upward revision to the population projections, it is possible, that a 60% increase in global food production may now be an underestimate.

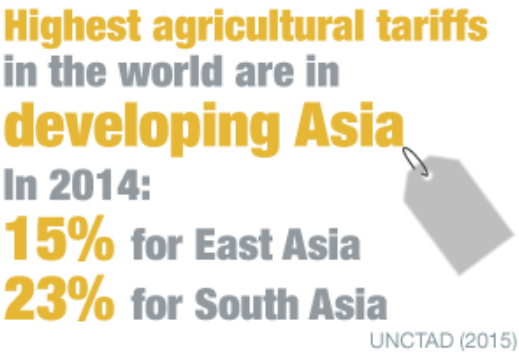
Figure 2.8. Agriculture Orientation Index by prevalence of undernourishment in selected developing countries, 2010-2012 average



Sources: FAO, FAOSTAT (data on AOI) and World Bank, World Development Indicators (data on prevalence of undernourishment

Target 2.b: Trade restrictions in agricultural markets

Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round



Average prices on agricultural goods vary widely around the world. Agricultural tariffs in developing Asia, for example, are the highest in the world at around 15 per cent for East Asia and 23 per cent for South Asia. In South Asia, the weighted average agricultural prices in 2014 were higher than in 2008. This resulted from an increase in imports of higher-tariff products in the composition of agricultural imports to the region. By comparison, tariffs for manufacturing and natural resources were significantly lower in 2014 (UNCTAD, 2016). Hence the importance of target 2.b[2.15]. The indicator selected by IAEG-SDG to measure progress towards this target is "*Percentage change in import and export tariffs on agricultural products*".

Table 2.1 presents a matrix of interregional and intraregional market access conditions in the agriculture sector. The 2014 average tariff rates were calculated based on both the most favoured nation and preferential rates. Numbers in blue show the change in the average tariff from the 2008 level.

Agricultural exports from sub-Saharan African countries to developed countries and transition economies on average face the lowest tariffs, between 1.4 and 1.8 per cent. Their exports to other developing regions are subject to higher tariffs. However, when compared with their export competitors in different importing regions, the agricultural exports of sub-Saharan African countries face relatively lower tariffs than their competitor exporting regions. Table 2.1. also shows that the average tariff rate applied to agricultural exports of Latin America to East Asia fell by 0.7 per cent between 2008 and 2014.

Between 2008 and 2014, agricultural tariffs have been falling in general, except those linked to imports and exports from South Asia. Together with relatively high tariffs against imports in South Asia, this may suggest that the region is the one least exposed to bilateral or interregional trade agreements with the rest of the world. The same tendency is found in imports and exports from sub-Saharan Africa among other developing country regions, and exports from transition economies.

Table 2.1. Tariff barriers to agricultural exports in 2014 and change from 2008 level
(2014 average tariff rate; percentage point change from 2008 level (in bold))

		Exporting region						
		Developed countries	East Asia	Latin America	South Asia	Sub-Saharan Africa	Transition countries	W.Asia & N.Africa
Importing region	Developed countries	10.3	8.4	4.5	3.8	1.4	5.1	4
		-0.5	***1.3***	***0.8***	***-0.2***	***-1***	***-1.4***	***-1.3***
	East Asia	12.7	9.1	13	13.3	9.1	19.2	8.8
		-5	***-3.5***	***-0.7***	***-2.3***	***0.7***	***-4.4***	***-1.5***
	Latin America	5.3	11.1	2.2	11.3	12.9	13	11.7
		-0.1	***-0.9***	***-1.7***	***0.7***	***0.4***	***8.7***	***-0.2***
	South Asia	37.9	34	32.1	6.9	17.6	7.9	20.5
		8.3	***10.8***	***0.5***	***-0.1***	***1.5***	***0.1***	***-5.2***
	Sub-Saharan Africa	12	13.3	11	16.3	7.7	6.4	18.5
		-0.9	***0.2***	***-0.1***	***3.9***	***-1.5***	***-11.3***	***0.6***
	Transition countries	10.1	6.1	10.3	5.6	1.8	1.3	6.7
		-0.9	***-0.6***	***-2.8***	***-0.6***	***-0.9***	***1.1***	***-1.2***
	W.Asia & N.Africa	13.7	9.7	6.6	4.3	7.3	22	2.4
		0.1	***-1.4***	***-2.3***	***0.4***	***-1.7***	***14.3***	***-1.6***

Source: UNCTAD, 2016.
Note: UN region definitions.

A large number of sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT) aim to ensure food safety for consumers, for example, by setting quality standards and labelling requirements. Other SPS measures and TBT include inspections, quarantine or temporary import prohibitions with a view to protecting the life and health of plants and animals from imported pests and diseases (Farrell, 2013). These measures can have an immediate impact on food security in terms of the utilization and availability of healthy and nutritional food.

At the same time, however, complying with SPS measures and/or TBT can result in significant costs to domestic producers as well as to foreign producers and exporters, which can increase consumer prices of food in the domestic market. This can reduce affordability of food to low-income groups in the economy, at least in the short term. In addition, compliance requirements related to SPS measures and TBT may delay or complicate the process to import food. Hence measures aiming at food safety could have a second-order impact on food security in terms of access, availability and stability. The authors of "*A cost-benefit framework for the assessment of non-tariff measures in agro-food trade*" (van Tongeren et al., 2009) using their cost-benefit analysis framework conclude that the cost to consumers of further tightening certain European Union regulations could surpass potential gains to the initial beneficiaries of such measures.

It is also important to note that SPS measures and TBT for a given agricultural food product applied by a significant importer in world food trade can have a significant, at times damaging, impact on exporters of developing countries. The policy study of Otsuki et al. (2001) shows that European Union standards on aflatoxin levels that go beyond Codex guidelines may prevent up to 2.3 cancer deaths in the European Union per year, but may cost African exporters an annual US$670 million. According to a recent study (Murina and Nicita, 2014), the trade-reducing impact of SPS measures in the European Union can be significantly larger (around US$3 billion) on exporters from low-income countries than on their competitors in other countries.

Notes and references

Notes

2.1 On average, a person requires more than 2,100 kilocalories per day to live a normal, healthy life. WFP notes that extra energy is needed during pregnancy and nursing.

2.2 The Food and Agriculture Organization of the United Nations (FAO) takes a broadly similar approach and defines hunger as being synonymous with chronic undernourishment.

2.3 IGME is comprised of representatives of the United Nations Children's Fund, the World Health Organization, the World Bank and the United Nations Population Division.

2.4 Food must be available in sufficient quantities and on a consistent basis. Availability is a function of food production and food stocks in an area plus the capacity to bring in food from elsewhere, either through trade or aid.

2.5 People must have access to food, that is, they must be able to regularly acquire adequate quantities of food, through purchase, home production, barter, gifts, borrowing or food aid.

2.6 Consumed food must have a positive nutritional impact. Impact is a function of cooking, storage and hygiene practices, water and sanitation, feeding and sharing practices within the household and an individual's own health.

2.7 This index has been criticized on a number of grounds, namely that it is not distribution sensitive and thus an increase in food deficiency in the most deprived parts of a population may leave the index unchanged. Also, it does not capture seasonal effects well. Concerns have also been expressed regarding the caloric cut-off point adopted by FAO. However, the index can be calculated for most countries as the data are available.

2.8 This index has also been criticized as the three different aspects of hunger used (food intake, nutritional status and mortality) are strongly correlated, thus producing a double count. It has also been argued that the weighting scheme adopted is arbitrary. Also the index is not sufficiently sensitive to seasonal or other short-term food and health shocks. Nevertheless, the index can be calculated for all countries of the world, the data used are fairly reliable and it can be used to measure the scale of hunger in the world and for cross-country comparisons.

2.9 Prevalence of undernourishment is compiled by FAO. The Organization defines prevalence of undernourishment as the probability that a randomly selected individual from the population consumes an amount of calories that is insufficient to cover her/his energy requirements for an active and healthy life. The indicator is computed by comparing a probability distribution of habitual daily dietary energy consumption with a threshold level called the minimum dietary energy requirement. Both are based on the notion of an average individual in the reference population. For more information regarding the methodology on computing the prevalence of undernourishment, see FAO et al., 2015.

2.10 The second indicator selected was "*Prevalence of moderate or severe food insecurity in the population, based on Food Insecurity Experience Scale*" (United Nations, 2016).

2.11 The Global Office of the Global Strategy to Improve Agricultural and Rural Statistics is hosted within the FAO Statistics Division in Rome. Work at regional level is led by the regional partners, who provide technical assistance to countries and liaise with regional and national stakeholders. To date, the Global Strategy partners are the African Development Bank, the United Nations Economic Commission for Africa, the United Nations Economic and Social Commissions for Asia and the Pacific, and the FAO regional office in Bangkok. The three pillars forming the foundation of the Global Strategy are: (1) produce a minimum set of core data; (2) better integrate agriculture into the National Statistical Systems; (3) improve governance and statistical capacity-building (World Bank et al., 2010).

2.12 For information on definitions, consult the FiBL website at http://www.organic-world.net/statistics/statistics-data-classifications.html#c7185.

2.13 FiBL and IFOAM estimate that the number of producers may in fact be higher, as in some countries those reported as producers may be a collection of individual producers.

2.14 FAO's latest projections for global food production indicate the increase by 60 per cent between 2005/07 and 2050. This represents a downward revision from the 70 per cent increase for the same period projected in 2009. The latest revision includes updated consumption and production data for 2005/07 (the base period) from FAOSTAT. In addition, new population and GDP growth projections from the United Nations Population Division and the World Bank are incorporated in the projections. As a result, the revised data show that production in 2005/07 was actually significantly higher, particularly in developing countries, than previously estimated. Projected 2050 levels remain essentially unchanged. See http://www.fao.org/fileadmin/user_upload/esag/docs/AT2050_revision_summary.pdf.

2.15 The Addis Ababa Action Agenda also states *"In accordance with one element of the mandate of the Doha Development Agenda, we call on World Trade Organization (WTO) members to correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and disciplines on all export measures with equivalent effect*." - Addis Ababa Action Agenda of the third International Conference on Financing for Development, paragraph 83, see http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf.

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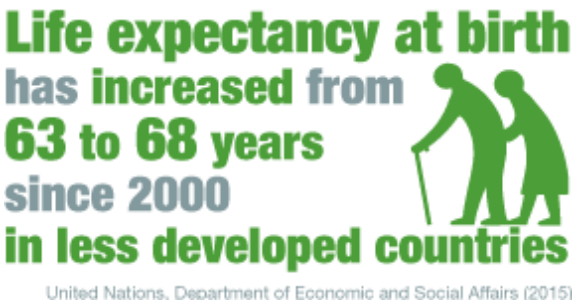
Goal 3: Good health and well-being

Ensure healthy lives and promote well-being for all at all ages.

Today people are living longer. In developing countries, this is mainly as a result of reductions in childbirth and childhood mortality and improvements in the eradication or reduction of infectious diseases. In developed countries, there has been a steady increase in life expectancy owing to declining mortality among the elderly. Combined, these changes are leading to a significant shift in demographic patterns, with important implications for dependency ratios, the length of working lives, and pension and health-care provision (see special note on population). Figure 3.1 presents a simple global, health and wealth chart mapping of life expectancy at birth cross-referenced with gross domestic product (GDP) per capita for the period 1990–2013. Although not an official Sustainable Development Goal indicator, this presents a reasonably good summary of the trends of global heath and its relationship with economic performance over the past 24 years.



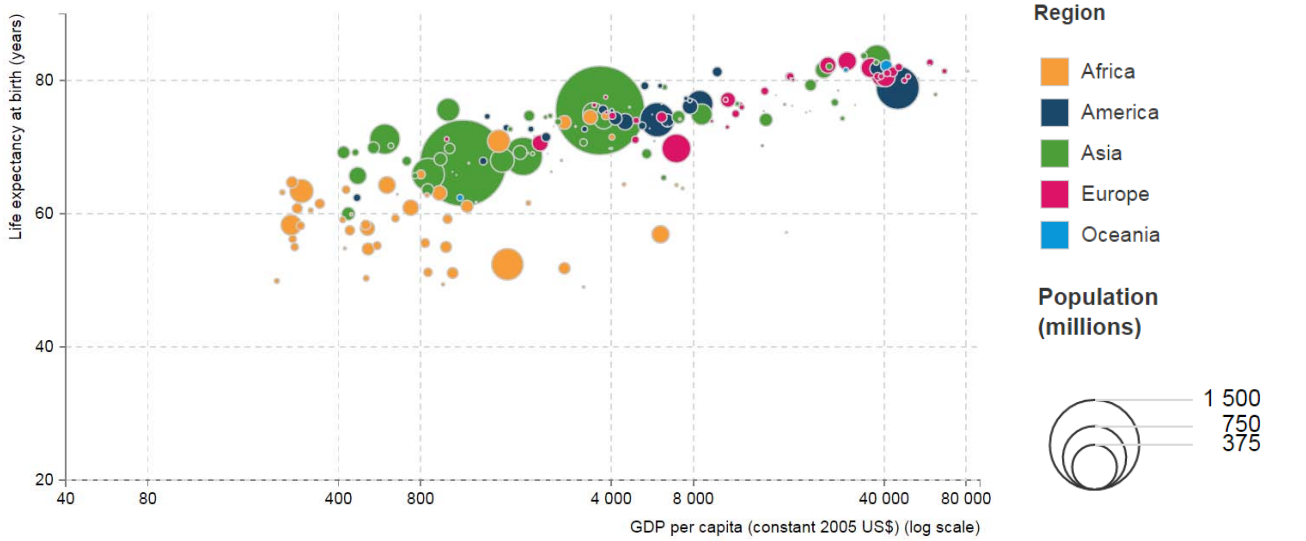
The general evolution in figure 3.1 shows a tightening or clustering of countries towards the top right-hand corner, signifying a general improvement in income and life expectancy. But the chart also shows that since 1990 there has been uneven progress across the regions of the world. Throughout Asia there has been a general improvement, and in particular for countries like Israel, Japan, Qatar and Singapore. But it is also evident that some countries, such as Afghanistan, have experienced notable gains in life expectancy but not in income.

In Africa, there have been some dramatic improvements, most notably for Equatorial Guinea, but generally while improvements have been made for many African countries on the health front, there has been less progress regarding wealth. Despite individual improvements, it is also evident that many African countries, as signified by their position in the bottom left-hand corner of the chart, have below-global-average income and health outcomes. In Oceania, improvements in health anpd wealth are very evident in Australia and New Zealand, but much less so for the remaining Pacific islands. Within Europe, improvements are clear across the entire region, but once again uneven progress can be seen, in particular less progress is evident for parts of Eastern Europe and the former Soviet Republics. In the Americas, Canada has made steady improvements whereas Haiti has not.

Health and well-being

The importance of physical health has been long recognized, but in recent years there has been increasing attention given to improving our understanding of what constitutes "*subjective well-being*" and the factors that influence it. There is, however, no international consensus on how to define well-being. This is not surprising, as many cultural elements impact on it. Nevertheless, there appears to be broad agreement that well-being is made

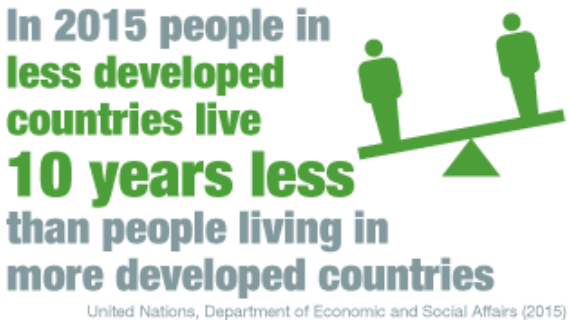
Figure 3.1. Life expectancy at birth and GDP per capita by region, 2013



Sources: United Nations, Department of Economic and Social Affairs (2015) World Population Prospects: The 2015 Revision (life expectancy at birth) and UNCTADstat (population and GDP data)

Note: Data on GDP per capita are shown in logarithmic scale. The size of the bubbles refers to the total population.

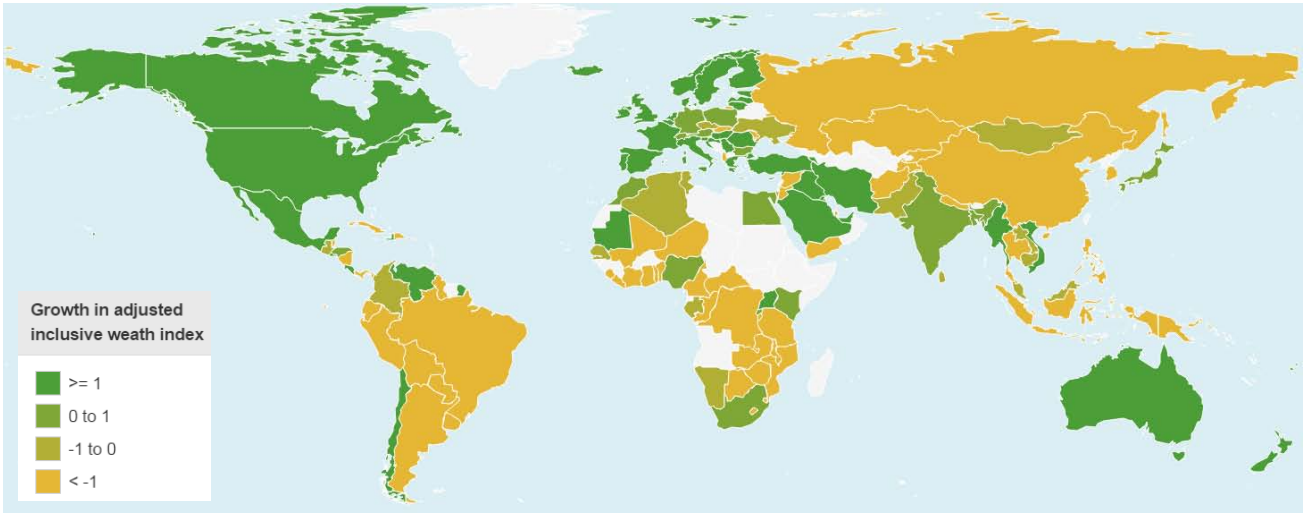
of positive emotions and moods (for example, contentment and happiness), the absence of negative emotions (for example, depression and anxiety), satisfaction with life and general fulfilment. Thus, well-being is a complex mix of physical, psychological, emotional, social and economic health. Typical dictionary definitions tend to describe well-being as a good or satisfactory condition of existence; a state characterized by comfort, health, happiness, and prosperity or welfare. Not surprisingly, there continues to be much debate about how to define well-being and how to measure it.



More recently, the quest to understand and measure well-being has become intertwined with the idea of human progress and sustainability. This has led to the development of several competing indicators, all attempting in one way or another to provide metrics on human well-being and socioeconomic progress[3.1]. Some of the better-known indices include the Organization for Economic Cooperation and Development Better Life Index, the United Nations Environment Programme Inclusive Wealth Index, the United Nations Development Programme Human Development Index, the Genuine Progress Indicator (Talberth et al., 2006) and the index of Gross National Happiness.

Each measure of well-being will indicate different degrees of progress depending on the lens through which progress is being examined. From a global perspective, many of the overall patterns, irrespective of the index used, are quite similar. The adjusted Inclusive Wealth Index, which attempts to capture the interdependencies of economy, society and environment, provides one version of progress. While one may argue with elements of the index, the regions identified as vulnerable are consistent with many of the other measures noted above. Over a 20-year time horizon, from 1990 to 2010, gains in wealth, as defined and measured by the adjusted Inclusive Wealth Index, appear to be generally confined to the northern hemisphere (with a few southern-hemisphere exceptions, such as Kenya, the Bolivarian Republic of Venezuela and Zimbabwe). The most evident declines arise in the Plurinational State of Bolivia, Chile, China, India, Indonesia, Myanmar, Paraguay, Peru, Thailand and throughout much of Sub-Saharan Africa. It is noted by the *2014 Inclusive Wealth Report* (United Nations University International Human Dimensions Programme and United Nations Environment Programme, 2014) that during this period human capital generally contributed to a growth in inclusive wealth, whereas depreciation of natural capital generally contributed to a decline. Figure 3.2 presents four distinct five-year time periods, running consecutively from 1991 to 2010, allowing a more nuanced examination of the trends. For example, in each of the four periods China experienced negative growth of inclusive wealth. The Russian Federation enjoyed a growth in inclusive wealth, but at a declining rate for the first 10 years (1991–2000) before experiencing a decline in inclusive wealth for the subsequent 10 years. The pattern in Canada and the United States of America was the opposite – in these countries negative inclusive wealth growth in the first decade turned positive in the second (2001–2010). India experienced negative growth for the first three periods but inclusive wealth grew in the last period, arising from progress in human capital. In general, most countries in sub-Saharan Africa for which there are data were more or less consistently negative throughout – but with some important exceptions, such as South Africa.

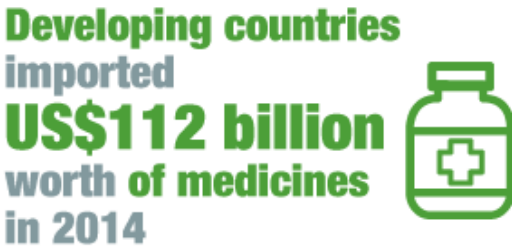
Figure 3.2. Growth in adjusted Inclusive Wealth Index, 2006-2010
(Average annual growth rates, in percentage)



Source: United Nations University International Human Dimensions Programme and United Nations Environment Programme (2014).

Health and trade

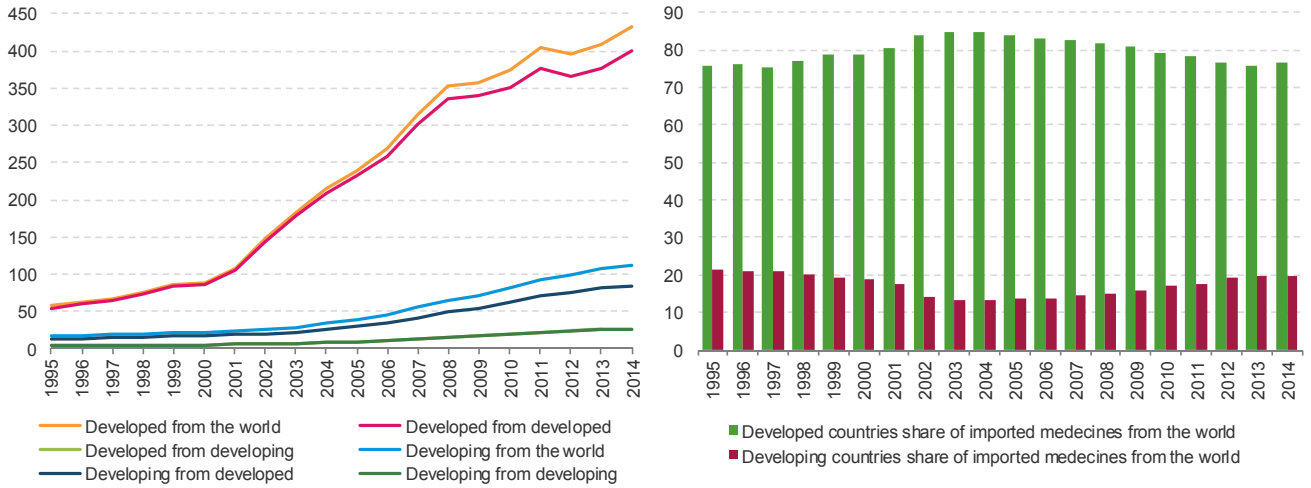
There is, of course, an important trade element to health and well-being, both in terms of health and medical tourism and also in terms of the international trade in essential vaccinations, medicines and other health care products. Trade can play a vitally important role in making affordable medicines available to developing countries. Figure 3.3 illustrates the value of imports of total medicines[3.2] between developed and developing economies over the past twenty years. In 1995, developing economies imported approximately US$16 billion worth of medicines, accounting for almost one quarter of global imports of medicines. In 2014, the overall situation had not changed significantly; developing economies imported medicines valued at about US$112 billion, accounting for about 23 per cent of global imports of medicines.



The international trade of medicines cannot be properly analysed or understood without considering price. To assess the impact of trade in medicines on drug affordability and accessibility to populations in developing countries, it is necessary to study how the price of medicine varies across countries and levels of gross national income (GNI). Using the price and availability of direct-acting antiviral drugs (DAA), specifically those used in the treatment of hepatitis C virus (HCV) as an example, the importance of price (and by extension trade) may be outlined. HCV treatments provide a good case study as hepatitis C is a major affliction in developing countries but is also quite prevalent in developed countries, thus allowing comparisons between the two development categories.

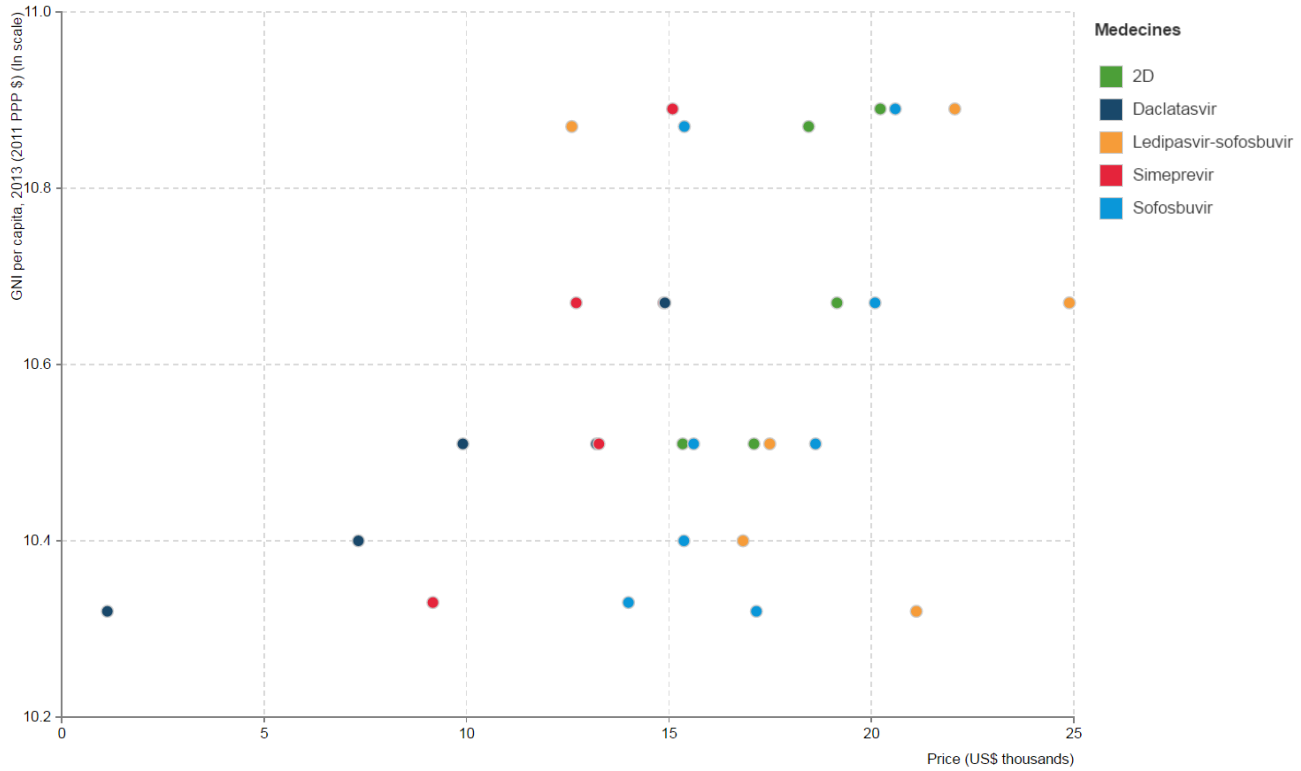
A study by Andrieux-Meyer et al. (2015) on the correlation between GNI and the price of HCV treatments found substantial variabilities in the price of several HCV drugs[3.3] within developed countries (where little correlation between drug prices and GNI was evident) and between high- and middle-to-low-income countries, where prices were generally substantially lower. While in general the study showed that DAA prices are higher in high-income countries and lower in low-income countries, a number of outliers, such as Malaysia and Turkey, where drug prices appear to be unusually high, are identified. Additionally, the study shows that price differentiation mechanisms may discriminate against developing countries. For example, Côte d'Ivoire pays almost three times as much for the generic equivalent of sofosbuvir as India (US$500 compared with US$161 per bottle) despite having a lower GNI. In another example, the authors identify that South Africa pays US$6,100 per bottle for simeprevir compared to only US$1,000 in Brazil, despite again having a lower GNI (see figure 3.4.b). The authors conclude by noting the poor availability of DAAs generally in low-income countries, the high diversity of market prices across countries in all income brackets, and that manufacturing costs of DAAs are estimated to be far lower than current market prices. The authors also highlight the importance of patent and licence barriers to using branded and generic DAAs (See Goal 17 target 11).

Figure 3.3. Imports of medicines, 1995-2014
(US$ billions; percentage of total medicines imports)



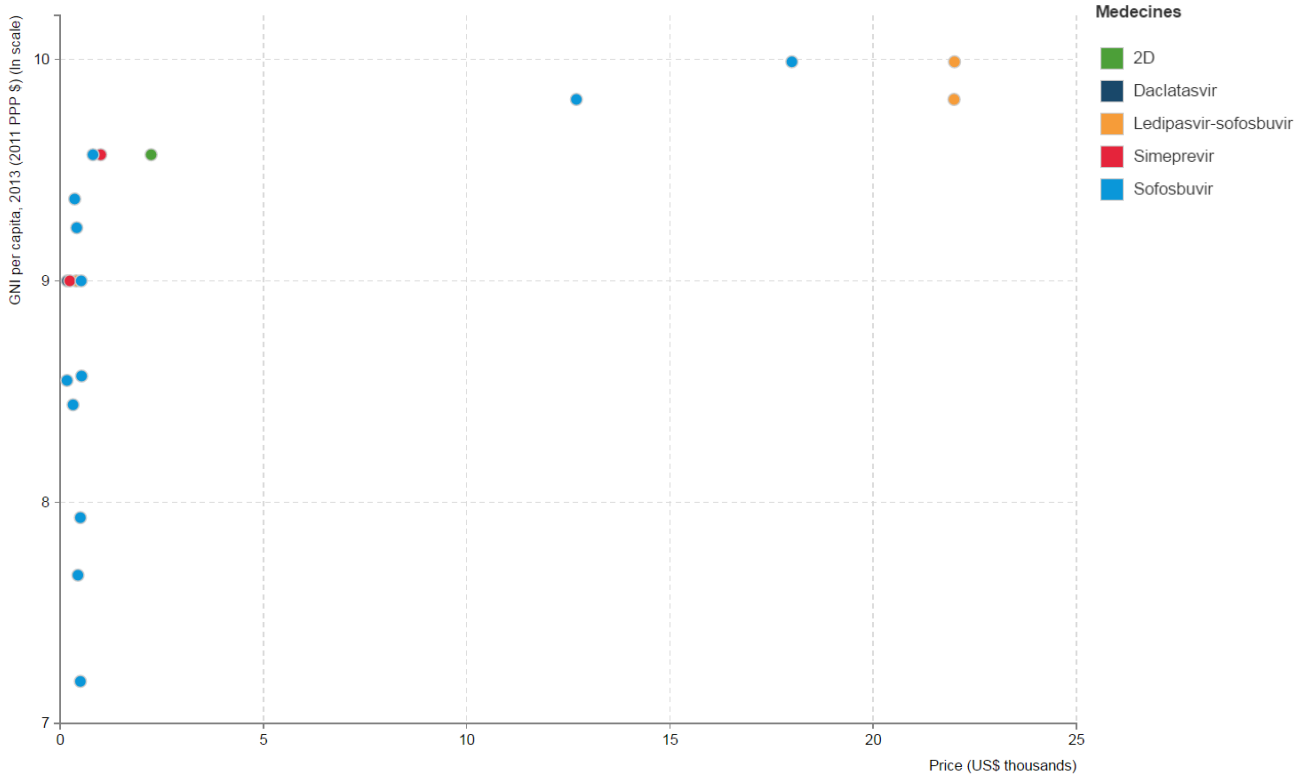
Source: UNCTADstat
Notes: The second axis shows the share of developed or developing economies in imported medicines (Standard International Trade Classification 541 and 542) as percentage of world totals.

Figure 3.4.a. Correlation between drug prices and GNI by income level: High-income countries
(US$)



Source: Andrieux-Meyer et al. (2015)

Figure 3.4.b. Correlation between drug prices and GNI by income level: Low-income and middle-income countries
(US$)



Source: Andrieux-Meyer et al. (2015)

Notes and references

Notes

3.1 See Yang (2014) for a very comprehensive review of all the different approaches to measuring well-being, including consideration of the economy, environment, gender, globalization, governance, human capability, human progress, poverty, quality of life, security, social exclusion, social progress, subjective well-being, sustainability, technology and vulnerability perspectives.

3.2 Standard International Trade Classification codes 541 and 542.

3.3 The Andrieux-Meyer et al. (2015) study focuses on the availability and affordability of drugs such as sofosbuvir, daclatasvir, ledipasvir-sofosbuvir, simeprevir, ombitasvir-paritaprevir-ritonavir and dasabuvir.

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Goal 4: Quality education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Education is critical to self-reliance and self-determination. As the old adage says "*Give a man a fish and feed him for a day. Teach a man to fish and feed him for a lifetime"*. But education is more than simply the key to overcoming hunger; it is the key to overcoming baseless superstition and illogical argument. Thus, education is essential for good decision-making, accountability and understanding. It is the seed from which ethics, cooperation, growth and health all grow. It is for this reason that Nelson Mandela said "*Education is the most powerful weapon which you can use to change the world*" (Nelson Mandela, 2003).

The Millennium Development Goals set out to ensure that, by 2015, children everywhere, boys and girls alike, would be able to complete a full course of primary education (Goal 2, target 2.a). While this wasn't fully achieved, very significant progress was reported. Enrolment in primary education in developing regions reached 91 per cent by 2015, up from 83 per cent in 2000. Furthermore, literacy rates among those aged between 15 and 24 improved globally from 83 per cent to 91 per cent between 1990 and 2015. Gaps in literacy between women and men also narrowed. Nevertheless, in developing regions, children from the poorest households are four times more likely to miss school compared with those from wealthier households. Moreover, in countries affected by conflict, the proportion of children out of school increased from 30 per cent in 1999 to 36 per cent in 2012. Today, some 57 million children of primary school age are still missing school (Goal 2, target 2.a).

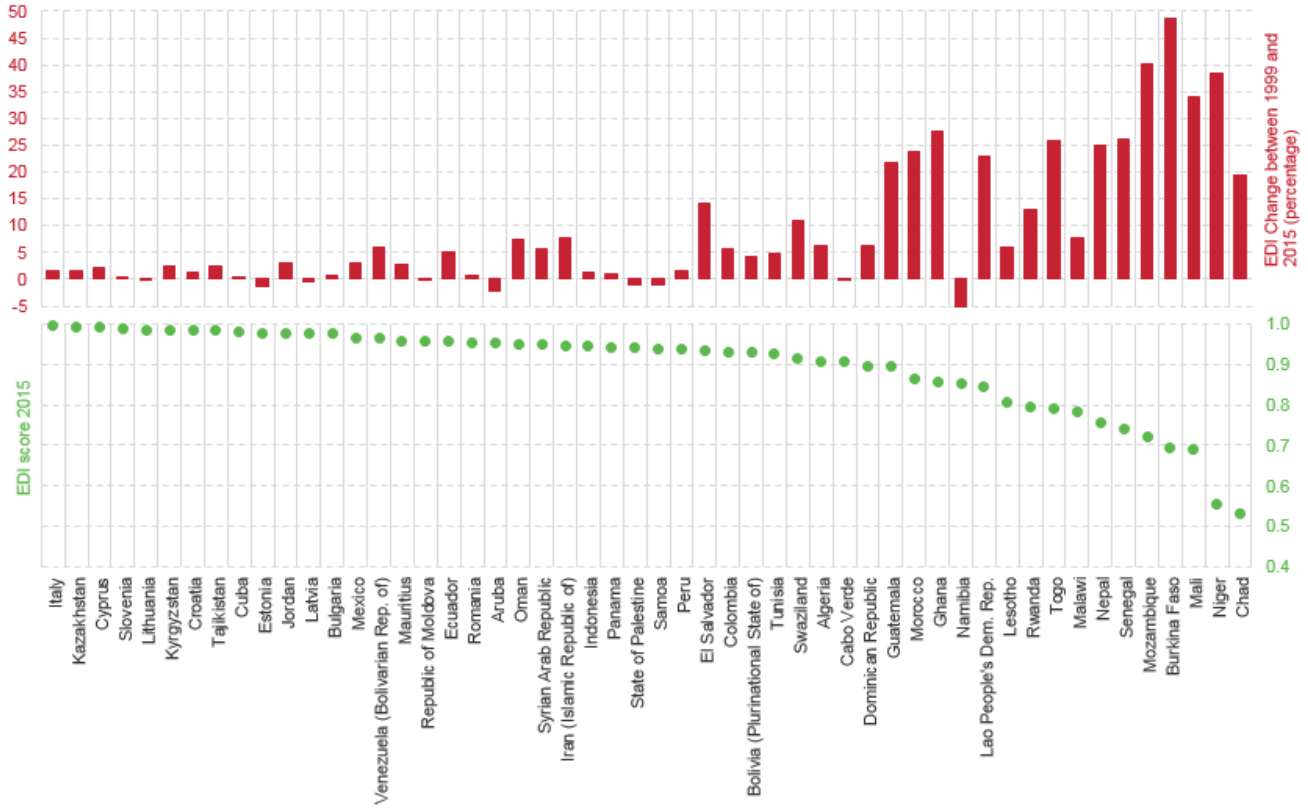
The 2030 Agenda takes a broader view of education than that encompassed in the Millennium Development Goals and includes not just primary education but life-long learning. This wider focus is illustrated by the variety of actions targeted, for example: ensure all boys and girls have access to pre-primary care and education, complete free and quality primary and secondary education and have access to affordable technical, vocational and tertiary education. While Goal 4 stresses the importance of improving skills (including, but not limited to, literacy and numeracy) necessary for economic development, it also places emphasis on gender and social elements, such as the elimination of gender, minority and disabled disparities in the level of education available. To achieve this, it is recognized that more qualified teachers, better facilities and more scholarships must be made available.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has developed a composite "*Education for All"* Development Index (EDI) to try to capture the complexity and cross-cutting nature of education and thus allow an evaluation of progress towards education for all (EFA). The index is comprised of four elements: universal primary education, adult literacy, quality of education and gender[4.1]. UNESCO provides a note of caution for users, both owing to the lack of data availability (the latest index available – 2011 – could only be compiled for 115 countries) but also as a composite index must necessarily include a range of complex and multifaceted issues caution must be used with the interpretation[4.2]. Nevertheless, the index provides a useful, simple summary of education around the world today and, despite only covering 55 per cent of countries, the index appears to provide reasonably good coverage of countries classified by income level. EDI index values can fall between 0 and 1, where 1 represents full achievement of EFA across the four elements or subindices, and zero represents absolutely no progress. Countries are categorized into four classifications: (1) "*far from EFA*"[4.3]; (2) "*intermediate position*"[4.4]; (3) "*close to EFA*"[4.5]; and (4) "*EFA achieved*"[4.6].

Provision of education is expensive, so it is not surprising that the data suggest that low-income countries experience the most difficulties (see figure 4.1). Of the countries for which there are data, 80 per cent of low-income countries have an EDI score classified as far from EFA, that is, far from universal education. In fact, two thirds of all countries classified as far from EFA are low-income countries. The majority of countries classified as intermediate (86 per cent) are middle-income countries. All of the countries that are close to EFA are middle- or high-income countries. Three quarters of countries that have reached EFA achieved are high-income countries.

From a regional perspective, the data are less robust. Nevertheless, some patterns appear to be clear. According to UNESCO (UNESCO Institute of Statistics, 2015) the majority of sub-Saharan African countries (95 per cent) for which data are available are categorized as far from EFA or intermediate position – see Burkina Faso, Chad, Lesotho, Malawi, Mali, Mozambique, Rwanda, Senegal and Togo (figure 4.1). For all South and West Asian countries and for three quarters of Arab economies/countries for which there are data, the same situation applies – see the Lao People's Democratic Republic and Nepal.

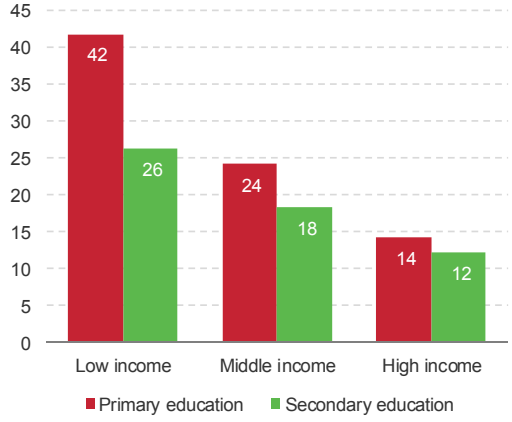
Figure 4.1. EDI score in 2015 and EDI change between 1999 and 2015
(Percentage)



Source: UNESCO Institute of Statistics (2015).

Many factors affect learning experiences. Given the complexity of this field, the pupil–teacher ratio (PTR) has often been used as a proxy for quality, although it is not clear to what extent the PTR has an affect or what an optimum PTR might be (Whitehurst and Chingos, 2011; Tomlinson, 1988). Apart from acting as a proxy indicator for education quality, PTRs also show how resources are being allocated to education. Again, not surprisingly, the PTR is highest for low-income countries (figure 4.2).

Figure 4.2. Primary and secondary pupil-teacher ratio by country income bands, 2013

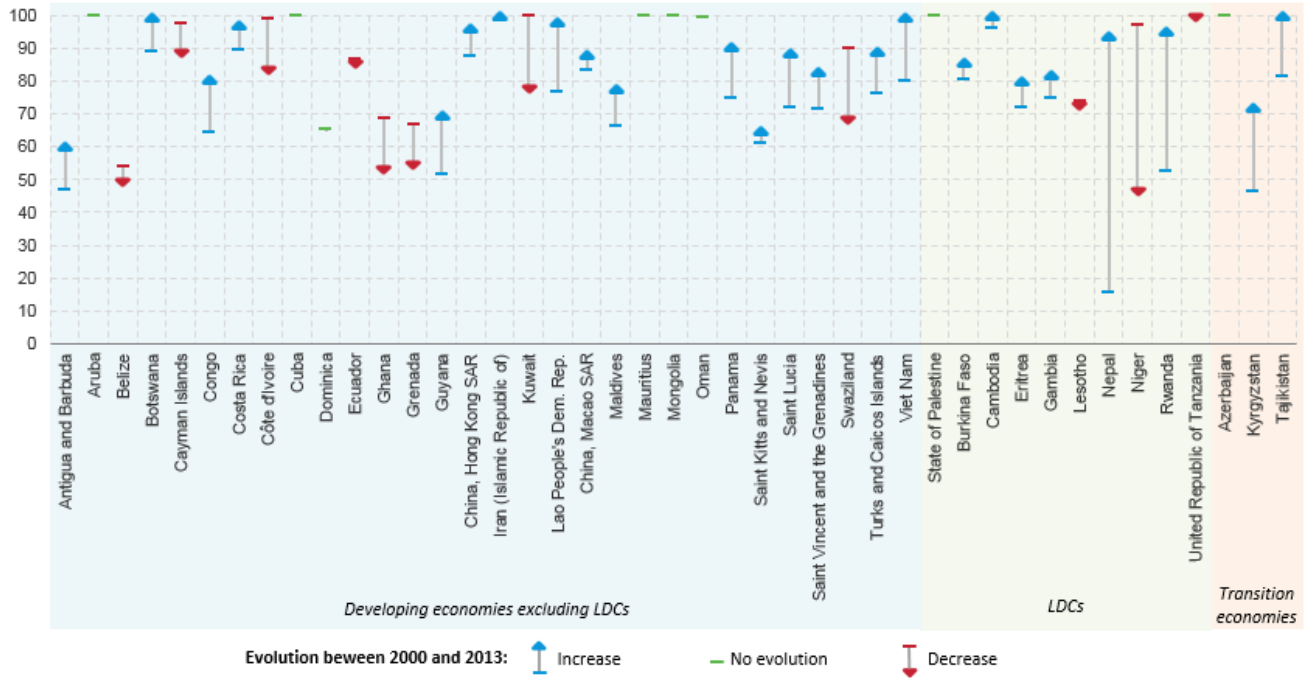


Source: UNESCO, Institute of Statistics (UIS).
Notes: Pupil-teacher ratio is the average number of pupils per teacher at a specific level of education in a given school year. World Bank lending group definitions. Middle income group definition.

For primary schools in 2013, the average PTR was 42 and for secondary schools it was 26. For middle-income countries the respective average PTRs were 24 and 18. For high-income countries the averages were 14 and 12. For low-income countries in particular, the average 2013 PTRs disguise a wide range; for example, in Malawi the secondary school PTR was 70, in Burundi 37 and in Côte d'Ivoire 22. For primary schools in 2013, a similar spread was evident: at 69 Malawi had the highest PTR; Chad and Rwanda also had PTRs in the 60s; whereas Mali had a PTR of 41. Between 2000 and 2013, the PTR improved across all income bands. For secondary schools, the PTRs for low- and middle-income countries improved by roughly 8 per cent, whereas for high-income countries the improvement was a more modest 4 per cent.

Another very important factor in the provision of education is the availability of properly pedagogically trained teachers. For most high- and middle-income countries, school teachers are trained. Data availability is patchy at best but sufficient to show that the situation is more varied for lower-income countries. For several countries the proportion of trained teachers teaching in primary schools (arguably the most important level) is only around 50 per cent (Antigua and Barbuda, Belize, Ghana and the Niger). While figure 4.3 shows an improvement for the majority of economies, including some dramatic improvements, such as in Nepal and Rwanda, the data also highlight that the situation has deteriorated in others (Cayman Islands, Côte d'Ivoire, Ghana, Grenada, Kuwait, the Niger and Swaziland).

Figure 4.3. Evolution of trained teachers at primary education between 2000 and 2013
(Percentage of teachers)



Source: UNESCO, Institute of Statistics (UIS).
Notes: Percentage of primary school teachers who have received at least the minimum pedagogical training. 2000: data refer to the latest available year during the period of 2000-2001. 2013: data refer to the latest available year during the period of 2012-2014.

Notes and references

Notes

4.1 Owing to data constraints, proxy indicators are used to measure each element. The primary adjusted net enrolment ratio is used as a proxy for universal primary education. For adult literacy, the adult literacy rate for those aged 15 and above is used. As comparable indicators on quality, notably on learning outcomes, are not available for many countries, the proportion of students reaching grade 5 is used to assess quality of education – there is a positive correlation with average international learning assessment scores and comparable data are available for a large number of countries. A simple average of three gender parity indices for primary education, secondary education and adult literacy (all weighted equally) are used for gender. Thus, gender parity (achieving equal participation of girls and boys in primary and secondary education) and gender equality (ensuring that educational equality exists between boys and girls) are incorporated. For more information on the compilation of the EDI, see http://en.unesco.org/gem-report/sites/gem-report/files/2015Report_EDI2012_Annex.pdf.

4.2 The subindices are all assigned an equal weight within the overall EDI index with the logic that each element is of equal importance. The EDI is the arithmetic mean of the four subindices.

4.3 To be classified as "*far from EFA*" a country must have an aggregate EDI score of less than 0.80.

4.4 To be classified as "*intermediate position*" a country must have an aggregate EDI score of between 0.80 and 0.94.

4.5 To be classified as "*close to EFA*" a country must have an aggregate EDI score of between 0.95 and 0.96.

4.6 To be classified as "*EFA achieved*" a country must have an aggregate EDI score of 0.97 or more.

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Goal 5: Gender equality

Achieve gender equality and empower all women and girls.

Article 1 of the 1948 Universal Declaration of Human Rights[5.1] states: "*All human beings are born free and equal in dignity and rights*". Thus, gender equality is a basic human right. All men and women are entitled to live in dignity, in freedom from want and from fear. But gender equality is also a precondition for development and poverty reduction. Empowered women contribute to the health and productivity of families, communities and nations. As Helen Clark, the Administrator of the United Nations Development Programme (UNDP) has stated, "*Any serious shift towards more sustainable societies has to include gender equality"* (see http://www.undp.org/content/undp/en/home/presscenter/events/2012/february/csw56.html). In 1979, the United Nations General Assembly adopted the Convention on the Elimination of All Forms of Discrimination against Women. Adopting such a women-specific treaty was considered necessary because, notwithstanding the existence of general human-rights treaties, as the preamble points out, "*extensive discrimination against women continues to exist"*. Article 1 of this convention defined discrimination as "*any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field*". Thus the definition covers both discrimination of purpose (intended acts) and effect (unintended acts) as well as discrimination in law (de jure) and in day-to-day life (de facto).

"Achieving gender equality requires the engagement of women and men, girls and boys. It's everyone's responsibility." - Ban Ki-moon

Goal 3 of the Millennium Development Goals had the broad aim of promoting gender equality and empowering women. The target 3.a was specific to education, however aiming to eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015. Broadly speaking this has been achieved, with most developing countries now enjoying gender equality in primary, secondary and tertiary level education. The Millennium Development Goals also reports improvements in other aspects of gender equality beyond the formal target. Women continue to experience significant gaps in terms of poverty, labour market and wages, as well as participation in private and public decision-making (United Nations, 2015). For example, Millennium Development Goal 3 target 3.a notes that "*Globally, about three quarters of working-age men participate in the labour force, compared to half of working-age women*",and "*Women make up 41 per cent of paid workers outside of agriculture, an increase from 35 per cent in 1990"*, and that "*The average proportion of women in parliament has nearly doubled over the past 20 years*".

The 2030 Agenda takes a broader view of gender equality than education, and aims to end all forms of discrimination and violence against women and girls everywhere (including sexual exploitation). The Sustainable Development Goals also aim to eliminate harmful practices such as forced marriages and genital mutilation, and ensure universal access to sexual and reproductive health services. The new wider agenda seeks recognition of the contribution and value of unpaid and domestic work, and to ensure that women can fully participate in economic, political, social and public life at all levels, including access to economic, financial and technological resources.

There are many definitions of gender equality. But gender equality can be said to have been achieved when women and men enjoy the same rights and opportunities across all sectors of society, including economic participation and decision-making, and when the different behaviours, aspirations and needs of women and men are equally valued and favoured. Women and men interact in every sphere of existence – economic, social, political – so there is a range of ways that gender equality or inequality can be measured. For this reason, a range of different composite indices have been developed to try and capture this complex issue. The choice of parameters included in a given index affects not only the aggregate or global index but also the outcome at national level.

To provide a good general overview of the global situation, four different gender indices are presented and contrasted: (a) the Global Gender Gap Index (GGI)[5.2] (b) the Gender Inequality Index (GII)[5.3] (c) the Women's Economic Opportunity Index (WEOI)[5.4] and (d) the Social Institutions and Gender Index (SIGI)[5.5] These indices are briefly summarized:

1. The UNDP GII is based on the premise that "*all too often women and girls are discriminated against in health, education and the labour market with negative repercussions for their freedom*" (UNDP, 2015). The GII is a composite measure of three aspects of gender inequality: reproductive health[5.6], empowerment[5.7] and labour market5[.8]. The purpose of the GII is to quantify or provide a measure of the human development costs of gender inequality. Thus the higher the GII value the greater the disparities between females and males and the more loss to human development.

2. The World Economic Forum (WEF) Gender Gap Index (GGI) is based on the premise that gender inequality is the "*combined result of various socioeconomic, policy and cultural variables*" (WEF, 2015). The index quantifies the magnitude and scope of gender-based disparities across the four key areas of health, education, economy and politics and tracks progress over time. The GGI measures gaps rather than levels, targets outcome variables rather than input variables, and ranks countries according to gender equality rather than women's empowerment.

3.The Economist Intelligence Unit (EIU) WEOI is described as a dynamic, quantitative and qualitative scoring model aimed at looking beyond gender disparities to the underlying factors affecting women's access to economic opportunity in the formal economy (EIU, 2012). The index is comprised of five subindices: (a) labour policy and practice; (b) access to finance; (c) education and training (d) women's legal and social status and (e) a measure of the general business environment. Each subindex includes several subcategories, so that the index comprises of 26 indicators. The WEOI uses an econometric technique known as Principal Component Analysis (ACP) to assign an index weight to each indicator.

4. The Organization for Economic Cooperation and Development (OECD) SIGI is a cross-country measure of discrimination against women in social institutions. The principle underlying the index is that "*gender gaps in social institutions translate into gender gaps in development outcomes*" (OECD, 2014), such as the labour force, poverty levels, marginalization, education, vulnerability to violence and public leadership positions. These dimensions look at the gaps between women and men in terms of rights and opportunities as reflected in legislation, practices and attitudes. The SIGI is an unweighted composite index comprised of five subindices: (a) discriminatory family code; (b) restricted physical integrity; (c) son bias; (d) restricted resources and assets; (e) restricted civil liberties. A SIGI value of 0 indicates complete equality, whereas a value of 1 indicates complete inequality (OECD, 2014).

Despite being based on quite different approaches to gender inequality or discrimination, using different methodologies and being comprised of quite different subindices and indicators, a comparison of the indices at regional level reveal very similar results (see table 5.1). For three of the four indices, Europe and Central Asia have the lowest gender inequality and discrimination[5.9]. East Asia and the Pacific, and Latin America and the Caribbean share the second and third places, depending on the index. Women in sub-Saharan Africa and the Middle East and North Africa are generally judged to experience the most gender inequality and discrimination.

Table 5.1. A comparison of ranked gender equality indices
(Various years; latest available year)

Region	GGI	GII	WEOI	SIGI
	2013	2014	2012	2014
Middle East & North Africa	6	5	4	6
East Asia & Pacific	3	2	3	3
Europe & Central Asia	1	1	1	2
Latin America & the Caribbean	2	3	2	1
South Asia	5	4	5	4
Sub-Saharan Africa	4	6	6	5

Sources: UNCTAD secretariat based on data from WEF, OECD, UNDP and EIU.

There is less consensus at country level. This should not be surprising as it would be extremely difficult for an individual country to score consistently well or poorly across the wide variety of indicators employed by the various indices. Nevertheless, although individual rankings may differ, some countries appear in the top 10 rankings of several of the indices. For example, Sweden is ranked first by the WOEI, fourth by the GGI and sixth by the GII (no data for Sweden are available in the SIGI). Equally, Belgium is ranked first by the SIGI, fourth by the WOEI and eighth by the GII. Several other countries (Denmark, Finland, Germany, Iceland, Slovenia and Switzerland) all appear in the top 10 of at least two of the four indices (see table 5.2).

A similar pattern is also evident at the other end of the scale. Here also a surprisingly high degree of consistency is evident. Yemen is ranked as having the highest gender inequality and discrimination by three of the four indices. Only the WOEI ranks Yemen third. Chad also appears in all four indices towards the bottom of the table, ranked as having the second highest inequality by the WOEI, third highest by GGI and GII and fifth highest by SIGI. Côte d'Ivoire and Mali also appear in three of the four indices as having some of the worst gender discrimination and equality.

The four indices thus reflect diverse realities of gender inequality at the country level that largely overlap but do not exactly match. They indeed rely on different methodologies, weightings and most notably, input variables, accounting for disparities across the respective country rankings. The implementation of a PCA on all variables used as inputs in the GGI, GII and WEOI allows for a more synthetic overview of gender inequality. This analysis not only brings out correlations between the different sets of input variables but also highlights similarities across countries in terms of gender inequality.

Based on the data for 98 countries which represent 80 per cent of the world population[5.10], the PCA emphasizes four main areas of gender inequality: the first reflects women's socio-demographic status, the second refers to women's economic participation, the third relates to women's political and the fourth corresponds with women's health. For each area, the PCA provides a score that is all the higher as women's situation is better.

Table 5.2. Countries with lowest and highest gender inequality and discrimination, various years

Lowest gender inequality & discrimination				
Rank	GGI Ranking 2013	GII Ranking 2014	WEOI Ranking 2012	SIGI Ranking 2014
1	Iceland	Slovenia	Sweden	Belgium
2	Finland	Switzerland	Norway	France
3	Norway	Germany	Finland	Slovenia
4	Sweden	Denmarjk	Belgium	Spain
5	Phillipines	Austria	Australia	Serbia
6	Ireland	Sweden	Germany	Argentina
7	New Zealand	Netherlnads	Netherlands	Italy
8	Denmark	Belgium	New Zealand	Cuba
9	Switzerland	Norway	Canada	Trinidad & Tobago
10	Nicaragua	Italy	Iceland	Czech Republic

Highest gender inequality & discrimination				
Rank	GGI Ranking 2013	GII Ranking 2014	WEOI Ranking 2012	SIGI Ranking 2014
1	Saudi Arabia	Liberia	Nigeria	Congo (DR)
2	Mali	Central Africa Rep.	Madgascar	Egypt
3	Morocco	Tonga	Côte d'Ivoire	Niger
4	Iran, Islamic Rep.	Congo (DR)	Togo	Zambia
5	Côte d'Ivoire	Mali	Ethiopia	Somalia
6	Mauritania	Côte d'Ivoire	Solomon Islands	Chad
7	Syria	Afghanistan	Papua New Guinea	Mali
8	Chad	Chad	Yemen	Gambia
9	Pakistan	Niger	Chad	Sudan
10	Yemen	Yemen	Sudan	Yemen

Sources: UNCTAD secretariat based on data from WEF, OECD, UNDP and EIU.

Table 5.3. Drivers of gender equality by area

	Areas of gender inequality				
	Women's socio-demographic status	Women's economic participation	Women's political empowerment	Women's health	Other components
Maternal mortality ratio	-0.327	-	-	-	-
General business environment	0.315	-	-	-	-
Women's legal & social status	-	-	-	-	-
Education & training	0.325	-	-	-	-
Access to finance	-	-	-	-	-
Labor policy & practice	-	-	-	-	-
Adolescent birth rate	-0.346	-	-	-	-
Share of seats in parliament, female	-	-	0.642	-	-
Female with at least secondary education	0.367	-	-	-	-
Male with at least secondary education	0.37	-	-	-	-
Labor force participation rate, female	-	0.634	-	-	-
Labor force participation, male	-	-	-	-	0.518
Economic participation & opportunity	-	0.612	-	-	-
Educational attainment	-	-	-	-	0.372
Health and survival	-	-	-	0.886	-
Political empowerment	-	-	0.658	-	-
Proportion in total variance	0.459	0.141	0.139	0.078	0.184

Sources: UNCTAD secretariat based on data from WEF, OECD, UNDP and EIU.

These four principal components explain more than 80 per cent of the total variance.

- Component 1 (sociodemographic area) is mostly determined by reproductive health and education.
- Component 2 (economic area) depends mainly on labour force participation and economic opportunity, measured by salaries, participation and leadership.
- Component 3 (political area) reflects women's representation in the parliament and their political emancipation.
- Component 4 (health area) is essentially defined by the variable "*health and survival*".

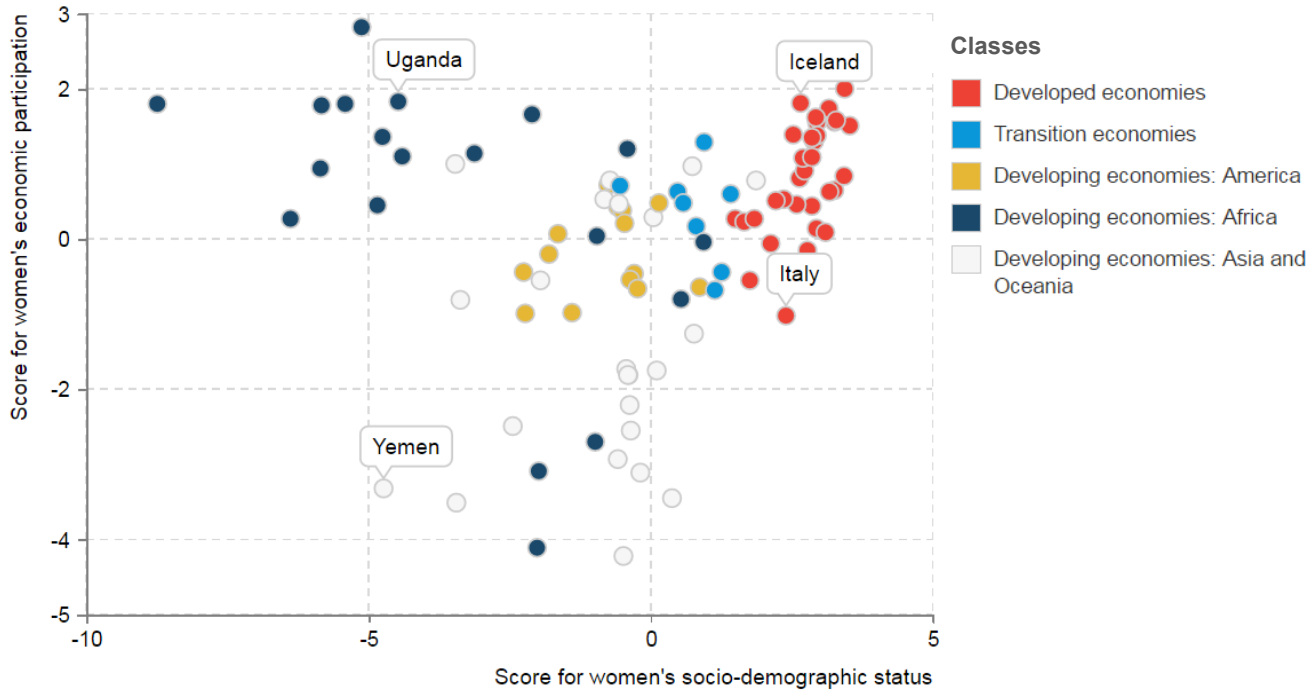
In figure 5.1, gender equality in the socio-demographic area is represented by the x-axis and gender equality in the economic area by the y-axis. The countries in the sample can be categorized into three broad classes with regard to gender equality in the socio-demographic area. The first class near the top right is mainly comprised of developed countries. The second class situated in the middle contains mostly developing countries of America and Asia as well as transition countries. The third class in the left is mainly comprised of countries in sub-Saharan Africa.

The developed countries in the first class rank comparatively high not only in the socio-demographic but also in the economic and the health area (figures 5.1 and 5.3). It is remarkable that in sub-Saharan African countries, that form the class in which women are reported to be most disadvantaged in comparison to men, gender equality in the economic area is measured on average comparatively high. Apart from these correlations, within the socio-demographic inequality classes there is considerable heterogeneity with regard to gender inequality in other areas. For example, while Yemen and Uganda have a comparable score in the socio-demographic area, women in Yemen appear much more disadvantaged compared to men in the economic and political areas than women in Uganda (figures 5.1 and 5.2).

This heterogeneity helps to explain why the country rankings can change when different types of gender-gap indices, based on different indicators or different weights, are considered.

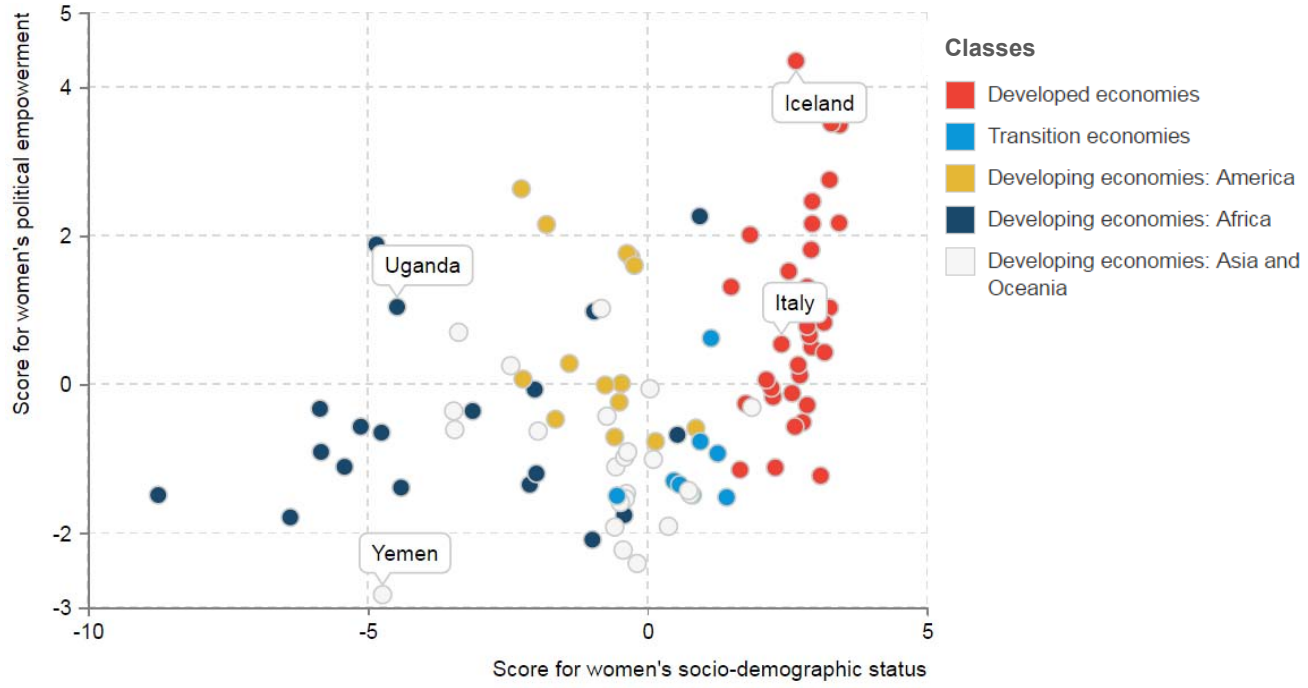
Likewise, socio-demographic gender equality in Italy and Iceland is equally high, but in the economic and political area gender equality is much higher in Iceland than in Italy (figures 5.1 and 5.2). By contrast, in the area of health Iceland ranks below Italy (figure 5.3).

Figure 5.1. Scores on women's socio-demographic status and economic participation by country



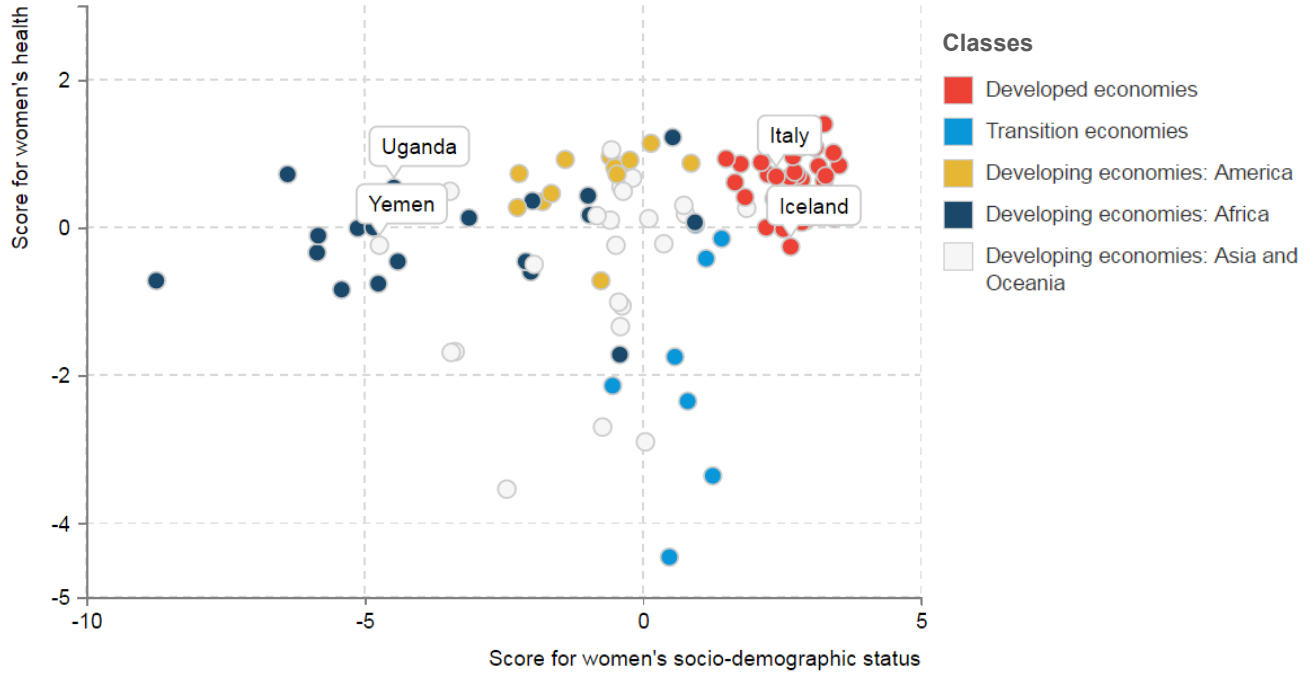
Sources: UNCTAD secretariat based on data from WEF, OECD, UNDP and EIU.
Note: Score: Principal component scores are the scores of each sub-indicator (row) on each factor (column). To compute the score for a given sub-indicator for a given factor, one takes the sub-indicator's standardized score on each variable, multiplies by the corresponding factor loading of the variable for the given factor, and sums these products.

Figure 5.2. Scores on women's socio-demographic status and political participation by country



Sources: UNCTAD secretariat based on data from WEF, OECD, UNDP and EIU.
Note: Score: Principal component scores are the scores of each sub-indicator (row) on each factor (column). To compute the score for a given sub-indicator for a given factor, one takes the sub-indicator's standardized score on each variable, multiplies by the corresponding factor loading of the variable for the given factor, and sums these products.

Figure 5.3. Scores on women's socio-demographic status and health



Sources: UNCTAD secretariat based on data from WEF, OECD, UNDP and EIU.
Note: Score: Principal component scores are the scores of each sub-indicator (row) on each factor (column). To compute the score for a given sub-indicator for a given factor, one takes the sub-indicator's standardized score on each variable, multiplies by the corresponding factor loading of the variable for the given factor, and sums these product

Target 5.a: Economic rights for Women

Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.

Despite the global consensus that women's land rights are fundamental to the realization of food security and rural development, accurate and reliable statistics to monitor the attainment and realization of these rights are still lacking. The lack of robust statistics on land ownership and land management, disaggregated by sex, poses a challenge for the development of policy responses addressing the inequalities faced by women and men in rural areas (Doss et al., 2015). In discussions regarding women's land rights, the concepts of agricultural holders and landowners are often used interchangeably. Both are important complementary components of women's land rights and control over land resources, but are different and should not be confused with one another.

The Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has proposed using two indicators to measure progress towards this target: (a) "*The percentage of people with ownership or secure rights over agricultural land (out of total agricultural population) by sex"*; (b) "*The share of women among owners or rights-bearers of agricultural land by type of tenure"*. The Food and Agriculture Organization of the United Nations (FAO) compiles and makes available on its Gender and Land Rights Database a series of indicators that address these targets, namely: (a) distribution of agricultural holders by sex; (b) distribution of agricultural landowners by sex; (c) incidence of female and male agricultural landowners; (d) distribution of agricultural land area owned by sex. The Organization also makes available information on the value of agricultural land owned by sex.

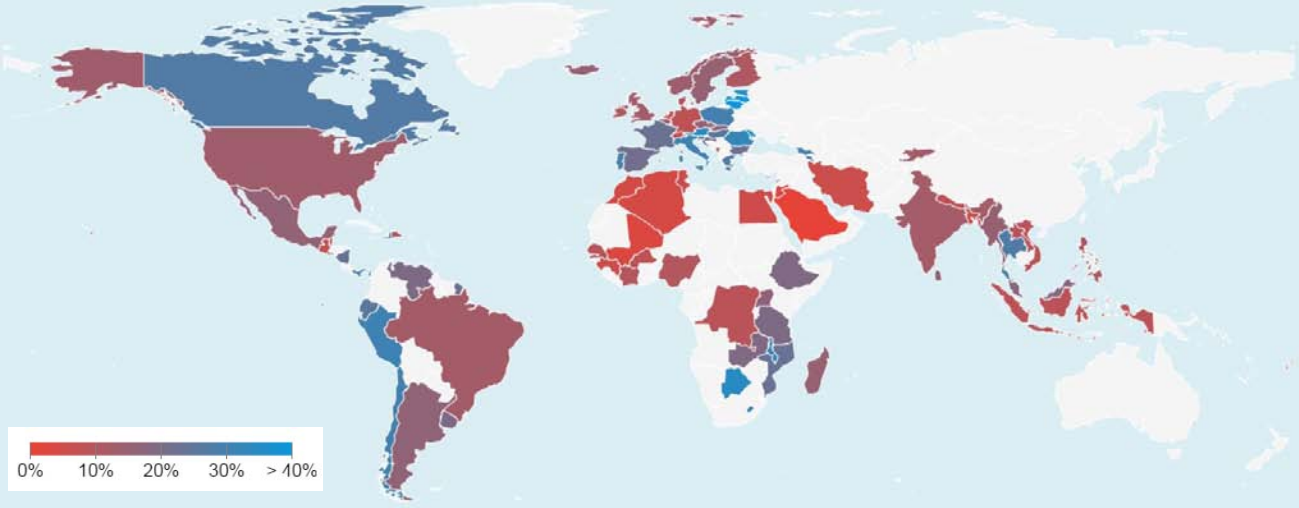
The "*distribution of agricultural holders by sex"* is designed to illustrate the management of agricultural holdings by sex and thus identify the extent to which women and men hold management responsibility for agricultural production resources. A holder may or may not, of course, also be the owner of a holding. While agricultural holdings are typically land holdings, they may also comprise other agricultural production resources, and in some cases only non-land resources (for example, landless holdings such as livestock). FAO notes that this indicator is the most available and comparable of the gender-by-land indicators, but also notes that it does not capture the management complexities of holdings comprised of several plots, and thus may underestimate the management role of household members. FAO also notes some limitations regarding minimum size thresholds employed in some censuses that may bias against female agricultural holdings. Nevertheless, data[5.11] are available for 104 countries or territories around the world.

Figure 5.4 demonstrates that gender inequality exists in the management of agricultural holdings for both developed and developing countries. The overall global share of female agricultural holders is 12.8 per cent. Despite data gaps, it is evident that inequality is particularly acute for many North African and Middle Eastern countries. But even in this region, wide disparities exist; for example, the share of female agricultural holders ranges from 0.8 per cent in Saudi Arabia to 51 per cent in Cabo Verde. The region showing the narrowest gender gap is Europe, although here too, wide disparities between countries are evident.

The "*distribution of agricultural landowners by sex*" is designed to measure what proportion of agricultural landowner are women. Because multiple owners can be identified within a household, this approach better reflects land rights at the level of the individual. The comparability of this indicator is compromised by the variety of differing definitions of ownership and low availability and quality of data. For the moment however, these are the best data available.

From the limited data available, gender inequalities in agricultural land ownership exist. However, the gender gap appears to be narrower compared with the management of agricultural holdings (See FAO Gender and Land Rights Database).

Figure 5.4. Distribution of female agricultural holders
(Percentage of total agricultural holders)



Source: FAO, FAOSTAT.

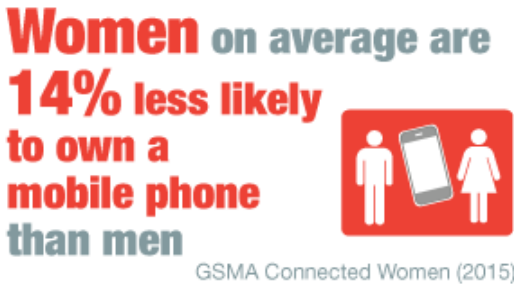
Target 5.b: Women empowerment through ICT

Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.

The Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has proposed using "*The proportion of individuals who own a mobile telephone, by sex"* as the indicator to measure progress towards this target. Unfortunately, data to populate this indicator are not currently available (the International Telecommunication Union (ITU) started collecting the data in 2015). Some proxy data (World Telecommunication/ICT Indicators) are compiled by ITU. Specifically, the Union compiles three indicators on the use of mobile phones: use of mobile phones by educational attainment, by urban/rural and by age. However, only the latter two indicators are disaggregated by sex and all three indicators have limited country coverage. Furthermore, these indicators focus on use rather than ownership (see Goal 17 target 6). The UNCTAD report *M"easuring ICT and Gender: An Assessment*" (UNCTAD, 2014) explains why measuring mobile phone ownership is important:

While the importance of using mobile phones is recognized in core ICT indicator HH10[5.12] (Partnership on Measuring ICT for Development, 2016), for many girls and women, particularly in developing countries, ownership of a mobile phone is preferable to simply having access to one through sharing or borrowing. The latter often entails a relationship of dependence and obligations that may be uncomfortable for women, whereas owning a phone allows privacy, convenience and greater security. Other benefits of ownership include acquisition of a unique address through the phone number, which could substitute for an office, a bank account, and/or a means for obtaining microinsurance or finance. It can also help increase economic and professional opportunities, especially for entrepreneurs or the self-employed. While shared phones can frequently involve pressures on girls and women, unfortunately this can also occur with ownership when women need to ask men for assistance in purchasing airtime for their phones. On balance, however, it appears that mobile phone ownership offers greater possibilities of privacy and autonomy than shared usage.

In early twentieth-century England, Virginia Woolf held out for "*a room of one's own*" as the standard of women's autonomy. In the twenty-first century, the aspiration for a room would most likely be replaced by a mobile phone of one's own. In view of the cultural difficulties women face if they use mobile phones without owning them, mobile phone ownership can advance gender equality.

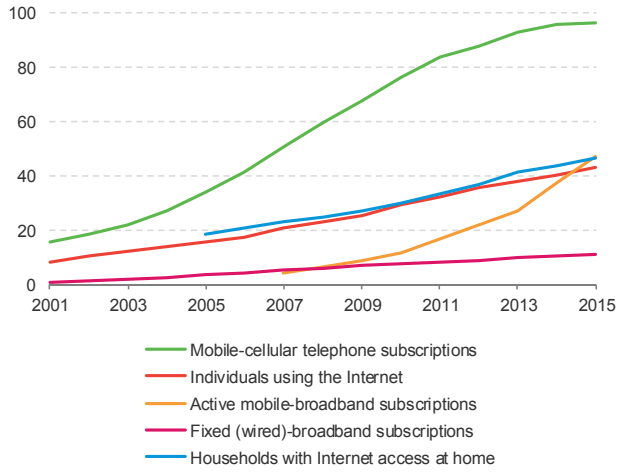


Using, but not owning, a mobile phone generally implies sharing the use of the phone of another individual, or a phone that is available for use by the general public (as in the Grameen Bank Village Phone Programme) (Grameen Bank, 2010). However, recent research from Africa indicates that it may not always be possible to share. A survey of mobile phone owners in Kenya indicated that only one quarter shared their phone with someone else, and when it was shared, it was usually with a spouse. In South Africa, nearly four fifths of mobile phone owners said they did not share their phone with anyone (World Bank, 2012). Where sharing does take place, it is nearly always between male owners and female recipients (Blumenstock and Eagle, 2010). Among both men and women, phone sharing tends to be more common in poor and rural areas, and varies in prevalence from country to country. Another recent study from Kenya showed that mobile phone sharing correlated with a scarcity of phones; as the percentage of mobile phone owners increased, instances of sharing decreased (Wesolowski et al., 2012).

The presence of a mobile phone in a household is no guarantee that female household members will have access to it. The June 2013 revisions to the core information and communications technology (ICT) household indicators stipulate that those indicators should refer to household ICT devices that are *"available for use by any member of the household at any time*". Operationally however, this is very hard to determine, as cultural gender bias is difficult to establish in an interview. Householders are unlikely to say that boys and men in the house are given preference in accessing ICT, or that sociocultural differences, such as greater workloads for females, constrain girls and women from having equal access to ICT. This pattern undoubtedly holds true for mobile phone access, particularly when cost-per-use is involved.

Since 2001, access to Internet and mobile phone ownership has increased dramatically in most countries around the world (ITU, 2015) (see figure 5.5). In the developing world more affordable handsets are increasingly available. Despite the progress that has been made in recent years, there are still challenges to be overcome to ensure that women are included in an increasingly connected and Internet-enabled world. Mobile phones are important tools for enhancing the lives of women in low- and middle-income countries. Mobile phones can help women feel safe and more connected, save time and money, and access life-enhancing services such as mobile money or potential education and employment opportunities.

Figure 5.5. Global changes in major ICTs, 2001-2015
(Per 100 inhabitants)



Source: ITU statistics aggregate data.
Note: ITU estimates.

Social norms influence women's access to mobile technology

Barriers to mobile phone ownership

GSMA Connected Women (2015)

The Groupe Speciale Mobile Association (GSMA) Connected Women Programme (2015) estimates that some 1.7 billion women do not own a mobile phone. Two thirds of these live in the South Asia and East Asia and the Pacific. The report also notes that a significant number of unconnected females, over 300 million, live in sub-Saharan Africa (see figure 5.6).

From a "*gender-gap*" perspective, the gap in mobile phone ownership between males and females in low- and middle-income countries is estimated to be 14 per cent, but this average masks a greater inequality between male and female phone ownership in many parts of the world. In particular, the findings of the GSMA study indicate that the South Asian region has a particularly high gender gap in mobile ownership (38 per cent). The neighbouring region, East Asia and the Pacific, had the lowest gender gap (3 per cent) - see figure 5.6. The report also notes that wealthier countries (that is, higher per capita gross domestic product) generally have smaller gender gaps in mobile phone ownership.

Figure 5.6. Gender gap in mobile phone ownership, selected countries, 2015

Source: GSMA Connected Women Programme (2015)

Notes and references

Notes

5.1 The Universal Declaration of Human Rights is a milestone document in the history of human rights. Drafted by representatives with different legal and cultural backgrounds from all regions of the world, the Declaration was proclaimed by the United Nations General Assembly in Paris on 10 December 1948 as a common standard of achievements for all peoples and all nations. It sets out, for the first time, fundamental human rights to be universally protected. See http://www.ohchr.org/EN/UDHR/Documents/UDHR_Translations/eng.pdf.

5.2 Compiled by WEF. See http://www3.weforum.org/docs/GGGR2015/cover.pdf.

5.3 Compiled by UNDP. See http://hdr.undp.org/en/content/gender-inequality-index-gii.

5.4 Compiled by EIU. See http://graphics.eiu.com/upload/weo_report_June_2010.pdf.

5.5 Compiled by OECD. See http://www.genderindex.org/data.

5.6 Measured by maternal mortality ratio and adolescent birth rates.

5.7 Measured by the proportion of parliamentary seats occupied by females and the proportion of adult females and males aged 25 years and older with at least some secondary education.

5.8 Measured by female and male labour force participation rates.

5.9 The SIGI has quite a low representation of Western European countries. Closer examination of the countries included in the regional average shows that the aggregate SIGI value is heavily weighted towards Central Asian countries that typically have significantly higher SIGI values than Western European countries. Thus if coverage of Western European countries was higher, the average SIGI value for the region would most likely have fallen considerably, ranking Europe and Central Asia as the first.

5.10 Countries for which the value of at least one indicator is missing are excluded.

5.11 Using data from either the 2000 or 2010 agricultural censuses. For some countries in sub-Saharan Africa, the Middle East, North Africa, Asia and Latin America and the Caribbean, data are only available for 1990.

5.12 HH10 Proportion of individuals using a mobile cellular telephone. This is the proportion of individuals who used a mobile telephone in the last three months. A mobile (cellular) telephone refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT-Advanced. Users of both postpaid subscriptions and prepaid accounts are included.

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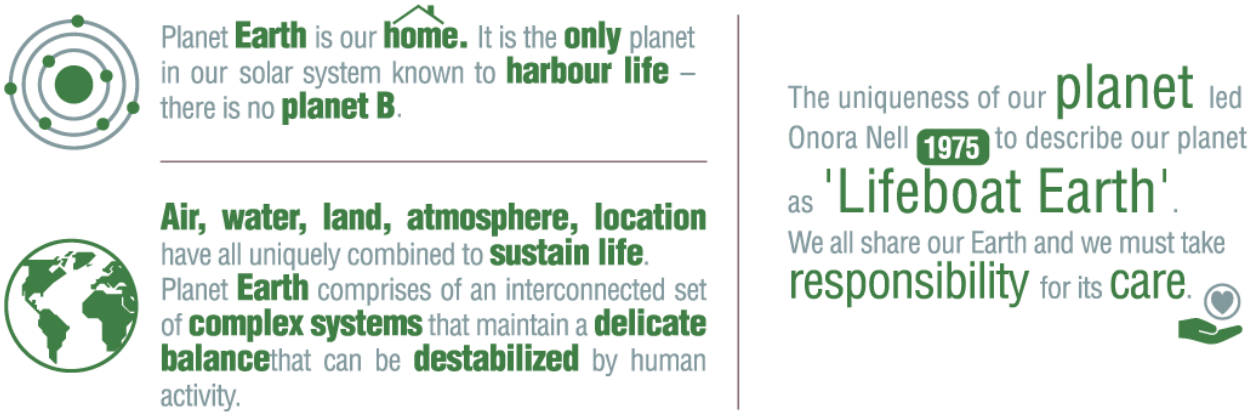
PLANET

"We are determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations."



The Planet section of this report consists of sustainable development goals 6 and 12 - 15 along with selected targets from those goals.

Water is a fundamental element of life and clean drinking water a basic requirement for survival. Yet today, despite all the achievements of mankind, more than 660 million people do not have access to this most basic of requirements.

We live on a planet with finite resources. How we manage and consume those resources will have real and lasting implications for prosperity and equity today and for future generations. Goal 12 addresses some of the key challenges regarding sustainable consumption and production patterns.

Limiting the effects of climate change will be necessary to achieve sustainable development, equity and poverty eradication. Doing so raises challenging issues of equity, justice and fairness as all countries, irrespective of where they are on the development spectrum, will share the consequences of not taking mitigating and adaptive actions.

Oceans cover more than 70 per cent of the earth's surface and are central to life on earth. They are a rich source of food and valuable minerals, a vast waterway for international commerce and movement of people, and for many, a giant recreation and cultural heritage space. Unfortunately over the past decades, ocean degradation has grown, resulting in an erosion of marine biodiversity, habitats and species and endangering marine ecosystems on which humans depend heavily. Restoring the health and resilience of our oceans is thus a global priority.

Biodiversity sustains life on earth. Terrestrial biodiversity - life on land - covers the variety of living organisms found in plants and animals, their genes, ecosystems and ecological processes. The majority of the world's poor live in rural areas and are dependent on forests, waters, wetlands, fields and pastures for their livelihoods. Many of these ecosystems and related biodiversity are under threat and poorly managed.

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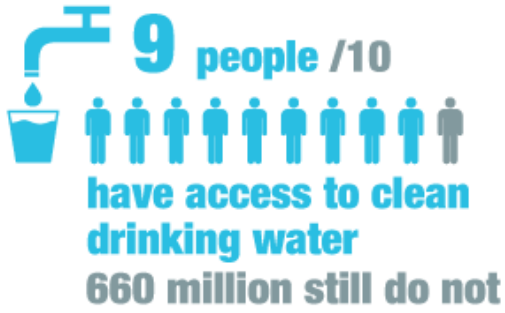
Goal 6: Clean water and sanitation

Ensure availability and sustainable management of water and sanitation for all.

Water is a fundamental element of life and clean drinking water a basic requirement for survival. W. H. Auden once reflected that "*Thousands have lived without love, not one without water*". Yet today, despite all the achievements of mankind, more than 660 million people do not have access to this most basic of requirements.



The targets under Goal 6 call for a variety of actions. They include the universal and equitable access to safe drinking water, equitable sanitation and hygiene, reduced pollution and dumping in our waters, improved water management and sharing, and the protection of aquifers and wetlands. This variety illustrates the importance of water and sanitation for health and the environment and also for property rights and international peace and cooperation. There is a very close link between Goal 6 and Goal 1, and in particular target 1.4 that deals with access to basic services.

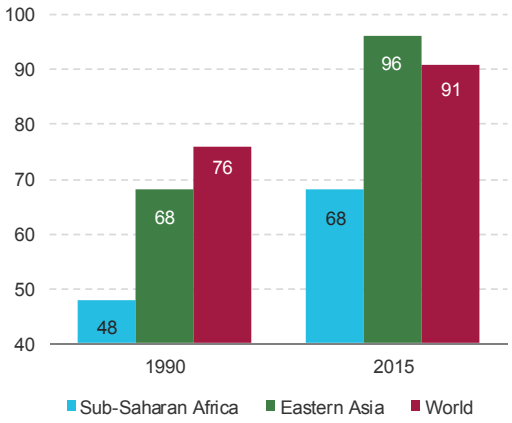
The Millennium Development Goals identified water as an environmental issue, as does the 2030 Agenda, placing water under the theme "Planet". In fact, the importance of water is truly cross-cutting and is crucial to the success of not only "Planet" but also "People", "Prosperity", "Peace" and "Partnership". But the management of water, a public good, often suffers from what is known by economists as the "tragedy of the commons". This has arisen as many have mistakenly assumed that the supply of clean water is limitless and free. It is not. Furthermore, supposed aphorisms, such as 'flowing water purifies itself every 10 miles', in today's highly populated planet are also clearly false.

Safe drinking water

The Millennium Development Goals set out to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015 (target 7.C). This was achieved. Globally, between 1990 and 2015 the proportion of people with access to improved drinking water sources increased from 76 per cent to 91 per cent. This means that 2.6 billion people more had access to safe drinking water.

But improvements were even more dramatic in some regions (figure 6.1), most notably sub-Saharan Africa, where less than half of the population had access to safe water in 1990 compared with more than two thirds (68 per cent) today. Countries in Eastern Asia also enjoyed striking improvements so that now almost all of the population in this region (96 per cent) has access to safe water.

Figure 6.1. Improvement in access to drinking water sources for selected regions
(Percentage of total population)

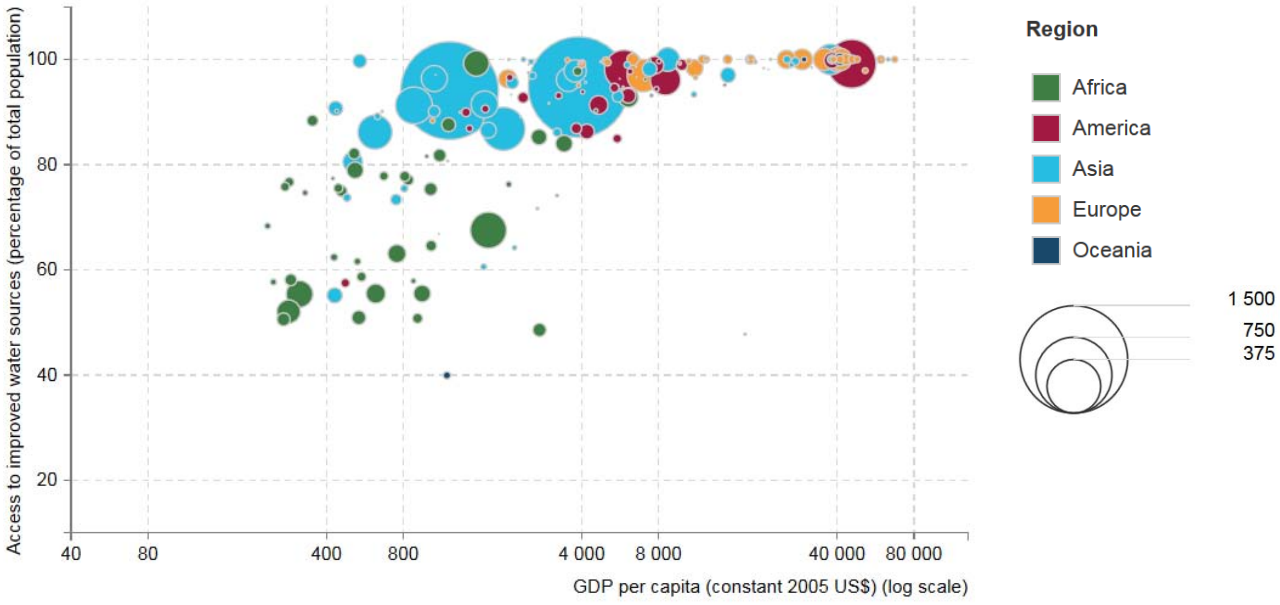


Source: World Health Organization (WHO)/United Nations Children's Fund (UNICEF) Joint Monitoring Programme
Note: Millennium Development Goals region definitions.

Figure 6.2 illustrates the advancements in access to improved drinking water sources at the level of countries, cross-referenced with gross domestic product (GDP) per capita. In some countries there have been some notable improvements in the availability of safe water. In Myanmar, 80 per cent of the population had access to potable water in 2014 compared with only 58 per cent in 1990. Significant improvements are also evident in Mali, where 75 per cent of the population now enjoys access to clean water compared with only 27 per cent in 1990. Even more striking progress is evident in Afghanistan, where more than half the population now has access to water (55 per cent) compared with only 20 per cent twenty years ago. Overall, despite an apparent correlation between GDP per capita and access to safe water, many countries improved their access to drinking water by much more than that correlation would suggest.

But work remains to be done, for as we have seen with other Millennium Developments Goals and targets, progress is uneven. Almost one in three people living in least developed countries (LDCs) still do not have access to clean, safe water (Joint Monitoring Programme, 2015). Access to clean drinking water remains a particular challenge for many countries in Oceania. For example, in 2014 only just under 70 per cent of the population of Kiribati and 40 per cent of Papua New Guinea enjoyed access to clean water.

Figure 6.2. Evolution of population with access to improved drinking water sources and GDP per capita, 2014

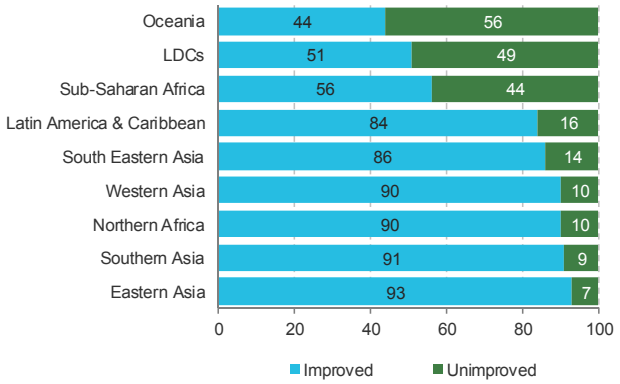


Sources: WHO/UNICEF Joint Monitoring Programme (improved drinking water sources) and UNCTADstat (population and GDP data).
Notes: Data on per capita GDP are shown in logarithmic scale. The size of the bubbles refers to the total population.

In some sub-Saharan African countries (Angola, Chad, the Democratic Republic of the Congo, Madagascar and Mozambique) every other person does not have access to safe drinking water. It is worth noting that in several other countries, such as Burundi, Cameroon, the Congo, Guinea, Liberia, Mali, Rwanda and Zimbabwe, one in four people do not have access to safe drinking water and for a number of other countries there are no data available. In Equatorial Guinea, despite notable improvements in income, only half the population has access to clean water with no appreciable improvements in availability. Problems persist also in Afghanistan, Haiti, Mongolia and the State of Palestine.

While the challenges of providing safe water in cities have almost been addressed, the problem of access to improved drinking water sources remains an issue for many rural areas around the world. This is particularly evident for Oceania and sub-Saharan Africa (figure 6.3).

Figure 6.3. Availability of drinking water sources in rural areas by region in 2015
(Percentage of rural population)



Source: WHO/UNICEF Joint Monitoring Programme
Note: Millennium Development Goals region definitions.

Basic sanitation

Similarly to drinking water, there have been very significant improvements with regard to the availability of improved sanitation facilities around the world.

However, data availability for this basic service remains quite poor, in particular at country level. In 1990, only one in two people had access to good quality sanitation compared with almost 70 per cent of the world's population today. Since then some 2.1 billion people worldwide have gained access to improved sanitation.

But progress has been uneven and today approximately 34 per cent of the world's population are still using poor quality sanitation facilities, with almost 950 million people still practicing open defecation (United Nations, 2015).

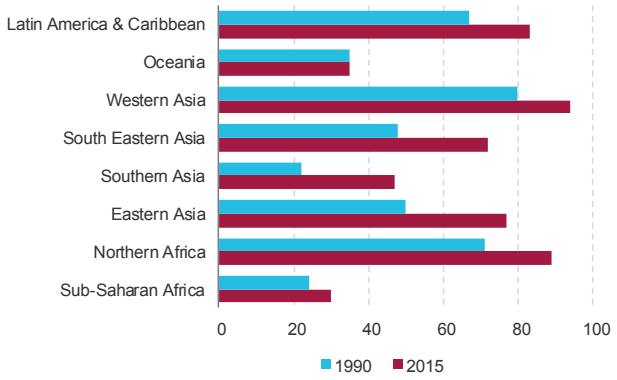
From an absolute perspective, the improvements may appear modest, as today 2.4 billion people still do not have access to sanitation facilities compared with 2.5 billion in 1990.

The growth in the global population, primarily in developing regions, has contributed to this apparent discrepancy between proportion and absolute populations.

Regionally, improvements have differed radically in scale (figure 6.4). While Southern Asia has enjoyed dramatic improvements in sanitation over the past 25 years, there

have been no overall improvements in Oceania. Particularly, Papua New Guinea has bucked the global trend, experiencing some deterioration in sanitation facilities since 1990. Despite improvements, sub-Saharan Africa still suffers from very poor sanitation services, with more than two thirds of the population without access to proper facilities. In many countries - Benin, Burkina Faso, the Central African Republic, the Congo, Côte d'Ivoire, Eritrea, Ghana, Guinea, Guinea-Bissau, Mozambique, Uganda and the United Republic of Tanzania - as many as four out of five people do not have access to them. In Chad, the Niger, Sierra Leone and Togo, only 1 in 10 people enjoy proper facilities. Data for individual countries are available on the Joint Monitoring Programme website.

Figure 6.4. Use of improved sanitation facilities for selected regions
(Percentage of total population)



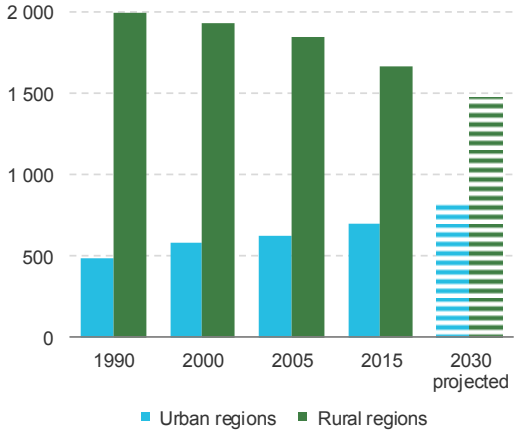
Source: WHO/UNICEF Joint Monitoring Programme
Note: Millennium Development Goals region definitions.

Even though for least developed countries (LDCs) as a whole, the improvement has been dramatic, almost two thirds of their respective populations still remain without good quality sanitation. Like drinking water, there is a marked difference in the availability of proper sanitation facilities between rural and urban populations around the world.

From the data available, it is clear that the situation is worse in rural areas where roughly 1.7 billion people (half of the global rural population) live without sanitation (figure 6.5). Over the past 25 years, sanitation has only improved for half of rural populations globally.

But for least developed countries (LDCs), the situation has only improved for a third of the population. In urban areas the problem is less acute but nevertheless remains a serious problem, with some 705 million people living in unsanitary conditions. This nevertheless represents a sizeable improvement compared with two or three decades ago.

Figure 6.5. World urban and rural population without improved sanitation facilities for selected years
(Millions)



Sources: WHO/UNICEF Joint Monitoring Programme (improved sanitation facilities) and UNCTADstat (Population)
Note: Projected data based on 1990-2015 trends.

Population growth

The population of the world is projected to grow by some 2.3 billion people over the next 30 years (see special note on population). This will also contribute to maintaining the absolute number of people living without improved sanitation facilities at a high level. In particular, as urban populations are expected to grow more quickly than rural populations, the gap between the two "*unserved*" populations is expected to narrow as lack of sanitation in urban areas becomes a growing problem.

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Goal 12: Responsible consumption and production

Ensure sustainable consumption and production patterns.

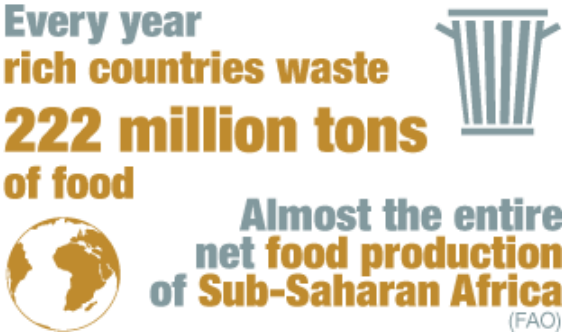
We live on a planet with finite resources. How we manage and consume those resources will have real and lasting implications for prosperity and equity today and for future generations. Goal 12 addresses some of the key challenges regarding sustainable consumption and production patterns, such as environmentally sound sustainable management and efficient use of natural resources, decreasing global food waste, the treatment and impacts of general and hazardous waste, recycling and reuse, the promotion of corporate sustainable reporting, monitoring the impacts of sustainable tourism, strengthening the scientific and technological contribution to sustainable consumption and the need to reduce inefficient fossil fuel subsidies that encourage wasteful consumption.

"Anyone who believes in indefinite growth on a physically finite planet is either mad, or an economist." - *Boulding K (1973)*

Food waste

Food loss and waste is of central importance in the fight to combat hunger and improve global food security. The Food and Agriculture Organization of the United Nations (FAO) stresses that if only one quarter of the food currently wasted were saved, it would be sufficient to feed 870 million people (FAO: Key facts on food loss and waste you should know!). Meanwhile, almost 800 million people are estimated to be undernourished, including more than 90 million children under the age of five who are still undernourished and underweight (see goal 2).

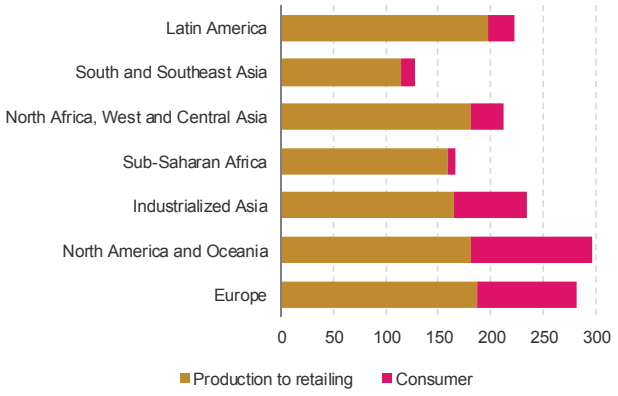
Food security (see Goal 2) is also a major concern in many parts of the developing world. Food production must clearly increase significantly to meet the future demands of a growing world population. Yet food is wasted at every stage along the food supply chain, from initial agricultural production to final household consumption. This is true for both developed and developing countries (figure 12.1). In a world of finite and scarce natural resources and where solutions are needed to provide safe and nutritious food for a projected 9.7 billion people in 2050 (United Nations Department of Economic and Social Affairs, 2015), reducing food waste must be a priority. FAO estimates that approximately one third of all food produced for human consumption was wasted, equating to about 1.3 billion tons per year (FAO, 2011).



Apart from the shame of wasting food while people starve, there are also broader economic and environmental impacts as resources used in food production (land, water, energy, labour) are also wasted and needless greenhouse gas emissions result. It is against this background that FAO launched a Global Initiative on Food Loss and Waste Reduction, also known as “Save Food” (FAO, 2015).

The causes of food loss vary throughout the world. They are dependent on the specific conditions and local situation in a given country. In broad terms, food losses are influenced by crop production choices and patterns, internal infrastructure and capacity, marketing chains and distribution channels, and consumer purchasing and food use practices.

Figure 12.1. Per-capita food losses and waste at consumption and pre-consumption stages in different regions
(Kilograms per year)



Source: FAO, 2011.
Note: FAO region definitions.

Food waste in medium and high-income countries occurs largely at the consumption stage, arising from consumer behaviour. In other words, food is discarded even when it is still suitable for human consumption, resulting from, for

example, poor purchase planning and not consuming food before expiration or “best before” dates. Significant losses also occur early in food supply chains in industrialized regions owing to coordination failure between different actors. For instance, food is wasted due to quality standards, which reject perfectly good food items that are not faultlessly shaped or aesthetically pleasing.

In low-income countries, food is lost mainly within the food supply chain before it reaches the consumer. These losses are due to financial, managerial and technical limitations in harvesting techniques, as well as poor storage and cooling facilities in difficult climatic conditions. Inadequate infrastructure, transportation, packaging and marketing systems also contribute.

Figure 12.1 illustrates clearly that the majority of food is lost and wasted within the supply chain during harvesting, production, transportation and storage. However, in industrialized Asia, Europe, North America and Oceania, a very significant proportion of food is lost during household consumption.

Target 12.6: Sustainable practices in companies

Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

The Sustainable Development Goal agenda has placed a new focus on corporate performance, behaviour and risk management, creating new demands for information on corporate reporting. Target 12.6 explicitly acknowledges the critical role that corporate sustainability reporting12.1 must play. Done properly, corporate reporting can enrich and enhance the Sustainable Development Goal monitoring framework by providing governments, enterprises, society and other stakeholders with the means to assess the economic, environmental and social impact of companies on sustainable development. Consequently, the Inter-Agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected the "Number of companies publishing sustainability reports" as the indicator to measure progress towards this target.

Reporting activities that contribute to sustainability will be increasingly important to companies, as it will allow them to make customers aware of their contribution to sustainable development. Investors may also have specific interests in such reporting to assess how companies are addressing financial and reputational risks associated with sustainability challenges. But further work is needed to integrate environmental, social and governance (ESG) reporting into existing company financial and non-financial reporting models; facilitate harmonization of sustainability reporting requirements and practices; and assure the comparability and reliability of information and data provided by companies on non-financial issues. While there currently exists a myriad of international or supraregional reporting initiatives[12.2], there is no universal agreement on what a sustainability report is or what such a report might include[12.3] in order to be defined as one. According to recent research by UNCTAD, out of the Forbes world 100 largest listed companies, 99 corporations produce some sort of ESG reporting, 51 refer to the United Nations Global Compact, 62 to the Carbon Disclosure Protocol, 10 to ISO 26000, 48 to other ISO certificates, and 72 to the Global Reporting Initiative (both G3 and G4) (UNCTAD, 2016). KPMG et al. (2016) recently published a report, "Carrot & Sticks", that identifies almost 400 sustainability reporting instruments across 64 countries. Consequently, further work is required to develop a set of core corporate sustainability indicators and align these with overall Sustainable Development Goal monitoring.

Some challenges ahead

Sustainability reporting lacks a single international institution to coordinate and harmonize its activities. The challenges associated with the absence of consistent financial reporting arrangements over the last decade illustrate why such an institution is desirable, or at the very least why it is necessary to identify areas of consistency between the different reporting frameworks to promote global consistency and convergence (International Federation of Accountants, 2013). The wide range of indicators, frameworks and guidelines issued by multiple organizations creates not only a significant duplication of effort but also a lack of clarity and a wide variety in the quality of information. The result is that corporate reports, which are often difficult to understand and compare, vary widely in terms of comprehensiveness and quality.

Agenda 2030 poses additional challenges for the harmonization, comparability and integration of related indicators. It is not yet clear what approach will be used to ensure the usefulness of corporate reports in assessing the private sector contribution towards attaining the Sustainable Development Goals. The majority of sustainability reporting requirements and initiatives are focused on listed and large private companies because they have the largest sustainability impact. But arguably a mechanism is also required for small and medium-sized enterprises; a cost-benefit analysis is required to determine a suitable reporting requirement.

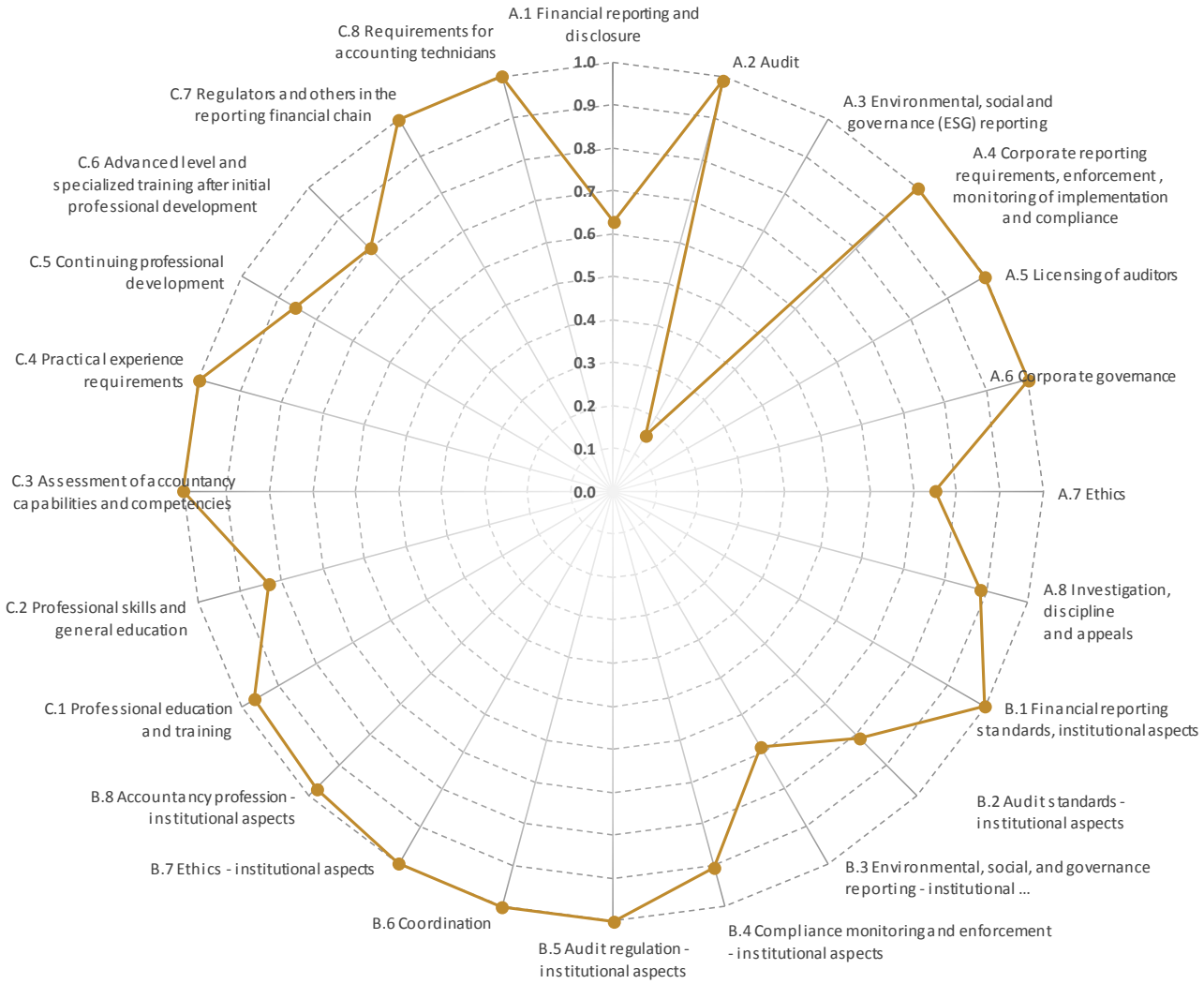
Developing a harmonization approach to reporting on ESG information faces a number of challenges, such as those of methodology[12.4]; materiality[12.5]; burden[12.6]; consistency[12.7]; data quality[12.8]; mandatory or voluntary approaches[12.9]; and compliance[12.10]. UNCTAD promotes harmonized transparent corporate accounting and assists developing transition economies to align their corporate reporting requirements with international standards and best practices through the Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (ISAR). Sustainable reporting was incorporated into the agenda in 1993 following the United Nations Conference on Environment and Development, also known as the Rio Earth Summit. In particular, UNCTAD has developed a number of products in the area of environmental, social, governance disclosure and sustainability reporting: *Integrating Environmental and Financial Performance at the Enterprise Level* (UNCTAD, 2000); *Guidance Manual - Accounting and Financial Reporting for Environmental Costs and Liabilities* (UNCTAD, 2002); *A Manual for the Preparers and Users of Eco-efficiency Indicators* (UNCTAD, 2004); *Guidance on Good Practices in Corporate Governance Disclosure* (UNCTAD, 2006);

Guidance on Corporate Responsibility Indicators in Annual Reports (UNCTAD, 2008); *Best Practice Guidance for Policymakers and Stock Exchanges on Sustainability Reporting Initiatives* (UNCTAD, 2014a).

UNCTAD has also developed the Accounting Development Tool, a quantitative tool that helps countries assess their corporate reporting infrastructure using international standards and best practices as a benchmark. The Accounting Development Tool includes a separate chapter focusing on ESG reporting (see the example given in figure 12.2).

At the thirty-second session of ISAR (November 2015) member States asked UNCTAD to conduct further work in the area of sustainability reporting by identifying good practices of corporate reporting on the Sustainable Development Goals and facilitating the harmonization of sustainability reporting. To respond to the new demands posed by the Sustainable Development Goal 2030 Agenda, UNCTAD, jointly with the United Nations Environment Programme and the Group of Friends of Paragraph 47[12.11], is evaluating existing reporting frameworks to identify key principles and core Goal indicators to help companies reflect their impact on their implementation, and provide a basis to monitor and assess the progress towards the Goals at a national level.

Figure 12.2. Accounting Development Tool - Belgium



Sources: UNCTAD, 2016, DIAE/ISAR/Accounting development tool.

Target 12.a: Scientific and technological capacity

Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.

IAEG-SDG selected the "*Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies*" as the best measure for target 12.a. However, at the time of writing, no data or metadata are available (United Nations Statistics Division, 2016).

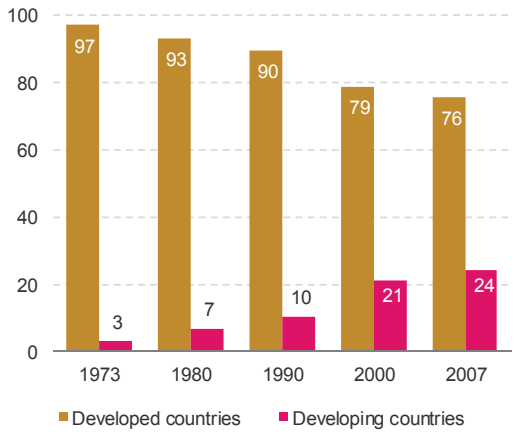
"*Research is to see what everyone else has seen, and to think what nobody else has thought.*"
- Albert Szent-Gyorgyi

While there are no comparable data available on research and development support given to developing countries, a measure of activity can be derived from the number of patents and intellectual property held by these countries. This, of course, is not the same thing, but in the absence of specific data it at least provides some information on trends for developing countries.

The most commonly used indicators to monitor resources devoted to research and development worldwide are total gross domestic expenditure on research and development (GERD)[12.12]; research and development intensity[12.13]; and global share[12.14].

Figure 12.3 illustrates total GERD and the steady growth in the share of research and development expenditure by developing countries since the 1970s. In 2007, these countries accounted for almost a quarter of global research and development expenditure; however, these global aggregates hide considerable differences between the countries due to the fact that research and development has been highly concentrated within a limited number of them. Data were not available for many countries prior to 2000, but for some, such as Japan, GERD expenditure increased from 8 per cent of the estimated global in 1973 to 13 per cent in 2007. China, too, dramatically increased its share, from 3 per cent in 1990 to 19 per cent in 2007. Less dramatic but nonetheless noteworthy, the Republic of Korea increased its share from less than 2 per cent in 1990 to 3.7 per cent in 2007. The Asian region as a whole accounted for almost 80 per cent of the total increase in the developing countries' share between 1973 and 2007 (Arond and Bell, 2010).

Figure 12.3. Distribution of world GERD, 1973-2007
(Percentage)



Source: Arond and Bell (2010).
Note: ESRC region definitions.

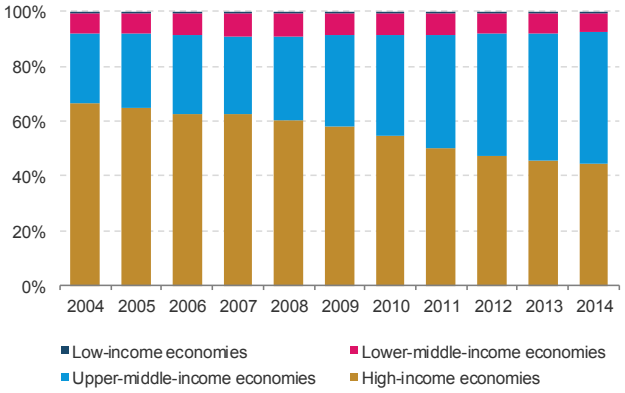
Since 2007, the main changes have been between North America/Western Europe and the East Asia-Pacific region - the former has seen a significant decline in world share (from almost 57 per cent in 2007 to 48 per cent in 2013) and the latter has enjoyed a commensurate increase, from almost 31 per cent to 38 per cent over the same period (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2015). The source of research and development spending also varies considerably by region, country and economy/territory. In Belgium, China, Denmark, France, Germany, China Hong Kong SAR, Iceland, Ireland, Japan, Malaysia, the Philippines, Puerto Rico, the Republic of Korea, Singapore, Slovenia, Sri Lanka, Sweden, Switzerland, Thailand and the United States of America at least 50 per cent of research and development expenditure is accounted for by business enterprise. In many of these countries, the contribution is substantially higher than in others, particularly in Asia. In Africa, South and Western Asia, Central America and Eastern Europe, government expenditure accounts for the largest share.

What is the outcome of these changes in research and development expenditure? There are various ways in which this question could be answered. One very simple approach to assessing the impact of research and development expenditure is to examine the total number of intellectual property[12.15] applications (including patents, copyright, trademarks, industrial designs and geographical indications) - see figure 12.4. Over the past decade the number of new global applications almost doubled from around 6,900 in 2004 to just over 12,200 in 2014. During this time, there has been a noticeable shift in applications between high-income and upper-middle-income countries, so that in 2014 upper-middle-income countries accounted for the largest share of new applications (48 per cent).

There has been no change in applications in lower-middle or low-income countries.

From a regional perspective, this translates into a significant increase in new applications from Asia, accounting for over 58 per cent of all applications in 2014. A very significant decline in applications is noted from Europe, down from 36 per cent in 2004 to 22 per cent a decade later. There was also a decline in applications from the United States. There was no change from Oceania, but declines from both Africa and Latin America, suggesting there has been no significant improvement in what has been described as the "*third-world R&D desert*" (Annerstedt, 1988).

Figure 12.4. Shares of applications to register intellectual property by income group, 2004-2014
(Percentage)



Source: World Intellectual Property Organization Intellectual Property Statistics Data Centre.
Note: World Bank lending group definitions.

Target 12.b: Sustainable tourism

Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products.

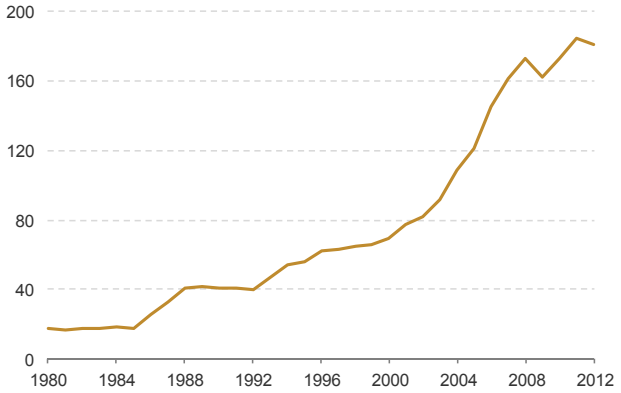
"Though we travel the world over to find the beautiful, we must carry it with us or we find it not." - Ralph Waldo Emerson

On May 16, *Time* magazine ran the headline "*One of Thailand's most beautiful islands is being closed before tourists ruin it forever*" (Time, 2016). The idyllic island of Koh Tachai in Thailand's Ranong Province was being closed indefinitely by local authorities to prevent further damage. Conservation officials reported that tourism had resulted in overcrowding and environmental degradation of natural resources and thus the beach was being closed to give the land and marine environments a chance to regenerate before the damage was beyond repair.

This example encapsulates the double-edged sword of modern tourism faced by governments in finding the right balance between tourism and conservation. It is one of the challenges of tourism: it can help finance the preservation of historical and environmental treasures, but if poorly managed it will achieve the opposite. Tourism may actually destroy the very sites or events that visitors flock to see, leading to reduced visitor satisfaction or, worse, irreparable environmental damage. A contributing difficulty here is the valuation of costs and benefits to help governments and tourism authorities to make decisions (See Goal 15 - Target 15.9).

The difficulties faced by Thailand are not unique. There are concerns over the management of historical sites such as the great pyramids of Giza, the Great Wall of China, Machu Picchu in Peru and the Parthenon in Athens; and also sites of environmental importance such as the Great Barrier Reef in Australia. But some regions have reportedly managed to find a successful balance between high visitor numbers and minimizing environmental damage. The Galapagos Islands, one of the first UNESCO World Heritage Sites[12.16], are an example of successful ecotourism where, in the words of Epler (2007), *"If one looks solely at the direct impact of visitors on visitor sites in Galapagos, one would be hard pressed to find other areas where the objectives of ecotourism have been so successfully achieved*" (Epler, 2007). This is a remarkable achievement given the massive increase in visitor numbers to the Galapagos Islands since the 1980s, from around 17,500 visitors in 1980 to almost 181,000 in 2012.

Figure 12.5. Number of visitors to Galapagos Islands Park, 1980-2012
(Thousands)



Source: Parque Nacional Galápagos.

Tourism is a social, cultural and economic phenomenon that involves the movement of people. It is also big business - valued in excess of US$1.2 trillion in 2015, accounting for 9 per cent of global gross domestic product, 6 per cent of global exports and 30 per cent of total services exports (World Tourism Organization (UNWTO), 2015a). So clearly tourism has an economic impact, but it also impacts on natural and built environments and the local populations living at tourist destinations. As a consequence, UNWTO recommends a holistic approach to tourism development, management and monitoring (UNWTO, 2015b). Tourism can be a positive force, bringing economic and social benefits (revenues, investment, jobs, and the like) but if not carefully managed it can have negative impacts (urban sprawl, loss of biodiversity, disruption of fragile ecosystems and pollution).

Measuring sustainable tourism

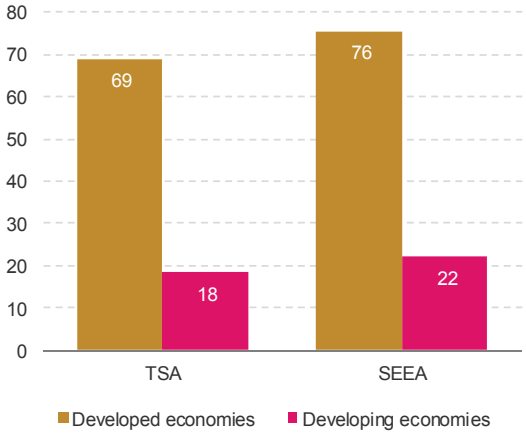
Hence the importance of the indicator, selected by IAEG-SDG, to measure progress towards this target - "*Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools"*. This indicator raises a number of fundamental measurement issues - although the concept of "*sustainable tourism*" was first established in the 1990s, there is no universally agreed definition nor is there any agreement on what constitutes a sustainable tourism strategy or policy and action plan. While considerable work has been done to develop the concept of sustainable tourism from both a policy and measurement perspective (for example, UNWTO (1996)), no data exist for the moment. The demands of the Sustainable Development Goals have given further impetus to define and measure sustainable tourism in a way that incorporates all the

sustainability perspectives - economic, societal and environmental. For this reason, UNWTO has launched a Measuring Sustainable Tourism project[12.17] to understand the impact of tourism beyond its contribution to the economy to include the broader impacts on the environment and society (UNWTO, 2015b; UNWTO, 2016a).

UNWTO has proposed that an appropriate proxy for the indicator is one that measures directly the development and implementation of tools to monitor sustainable tourism in a country. Therefore, it proposes that the relevant monitoring tools are the international statistical standards applicable to the measurement of sustainable tourism, notably the Tourism Satellite Account (TSA) (United Nations Department of Economic and Social Affairs et al., 2010) and the System of Environmental-Economic Accounting (SEEA) (United Nations Statistics Division, 2014). Consequently, an appropriate proxy indicator for target 12.b would involve assessment of the stage of implementation of TSA and SEEA frameworks (UNWTO, 2016b).

Figure 12.6 illustrates the extent of the work to be done. For developing countries in particular, it is evident that relatively few have either a TSA or SEEA in place. When "plans" are excluded, the picture is even less flattering. Furthermore, both TSAs and SEEAs consume considerable amounts of other statistics as intermediate inputs; these must also be available to properly compile the two accounting systems. The resources and capacity-building needed to support these two framework programmes will be significant.

Figure 12.6. Proportion of countries with, or with plans to develop, a TSA (2010) or SEEA (2006)
(Percentage)



Sources: UNCTAD secretariat calculations based on UNWTO (2010) and United Nations Statistical Commission (2015).

Notes and references

Notes

12.1 Sustainability reporting allows organizations to consider their impacts on a wide range of sustainability issues, enabling them to be more transparent about the risks and opportunities they face and to take informed strategic decisions.

12.2 UNCTAD corporate social responsibility indicators; eco-efficiency indicators (environmental accounting and reporting); corporate governance disclosure; the United Nations Environment Programme report Advancing Environmental Disclosure in Sustainability Reporting; the United Nations Global Compact; the European Union Directive on Non-financial Reporting (2014/95/EU); the Organization for Economic Cooperation and Development Guidelines for Multinational Enterprises and Principles on Corporate Governance; the Global Reporting Initiative Sustainability Reporting Framework; the International Integrated Reporting Council Integrated Reporting Framework; the International Accounting Standards Board Framework for preparation and presentation of financial statements.

12.3 These might include, for example, regulatory, institutional and human resource capacity-building, enhanced public-private sector partnerships and cooperation and coordination in this area.

12.4 Defining a common set of comparable indicators remains a challenge. Finding such indicators that are comparable, universal and material is not straightforward across a variety of geographies, sectors and firm-specific operations. Alignment with the Sustainable Development Goal agenda adds to the complexity.

12.5 Information is material if its omission or misstatement could influence users' decisions (UNCTAD, 2008). The principle of materiality is critical in determining which information should be included in a sustainability report. Materiality must be considered across the whole value chain, as company decisions also generate positive and negative impacts upstream (for example, sourcing of raw materials) and downstream (for example, the use and disposal of products and services). There is always a risk that companies undertaking materiality assessments may only disclose those indicators that show a positive impact. The Sustainable Development Goal reporting brings a new dimension that requires a broader spectrum of stakeholders to be considered, including government and society.

12.6 Harmonization of reporting should be based on existing frameworks to avoid placing an excessive burden on enterprises. The costs and benefits for enterprises as well as other stakeholders should be considered when developing new indicators and how to communicate them.

12.7 There must be consistency between financial and non-financial reporting to ensure the comparability and meaningfulness of related data and indicators.

12.8 Data quality regarding sustainability issues remains a concern and challenge for all stakeholders. This is especially relevant in the case of multinationals that have operations in different jurisdictions. The International Organization of Supreme Audit Institutions highlights that assurance of sustainability reports is still developing and is as yet mostly voluntary. To date, assurance statements vary greatly in terms of content and type of assurance provided. The majority of companies restrict themselves to assurance on specific information or datasets, and few cover the full corporate sustainability report.

12.9 Some investors believe that reporting in certain areas should be mandatory, obliging companies to report on both good and poor performance, thus providing more accurate information for investment decision-making. In making such a decision there are a number of factors to consider, including the level of development of relevant legislation and regulation; standards of reporting and the institutional setting for their monitoring and enforcement; capacity of the accountancy profession and other participants in the reporting chain; and different cultural, political, legal and other aspects of the business environment. For example, France has adopted mandatory sustainability reporting for public and large companies. The Grenelle II Act (2010) requires mandatory annual sustainability reporting (environmental, social and societal impacts of business activities and on companies' commitments to sustainable development) for France-based public and large companies. These reports must be independently verified by a third party (http://www.diplomatie.gouv.fr/en/IMG/pdf/Mandatory_reporting_built_on_consensus_in_France.pdf).

12.10 An efficient compliance system, including enforcement mechanisms to ensure that requirements are adequately implemented, will also be required. There is evidence of the positive impact of enforcement on corporate transparency and the quality of reporting in the financial reporting area. (UNCTAD, 2014a) has published a note on good practices for monitoring and enforcement, and compliance mechanisms, including on sustainability issues. The UNCTAD Accounting Development Tool also provides a useful reference to support countries in their efforts to strengthen their accounting and reporting infrastructures (http://unctad.org/en/Pages/DIAE/ISAR/Accounting-Development-Tool.aspx).

12.11 The Group of Friends of Paragraph 47 is a government-led initiative, formed in 2012 following the United Nations Conference on Sustainable Development, whose objective is to foster a culture of sustainability reporting. The Group's current members are Argentina, Austria, Brazil, Chile, Colombia, Denmark, France, Norway, South Africa and Switzerland (http://www.unep.org/resourceefficiency/Portals/24147/Business-Ressource%20Efficency/GoFP47_TwoPagerComms_FINAL.Jan14.pdf).

12.12 GERD is the main aggregate statistic used to describe a country's research and development activities. Total GERD is the total absolute gross domestic expenditure on research and development; it includes all expenditures on research and development (basic, applied and experimental) performed in the national territory during a specific reference period (Organization for Economic Cooperation and Development, 2015).

12.13 Research and development intensity is the ratio of GERD to gross domestic product.

12.14 Global share is the contribution of GERD by country or region to the estimated world GERD total.

12.15 Intellectual property is protected in law by, for example, patents, copyright and trademarks that enable people to earn recognition or financial benefit from what they invent or create. By striking the right balance between the interests of innovators and the wider public interest, the intellectual property system aims to foster an environment in which creativity and innovation can flourish (http://www.wipo.int/about-ip/en/).

12.16 The Galapagos Marine Reserve was established by presidential decree in 1986 to extend conservation and protection of the underwater biospheres of the Galapagos. A quarantine inspection system for Galapagos was also introduced in 1999 to reduce the potential for invasive species being introduced. In 2001, UNESCO's World Heritage Site declaration was expanded to include the Galapagos Marine Reserve.

12.17 This project has three main streams of work: (1) research to integrate the established measurement frameworks of the TSA and SEEA to provide a platform for the measurement of sustainable tourism; (2) to engage with the definition and measurement of Sustainable Development Goal indicators, including the development of a complementary set of sustainable tourism indicators; (3) to advance the development of subnational tourism statistics recognizing the importance of location-specific information in decision-making on tourism.

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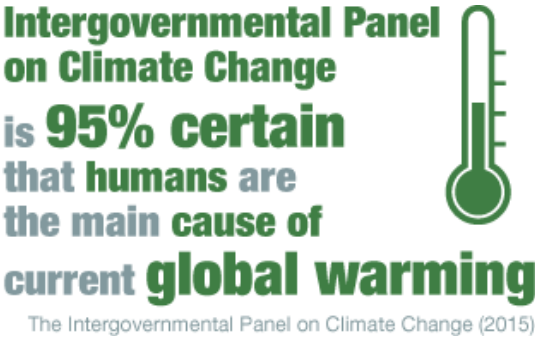
Goal 13: Climate action

Take urgent action to combat climate change and its impacts.

Limiting the effects of climate change will be necessary to achieve sustainable development, equity and poverty eradication. It raises challenging issues of equity, justice and fairness as all countries, irrespective of where they are on the development spectrum, will share the consequences of not taking mitigating and adaptive actions. Furthermore, many of those most vulnerable to climate change are developing countries that have contributed least to greenhouse gas (GHG) emissions.



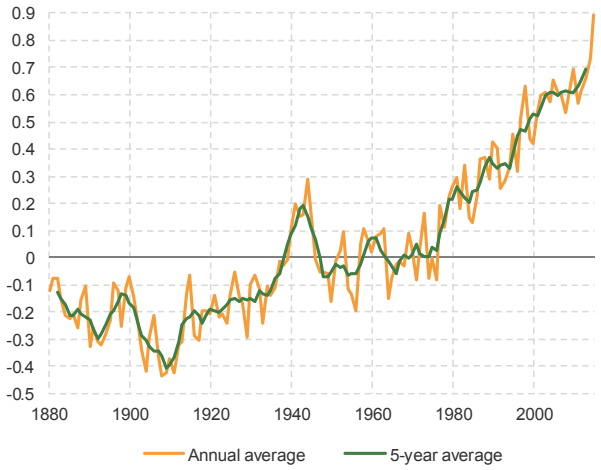
By not tackling climate change now, the burden shifts to future generations, increases the risks of severe, pervasive and irreversible impacts for people and planet, and undermines the basis for sustainable development.

"Climate change is the greatest market failure the world has ever seen." - *Stern (2007)*[13.1]

Goal 7 of the Millennium Development Goals sets out to ensure environmental sustainability. Specifically, the plan targeted the reduction in consumption of ozone-depleting chlorofluorocarbons and the emissions of carbon dioxide (CO2) per capita. Considerable success was achieved in eliminating ozone-depleting substances and the ozone layer is expected to recover during the next 40 or 50 years. There has been considerably less success in reducing global CO2 emissions, which actually increased by 50 per cent between 1990 and 2012 (United Nations Framework Convention on Climate Change (UNFCCC), 2015).

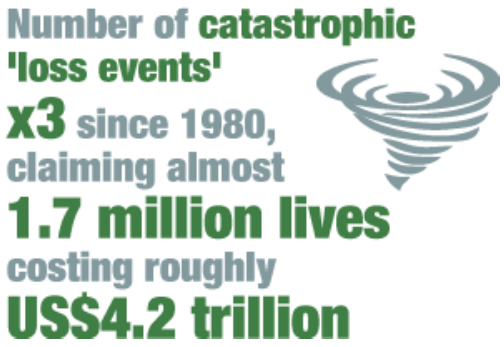
Sustainable Development Goal 13 continues the agenda set out in Millennium Development Goal 7 and calls for a renewed and strengthened effort to address climate change, in particular through the integration of climate change mitigation and adaptive measures into national strategies and the implementation of existing commitments[13.2]. The scientific data relating to this field is complex and highly specialized[13.3], but one of the key objectives of the UNFCCC 21st annual session of the Conference of the Parties (COP 21) (Paris) agreement is to limit the rise in global temperatures to within 2°C of pre-industrial levels. Scientists project that a doubling of pre-industrial CO2 levels will likely cause global average surface temperature to rise between 1.5°C and 4.5°C compared to pre-industrial temperatures. Pre-industrial levels of CO2 are generally thought to be around 280 parts per million (ppm), although this estimate is contested (Ball, 2008). In 2013, CO2 levels exceeded 400 ppm for the first time in recorded history (United States National Aeronautics and Space Administration (NASA), 2013). Its concentration in the atmosphere is now higher than at any time in the last 800,000 years (BBC, 2015). Figure 13.1 shows how average global land-ocean temperatures have been rising, more or less steadily, since the early 1900s, but that there has been a noticeable acceleration in the trend since the 1970s.

Figure 13.1. Global land-ocean temperature index, 1880-2015



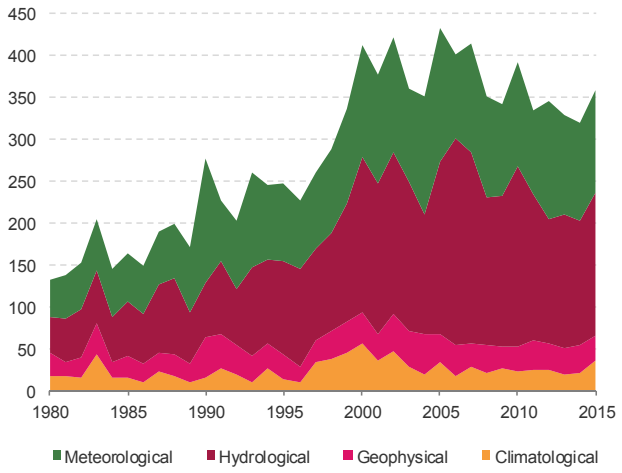
Source: National Centers for Environmental Information.
Notes: Temperature anomaly is defined as a departure from a long-term average. The global anomalies are calculated with respect to the 20th century average.

Anthropogenic or human-induced GHG emissions[13.4] have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of not just carbon dioxide, but also methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-twentieth century. Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. The period from 1983 to 2012 was likely the warmest 30-year period of the last 1,400 years in the northern hemisphere. Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise (IPCC, 2015).



Climate change will amplify existing risks and create new ones for natural and human systems. Those risks are unevenly distributed and are generally greater for disadvantaged people and developing countries. IPCC predicts a greater likelihood in climate-related extremes such as heat waves, droughts, floods, cyclones and wildfires (IPCC, 2015). Figure 13.2 shows that the number of catastrophic loss events[13.5] have more than doubled over the past 35 years, rising from 133 in 1980 to 359 in 2015. Geophysical events have been reasonably stable, but there has been a noticeable increase in meteorological events, rising from 45 in 1980 to 123 in 2015. The same is true for hydrological events, rising from 43 in 1980 to 171 in 2015 and climatological events (from 18 in 1980 to 37 in 2015).

Figure 13.2. Global catastrophic loss events 1980-2015
(Number of disasters)



Source: The International Disaster Database.

According to another data source that has broader coverage of sources[13.6], the number almost trebled over the past 35 years, and the total catastrophic loss events was rising from 360 in 1980 to almost 1.000 in 2015. Since 1980, there have been 21,700 loss events, claiming almost 1.7 million lives and costing in the region of US$4.2 trillion in damages (Munich RE, 2015). In 2015 alone, these events caused 23,000 fatalities and US$100 billion worth of damages (Munich RE, 2016). Comparing 2015 with 1980, the proportionate growth in hydrological events and climatological events is evident – in 1980 these events combined accounted for roughly 35 per cent of all loss events and in 2015 they accounted for 50 per cent. (Munich RE, 2015, 2016).

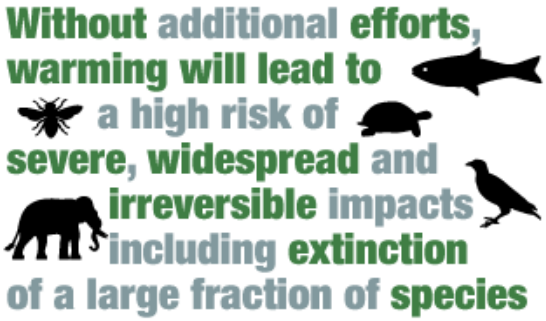
The evidence of human influence on the climate system is clear and mounting. IPCC warns that if mitigating and adaptive action is not taken, the risks of severe, pervasive and irreversible impacts for people and ecosystems (including hazardous events) will magnify, as will risks of long-lasting changes to the global climate system. The exact levels of change that could activate or trigger abrupt and irreversible effects remain uncertain, but the risk associated with crossing such thresholds increases with rising temperature.

Food and water security

Climate change is predicted to have a detrimental impact on food security. In particular, it will most likely have a negative impact on global marine species and biodiversity in the next 40 to 50 years. As marine organisms face progressively lower oxygen levels, higher rates and magnitudes of ocean acidification and rising ocean temperatures, coral reefs and polar ecosystems will degenerate and many marine species will face extinction, undermining sustainable fishing. On land, production yields of wheat, rice and maize in tropical and temperate regions will be negatively impacted as temperatures increase. While many terrestrial, freshwater and marine species will continue to change their geographic ranges, seasonal activities and migration patterns, most plant species cannot naturally shift their geographical ranges sufficiently fast to keep up with projected rates of climate change, thus leading to loss of species on a large scale.

Without additional mitigation efforts, warming will lead to a high risk of severe, widespread and irreversible impacts globally, including the extinction of a large fraction of species.

Climate change is also projected to reduce renewable surface water and groundwater resources in most dry subtropical regions, intensifying competition for water. Melting snow and ice are altering hydrological systems and raising sea levels, which pose negative risks for land available for both agriculture and human habitation.



Stabilizing temperature increase to below 2°C relative to pre-industrial levels requires urgent and fundamental changes from "business as usual". Moreover, the longer action is delayed, the greater the costs and technological, economic, social and institutional challenges facing people and planet. Continued emission of GHGs will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems.

Notes and references

Notes

13.1 Some economists have challenged this assertion, arguing that "*market absence"* would be a more appropriate term than "*market failure"* (see Worstall, 2015).

13.2 The COP 21 agreement sets out to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low-carbon future. The central aim of this agreement is to strengthen the global response to the threat of climate change by maintaining a global temperature rise below 2°C above pre-industrial levels and also to try to limit the temperature increase even further (to 1.5°C). To achieve this and support developing countries and those that are most vulnerable, appropriate financial flows, a new technology framework and an enhanced capacity-building framework must be put in place. COP 21 also provides for enhanced transparency of action and support through a more robust transparency framework. By June 2016, 17 of the 197 parties had ratified the convention (see http://unfccc.int/paris_agreement/items/9485.php).

13.3 Some of the variables are: land and ocean surface temperatures; mean sea levels; ocean acidity; GHG concentrations; absolute and cumulative global anthropogenic GHG and CO2 emissions; rate of GHG and CO2 emissions; average precipitation; sea-ice extent; energy accumulation within the Earth's climate system; radiative forcing; atmospheric CO2.

13.4 The main GHGs are water vapour, CO2, methane (CH4), nitrous oxide (N2O), ozone (O3) and chlorofluorocarbons.

13.5 An event or circumstance that produces a loss.

13.6 Including national insurance agencies, press and media, UN agencies, NGOs, world weather services, clients and subsidiaries (see United Nations Office for Disaster Risk Reduction).

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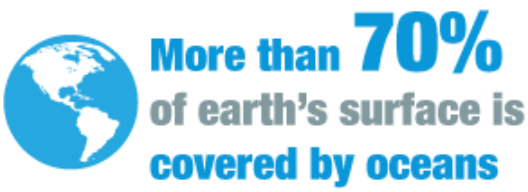
Goal 14: Life below water

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.



Oceans cover more than 70 per cent of the earth's surface and are central to life on earth. They are a rich source of food and valuable minerals, a vast waterway for international commerce and movement of people, and for many, a giant recreation and cultural heritage space. Today more than two thirds of the world's population lives within 100 kilometres of coastlines. Oceans act as the lungs of the earth, together with rain forests. It is estimated that the ocean's phytoplankton produce over half the oxygen that humans and all other land animals breathe. Oceans are also a CO2 sink, absorbing vast amounts of this greenhouse gas (GHG) and acting as a buffer against global warming[14.1] and climate change. Unfortunately over the past decades, ocean degradation has grown, resulting in an erosion of marine biodiversity, habitats and species and endangering marine ecosystems on which humans depend heavily. The sources of these threats include overfishing and destructive fishing, overharvesting of maritime resources, pollution and waste disposal, oil spills and climate change.

"The least movement is of importance to all nature. The entire ocean is affected by a pebble."
- Blaise Pascal

Restoring the health and resilience of our oceans is thus a global priority. A global response started with the Millennium Development Goals. Millennium Development Goal 7 on environmental sustainability focused primarily on life on land, although target 7.b aimed at protecting land and marine ecosystems. Agenda 2030 and specifically Goal 14 takes a broader perspective of sustainably using and managing oceans, maritime resources and related ecosystems for sustainable development. It outlines an ambitious set of targets to address the impact of pollution and land-based activities; protect marine ecosystems; reduce acidification; regulate harvesting and fishing to restore fish stocks; introduce special and differential treatment for developing countries and least developed countries (LDCs) in World Trade Organization (WTO) negotiations on fishing subsidies; improve sustainable management of fisheries, aquaculture and tourism, especially for small island developing States (SIDS) and LDCs; give access to small-scale artisanal fishermen and women to marine resources and markets; and improve scientific knowledge to advance ocean health. Agenda 2030, therefore, provides further impetus to the mandates for clean, heathy, productive and resilient oceans and related marine resources that were promulgated in outcomes of major summits and conferences, including: The Future We Want from the Rio+20 outcome, the Samoa Pathway for SIDS, the Istanbul Programme of Action for LDCs, the Addis Ababa Action Agenda on Financing for Development and the Paris Agreement on climate change.

Sustainable Development Goal 14 will require robust international cooperation and coordination if its objectives to protect oceans and preserve fish and other marine resources are to be achieved. The current oceans and fisheries governance universe is characterized by a myriad of international and regulatory agreements, often implemented in a disjointed manner by a variety of agencies. This multi-agency and multilayer treaty system needs to be streamlined and implemented to ensure more effective ocean and fisheries management. In respect of fish and fish trade, Goal 14 is a catalyst for governments to take actions to implement more effectively existing treaties and soft law instruments. These include the United Nations Fish Stock Agreement (1995); the Food and Agriculture Organization of the United Nations (FAO) (1) Compliance Agreement (1993), (2) Code of Conduct for Responsible Fisheries (1995), (3) International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, and (4) Port State Measures Agreement (2009), not yet in force; and relevant United Nations General Assembly resolutions (UN General Assembly, 2013, 2014).

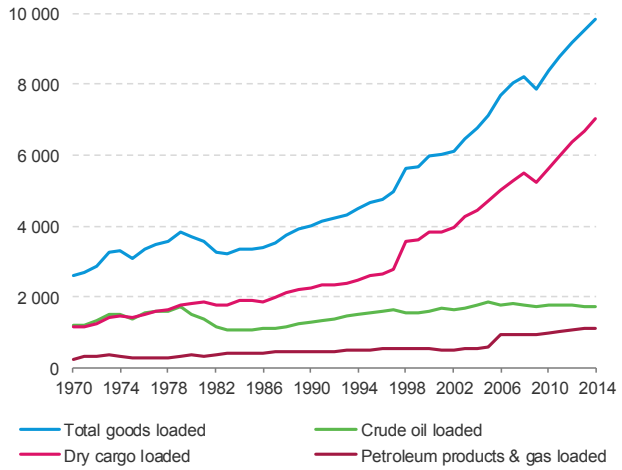
Ocean trade

The oceans provide vast waterways that carry the bulk of goods imported and exported around the world. Those goods are transported by a merchant fleet that in 2014 comprised almost 90,000 commercial ships, with a deadweight tonnage of 1.75 million, of which 13 per cent were container ships, 26 per cent oil tankers and 43 per cent bulk carriers.

In 2014, approximately 9.8 billion tons of merchandise were transported by sea compared with 6.2 billion tons in 2000 - an increase of 57 per cent. Of those 9.8 billion tons, 2.8 billion tons, or 29 per cent, were crude oil and petroleum goods. In the same year, some 684 million 20-foot equivalent unit (TEU) containers were shipped, a 32 per cent increase compared with 2008.

Figure 14.1 shows the dramatic increase in maritime cargo traffic, in particular since the turn of the century. The figure also shows that the growth in the total cargo volumes has been driven by the growth in "*dry cargo*".

Figure 14.1. World seaborne trade by cargo type, 1970-2014
(Million metric tons)



Source: UNCTADstat

There are clearly environmental costs to such growth. In 2012, CO2 emissions from international shipping were estimated at 2.2 per cent of global CO2 emissions (International Maritime Organization, 2014). While the contribution of international shipping to global carbon emissions may be relatively low when assessed per unit of cargo and distance travelled, these emissions are, however, likely to grow if left unchecked. Forecast scenarios for the medium term suggest that international shipping carbon emissions could increase 50-250 per cent by 2050, depending on economic growth and global energy demand (UNCTAD, 2015). Equally, international freight, including maritime transport, is projected to more than quadruple by 2050, with associated CO2 emissions generated by all modes engaged in international trade between 2010 and 2050 growing by a factor of 3.9 (International Transport Forum and Organization for Economic Cooperation and Development ((OECD), 2015). Continued dependence on fossil fuels and related technologies by maritime transport will perpetuate such transport patterns.

Target 14.4: Harvesting and overfishing

By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

Achieving this target will be a challenge. The most conservative estimates suggest that illegal, unreported and unregulated (IUU) fishing on the high seas, affecting species such as tunas and sharks, is worth US$1.25 billion annually (Global Ocean Commission, 2014). However, IUU fishing also affects areas within national jurisdiction. If exclusive economic zones (EEZs) are included, the estimated value of IUU fishing rises to between US$10 billion and US$23.5 billion annually (Global Ocean Commission, 2014). This represents a mean global loss of approximate 18 per cent in volume across all fisheries (Global Ocean Commission, 2014). Moreover, the World Bank and the Food and Agriculture Organization (FAO) have estimated that the economic benefits from global fisheries are much smaller owing to net economic losses estimated at roughly US$50 billion a year (World Bank and FAO, 2009).

Various legal, policy and management tools and measures have been taken at national, regional and international levels to combat IUU fishing. The application of these schemes, especially stringent requirements, and measurement of contribution depends heavily on financial, administrative and technical capacities of nations with fishing resources. These countries also participate in regional fisheries management organizations (RFMOs) and have their own fish stocks management plans to ensure stocks are maintained at sustainable levels. However, the marine species covered, and capacities for implementing, monitoring and enforcing these plans are not homogenous and in many cases insufficient.

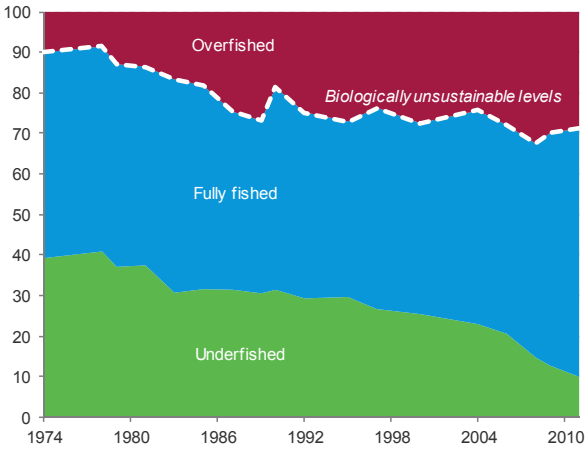
Actions to regulate harvesting and end overfishing are timely and appropriate as fish stocks are under intense pressure. FAO estimated that in 2011 close to 90 per cent of the world's marine fish stocks were fully fished or overfished (FAO, 2014).

This implies that the capacity for recovery in several species is low or inexistent. Contributing factors to the precarious fish stocks situation includes the excess fishing capacity presently deployed (driven by various factors, including subsidies and IUU fishing).

The Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) selected the "proportion of fish stocks within biologically sustainable levels" as the appropriate indicator for target 14.4. FAO has maintained and reported on this indicator since 1974 and data can be retrieved from FAO FishStatJ.

FAO estimated that in 2011, 28.8 per cent of fish stocks were estimated as fished at a biologically unsustainable level[14.2] and therefore overfished (see figure 14.2).

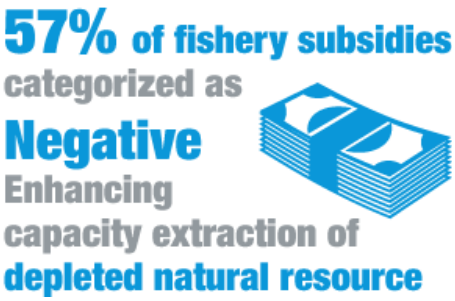
Figure 14.2. Global trends in the state of the world marine fish stocks, 1974-2011
(Percentage of stocks assessed)



Source: FAO (2014)

Target 14.6: Sustainable fishing

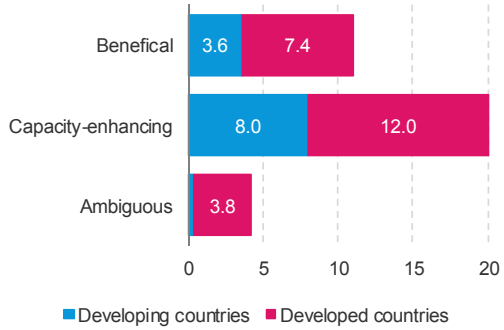
By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.



Global fisheries subsidies have been estimated to be as high as US$35 billion worldwide (UNCTAD, 2014), of which US$20 billion has been categorized as capacity-enhancing subsidies that contribute to overcapacity of fishing fleets and overfishing (Sumaila et al., 2013) - see figure 14.3. With a view to removing such subsidies, WTO members through the Doha Round of trade negotiations have been negotiating improved trade rules on fisheries subsidies, including through a prohibition of certain forms of fisheries subsidies that contribute to overcapacity and overfishing. These negotiations remain, for the moment, stalled.

The Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has selected as the indicator for target 14.6 the "*dollar value of negative fishery subsidies against 2015 baseline*". At the time of writing, the 2015 baseline data are not available. Furthermore, while data are notified by WTO members as a requirement of negotiations, most data on subsidies are estimations based on academic research.

Figure 14.3. Global fisheries subsidy estimates by category
(US$ billions)



Source: Sumaila et al. (2013)
Notes: Country groupings are those of the authors.

For example, the estimates identified by Sumaila et al. (2013) and the World Bank are based on private data gathered primarily by the University of British Colombia in Canada. Thus, to date, there are few official data on subsidies available.

These data will be required to allow WTO members to agree an outcome to fisheries subsidy negotiations, and as a means of implementing Goal 14, and specifically target 14.6. Improved data will also be required to inform policies designed to ensure that small-scale and artisanal fisheries are provided with special and differential treatment.

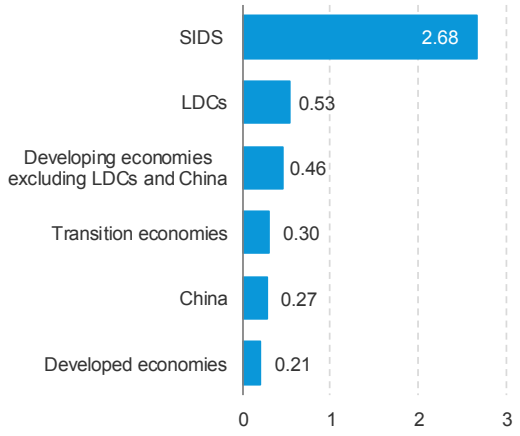
Target 14.7: Sustainable use of marine resources

By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.

Trade in fish can contribute from between 0.5 and 3 per cent of gross domestic product (GDP) of different country groupings. Least developed countries (LDCs) and small island developing States (SIDS) are the two country groups where the contribution to GDP of fisheries is highest.

In some LDCs and SIDS fisheries can contribute as much as 10 per cent or more of GDP and fish consumption accounts for up to 90 per cent of animal protein in their populations' diet (United Nations Environment Programme (UNEP), United Nations Department for Economic and Social Affairs (DESA) and FAO, 2012). Additionally, trade in fish is a fundamental source of foreign currency and a key factor in the trade balance for many LDCs and SIDS.

Figure 14.4. Fish trade in 2013
(Percentage of GDP)



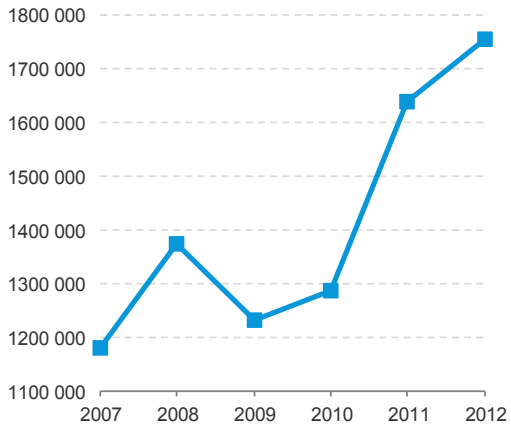
Source: UNCTAD and the Commonwealth Secretariat (2015)
Note: UNCTADstat region definitions.

UNCTAD data show that, in 2012 SIDS exports of fish products reached US$1.75 billion, some 7 per cent of their total exports.

Figure 14.5 shows how SIDS fish exports have been growing over the last five years, with the exception of one year during the economic crisis when demand contracted in almost all merchandise sectors. It shows that there is still space for growth in fish trade.

For SIDS and small coastal economies this is a clear opportunity that needs to be consolidated, especially if they can set appropriate policies to ensure that domestic firms catch and process the fish and fish products locally or regionally, as well as sustainably.

Figure 14.5. SIDS fish and fish products exports, 2007-2012
(US$ thousands)



Source: UNCTADstat
Note: UNCTADstat SIDS definition.

Currently, farmed fish account for 49 per cent of global seafood consumption and the global demand is expected to increase to 62 per cent by 2030 (World Bank, 2013). Fish farming has greatly diversified over the past decade to now include salmon, crustaceans and molluscs, among other species.

While most production is meant for human consumption, there are also other uses such as aquariums, fashion inputs and production of pharmaceuticals and perfumes. While disaggregated statistics specific to aquaculture for SIDS are not readily available, total aquaculture production in the Caribbean and Oceania together represents less than 1 per cent of global aquaculture production (FAO, 2012). SIDS in Oceania, led by Fiji, Papua New Guinea and Vanuatu, account for about 10 per cent of the region's total aquaculture production. These figures highlight the potential for increased supply, higher levels of specialization and space for participation, especially with increasing demand from Asia.

Fishing and tourism

In 2012, for the first time the number of international tourist arrivals reached over one billion (United Nations World Tourism Organization (UNWTO, 2012). Approximately one out of every two tourists visited the seaside (UNWTO, 2013). For more than half of SIDS, tourism generates their largest source of foreign exchange, accounting for between 20 and 50 per cent of GDP and over 30 per cent of employment (UNCTAD, 2014).

In terms of trade, travel services exports by SIDS reached US$24 billion in 2012, representing more than 50 per cent

of their total services exports (see figure 14.6). Additionally, travel services in SIDS have had an annual growth rate of 7 per cent over the last five years, with the exception of 2009 where a small reduction in exports was felt as a consequence of the economic crisis (UNCTAD, 2014).

This growth has been possible due to a diversification in the origin of tourists, especially with new visitors from Asia (UNCTAD, 2013). These numbers give a good indication of how important the sea-based tourism sector is not only in the overall trade balance of SIDS but also as a vector for investment and employment creation.

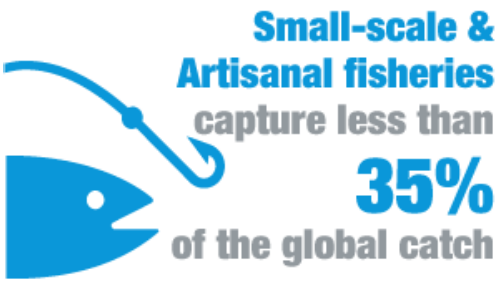
Figure 14.6. SIDS total and travel services exports, 2008-2012
(US$ millions)

Source: UNCTADstat
Note: UNCTADstat SIDS definition.

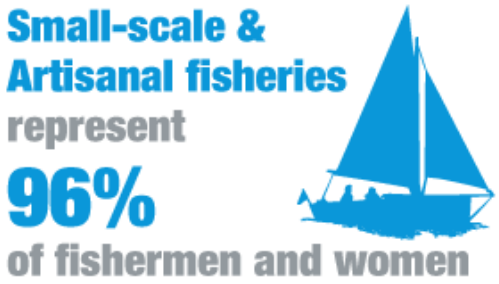
Target 14.b: Marine resources and markets

Provide access for small-scale artisanal fishers to marine resources and markets.

Small-scale and artisanal fisheries are estimated to capture less than 35 per cent of the global catch (Global Ocean Commission, 2014). Small and artisanal fisheries are essential for the food security and livelihoods of many coastal populations in developing countries. They represent 96 per cent of fishermen and women in the world (Global Ocean Commission, 2014). Globally, there are about 54 million fishermen and women and fish farmers of which the great majority live in developing countries, LDCs and SIDS (FAO, 2012). Of this, artisanal fisheries employ 12 million people worldwide and industrial fishing half a million (Jacquet and Pauly, 2008).



Negative fishing practices such as IUU and harmful subsidies particularly affect small-scale fishers. Hence, such harmful practices should be stopped. Small-scale and artisanal fishermen and women tend to fish in areas close to the coast and within the exclusive economic zone of a country. Obtaining access in key international markets for fish caught by small and artisanal fishers is quite challenging. Tariffs on fish and fish products are relatively low, with an average of 11.6 per cent in the most-favoured nation tariff (UNCTAD and the Commonwealth Secretariat, 2016), but ensuring homogeneity in quality, best safety and handling practices, transport and adequate packaging is impossible to achieve for them without the participation of different major actors along the value chain.



This explains why such fishermen and women mainly bring their fish harvest to local markets and restaurants. Thus, more support for small-scale artisanal fishers to connect them to global markets and make them part of fish stocks management systems deserves attention.

IAEG-SDG selected two indicators to measure progress towards target 14.b: the "*proportion of national fishery production by country that are catches by small-medium fishery businesses*" and "*progress by countries in adopting and implementing a legal/regulatory/institutional framework which recognizes and protects access rights for small-scale fisheries*". Unfortunately, no data are currently available to populate either of these indicators.

Notes and references

Notes

14.1 It is estimated that the oceans have already absorbed 50 per cent of the CO2 emissions since the industrial revolution. Available at http://cmore.soest.hawaii.edu/oceanacidification/documents/PML_TechnicalSheet_high_CO2_world.pdf.

14.2 Previously, FAO described this as overexploited.

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Goal 15: Life on land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

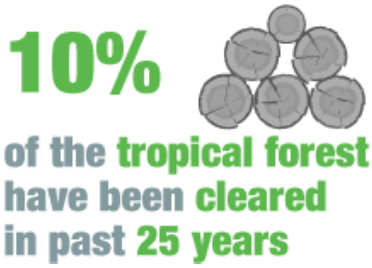
Biodiversity sustains life on earth. Terrestrial biodiversity - life on land - covers the variety of living organisms found in plants and animals, their genes, ecosystems and ecological processes. The majority of the world's poor live in rural areas and are dependent on forests, waters, wetlands, fields and pastures for their livelihoods. Many of these ecosystems and related biodiversity are under threat and poorly managed (Convention on Biological Diversity, 2010).

The Millennium Ecosystem Assessment (2005) concludes that 60 per cent of the world's ecosystems are degraded or unsustainably used. This directly impacts the livelihoods and well-being of those who depend on these resources for subsistence, security and income. The Convention on Biological Diversity identifies a number of "*culprits*": growing demand for natural resources, low public investment, poorly defined property rights, and global commodity trade policies that incentivize over-exploitation of resources. Strengthening the rights of poor people over land, resources and ecosystem services is one of the first steps towards sustainable development.

"*...each creature has its own purpose. None is superfluous...*" - *Pope Francis (2015)*

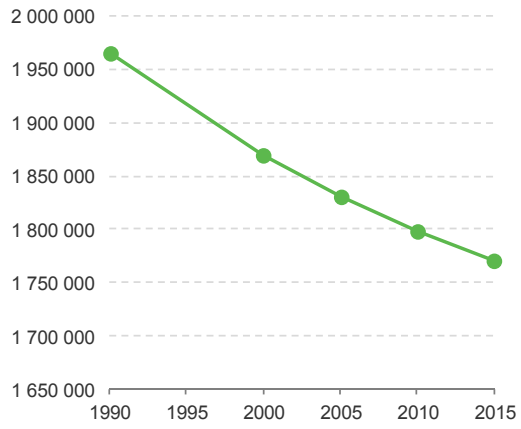
In addition to terrestrial ecosystem degradation, deforestation and desertification, overexploitation of the earth's biological resources is resulting in the extinction of plant and animal species, which in turn is threatening life on earth. A recent scientific report (Ceballos et al., 2015) concludes that there has been an exceptionally rapid loss of biodiversity over the last few centuries, with another mass extinction of species already under way. This acceleration compounds previous estimates by various sources that about 20 to 50 per cent of all living species will become extinct by the end of the current century (Reiter, 2015). A recent study published by the Royal Botanic Gardens Kew (2016) estimates that due to deforestation, rapid urbanization and new agricultural practices as much as 21 per cent of all plant species are now threatened with extinction. This report also stresses how much is still unknown about the interconnections and impacts of flora on local and global ecosystems. It was with a view to averting this imminent global tragedy that Goal 15 was adopted.

But many economic and socioeconomic activities that contribute to poverty reduction depend directly on biodiversity[15.1]. The Convention on Biological Diversity (2010) estimates that 70 per cent of the world's poor directly depend on biodiversity resources for as much as 90 per cent of their food, fuel, medicine, shelter and transportation needs. Biodiversity makes an important contribution to industries, providing natural ingredients and genetic resources from which high value added products can be developed, produced and sold. Some important biodiversity-dependent sectors include the pharmaceutical, biotechnology, seed, crop protection, horticulture, cosmetics and personal care, fragrance and flavours botanicals, food and beverage, fashion and tourism industries. Ferreira de Souza Dias (2013) has valued some of these industries: natural cosmetics US$26 billion; natural beverages US$23 billion; and botanical industries US$85 billion. Many other activities are indirectly dependent on biodiversity.



In both rural and urban communities biodiversity plays an important role in creating employment, providing incomes and generating economic growth. For example, 57 per cent of the most prescribed drugs in the United States of America originate from biological resources (Convention on Biological Diversity, 2010). Hence planet, people and prosperity all depend on rich and sustainable biodiversity and related ecosystems.

Figure 15.1. Global tropical forest area, 1990-2015
(Thousands ha)



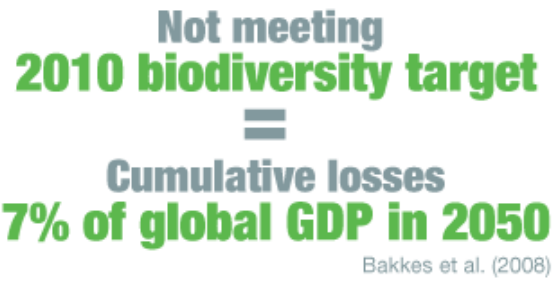
Source: FAO 2015, The forest land use data explorer (FLUDE)

The Royal Botanic Gardens Kew (2016) estimates[15.2] that all biomes experienced significant changes in land cover between 2000 and 2012, with many losing between 10 and 25 per cent; the smallest changes occurred in temperate grasslands and deserts. The study notes that the biomes with the greatest loss of land cover and vegetation productivity were mangroves and tropical coniferous forests. This is attributed to human activity, most particularly conversion of land for shrimp farming in the case of the former.

For example, Indonesia has lost 30 per cent of its mangrove forests over the past three decades. Similarly, loss of tropical forest is predominantly driven by changes in land use, such as conversion of forest to pasture and farmland. For example, the clearing of forest for oil palm plantations, for logging and to construct fibre plantations to supply paper has been dramatic in South-East Asia. Global tropical forest cover has continuously declined over the past 25 years, with an overall significant decrease in forest area of almost 10 per cent from 1990 to 2015 (Food and Agriculture Organization of the United Nations (FAO), 2015).

Target 15.9: Ecosystems and biodiversity

By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.



The Earth's biological resources are vital to humanity's economic and social development. As a result, there is a growing recognition that biological diversity is a global asset of tremendous value to present and future generations. At the same time, the threat to species and ecosystems has never been as great as it is today. Species extinction caused by human activities continues at an alarming rate (Convention on Biological Diversity, 2010). Given the opportunities for income and job generation, and economic growth and development that can be derived from biodiversity-based resources, and the global risks associated with the accelerating loss of biodiversity, the implementation of Goal 15 requires both urgent attention and a holistic approach.

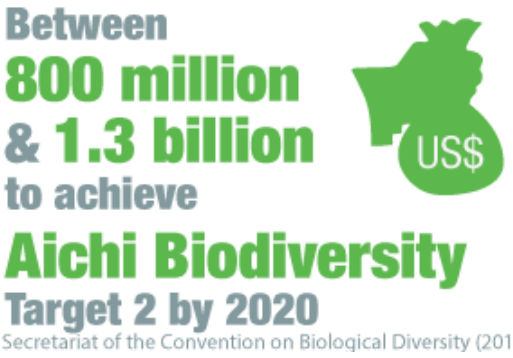
"*Biodiversity loss must be addressed and prevented, and the use of biodiversity-based resources must be managed in a sustainable, equitable and inclusive manner.*" Mukhisa Kituyi, Secretary-General of UNCTAD (2013)

Regulatory frameworks and well-tested development programmes can be used to provide incentivizing policies and actions that will conserve biodiversity and ensure its sustainable use, rather than degrade and destroy it. Multilateral environmental agreements can play an important role in this regard.

Seven biodiversity-related conventions in particular set the framework for implementation of actions at the national, regional and international levels to reach shared goals of conservation and sustainable use of biodiversity: (1) Convention on Biological Diversity; (2) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); (3) Convention on the Conservation of Migratory Species of Wild Animals (CMS); (4) International Treaty on Plant Genetic Resources for Food and Agriculture; (5) Convention on Wetlands or Ramsar Convention; (6) World Heritage Convention; (7) International Plant Protection Convention (IPPC).

Aichi Biodiversity Targets

With specific objectives and shared targets, the biodiversity-related conventions have developed a number of complementary approaches (site-, species-, genetic resources- and/or ecosystem-based) and operational tools (for example, programmes of work, trade permits and certificates, multilateral systems for access and benefit-sharing, regional agreements, site listings, funds, and the like). A Liaison Group of Biodiversity-related Conventions was established in 2004 between the secretariats of the seven biodiversity-related conventions to enhance coherence and cooperation and foster closer linkages in supporting implementation of the global biodiversity goals, namely resulting in the Strategic Plan on Biodiversity 2011–2020 and the Aichi Biodiversity Targets. This group will be instrumental in ensuring a coordinated approach towards the implementation of Goal 15.



The Inter-agency Expert Group on Sustainable Development Goal indicators selected "*Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020*" as the best indicator to measure progress for target 15.9. The Aichi Biodiversity Target 2 is "*By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems*". The secretariat of the Convention on Biological Diversity reports on progress for each of the Aichi Biodiversity Targets. In its latest report (2014) the secretariat notes progress in mainstreaming the integration of biodiversity in national strategic plans, albeit uneven, but also highlights that quantifying progress is very difficult owing to the complexity of the target, stating that "*there are no globally harmonized datasets that fulfil the data requirements to monitor this target*". The report also notes that concrete measures to include biodiversity into subnational and local plans are less obvious, identifying fragmentation of decision-making, limited communication between stakeholders and the lack of economic valuation of biodiversity as reasons. The report also notes that despite many national legal requirements, many environmental impact assessments do not take into account the impacts on biodiversity or do so only partially. Many assessments are restricted to protected species and areas and do not consider wider ecosystems at all.

Difficulties with valuation

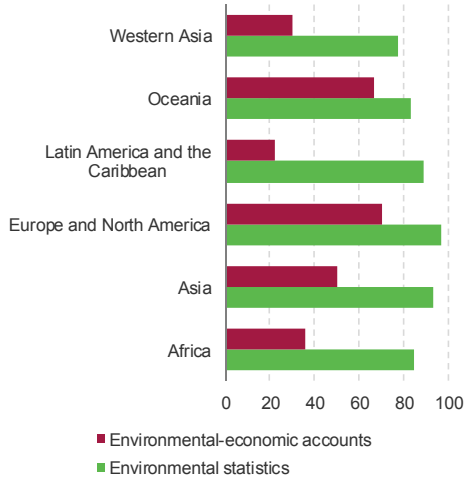
A major challenge to the inclusion of biodiversity in national and local development and poverty reduction strategies and decision-making processes, noted in the secretariat of the Convention on Biological Diversity report (2014) are the manifold difficulties with valuation. Putting a value on biodiversity is a complex and multidimensional task. One approach is to use the total economic value[15.3], which has the benefit of using a common monetary unit, making communications easier and comparisons or cost–benefit trade-offs possible. However, several aspects of biodiversity and ecosystems cannot be measured in monetary terms, such as spiritual importance or aesthetic value. Challenges regarding potential double counting, designing a single valuation methodology that works equally well across all ecosystems, and problems with regard to data availability all pose major problems when making comparisons. Other complications arise from the intrinsic multidisciplinarity of biodiversity and ecosystes, requiring a broad range of technical and scientific knowledge, and from the lack of research capacity to undertake robust valuation exercises. The choice of discount rate also remains a controversial issue, unsupported by technically objective guidelines on the appropriate rate. Finally, most economic valuation studies are based on marginal changes to ecosystems assuming that such systems are stable. However, little is known about the stability of ecosystems and their response to change – an unstable ecosystem may pass a critical threshold and trigger a structural change, at which point the marginality assumption and the valuation may no longer hold.

It is for this reason the experimental System of Environmental–Economic Accounting (United Nations, 2014) was published as the international statistical standard[15.4]. These accounts are coherent with the accounting concepts used in the System of National Accounts and are intended to provide "*a better measurement of the crucial role of the environment as a source of natural capital and as a sink of by-products generated during the production of [hu]man-made capital and other human activities*". In 2007, the United Nations Statistics Division (UNSD) carried out a global assessment of the implementation of environment statistics and environmental–economic accounting.

From the 100 respondent countries (52 per cent of the total), 90 per cent compiled some environment statistics and 50 per cent were producing an environmental–economic account - see figure 15.2 for 2006 regional implementation rates.

The focus of these accounts, however, is frequently quite different between developed and developing countries. For example, developed countries tend to focus on compiling accounts for energy and emissions, environmental protection expenditure and material flow/waste.

Figure 15.2. Environment statistics and environmental–economic accounting programmes availability by region, 2006
(Percentage of responding countries)



Source: UNSD, 2007

Most developing countries tend to compile accounts for water, energy and emissions, mineral assets and forestry (Secretariat of the Convention on Biological Diversity, 2014).

Biodiversity and trade

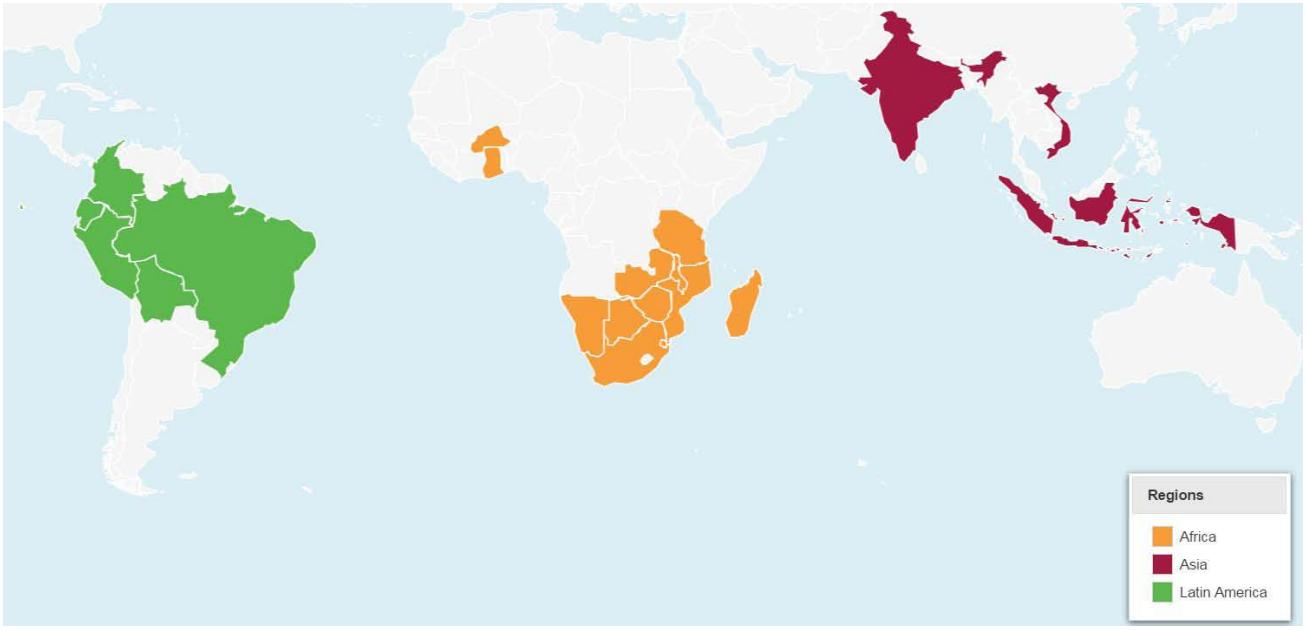
UNCTAD's BioTrade Initiative[15.5] is a good example of another long-standing programme which aims to harmonize trade with the sustainable use of biological resources, while respecting the principles of conservation of the Convention on Biological Diversity - sustainable use, and fair and equitable sharing of benefits. This initiative was launched in 1996 and is supplemented by independent national, regional and international BioTrade programmes. BioTrade entails the collection, production, transformation and commercialization of goods and services derived from native biodiversity, respecting the criteria of environmental, social and economic sustainability as expounded in the seven BioTrade principles: (1) conservation of biodiversity; (2) sustainable use of biodiversity; (3) equitable benefit sharing; (4) socioeconomic sustainability; (5) local compliance; (6) respect for actors' rights; (7) clear land tenure and access to resources.

The BioTrade principles and criteria differentiate it from other trade and biodiversity initiatives, as all activities (downstream and upstream) along the value chain operate in compliance with these principles (UNCTAD, 2007).

The BioTrade Initiative seeks to develop tradable sectors through value chain development and facilitate trade of products and services that are derived sustainably from native species and ecosystems (UNCTAD, 2014b). Over 3,600 supply chains have been developed in such sectors as: personal care (essential oils, natural dyes, creams, cosmetics); pharmaceuticals (extracts and infusions from medicinal plants); food (fruit pulps, juices, snacks, sauces, spices, nuts, food supplements); fashion (leather from caiman or snake skins); ornamental flora and fauna (orchids, butterflies, and the like); handicrafts (jewellery, decorative objects based on native species); textiles and natural fibres (such as furniture based on natural fibres); and sustainable tourism (ecotourism, nature-based tourism, and the like) (Lojenga and Oliva, 2016).

Over 20 developing countries have been implementing BioTrade in Africa, Asia and Latin America (see figure 15.3) with the support of national, regional and international BioTrade partners, including ministries of environment and trade, trade promotion agencies and business associations, involving the public and private sectors. Partnerships have also been conducted with the Development Bank for Latin America, Helvetas in Viet Nam, PhytoTrade Africa and the Union for Ethical BioTrade (UNCTAD, 2012; 2013a; 2013b; 2014a; 2016). Around 5 million people were involved in BioTrade activities and the sales of companies in BioTrade amounted to €4 billion in 2015 (Lojenga and Oliva, 2016).

Figure 15.3. Developing countries implementing BioTrade

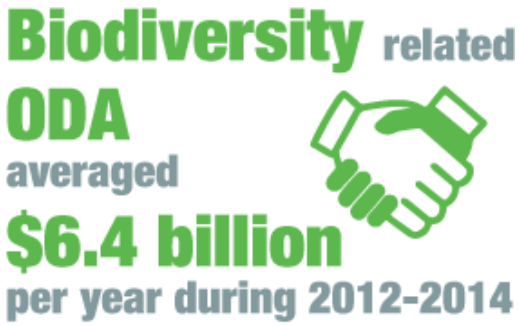


Source: UNCTAD (2016)

Target 15.a: Financial resources for planet

Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems.

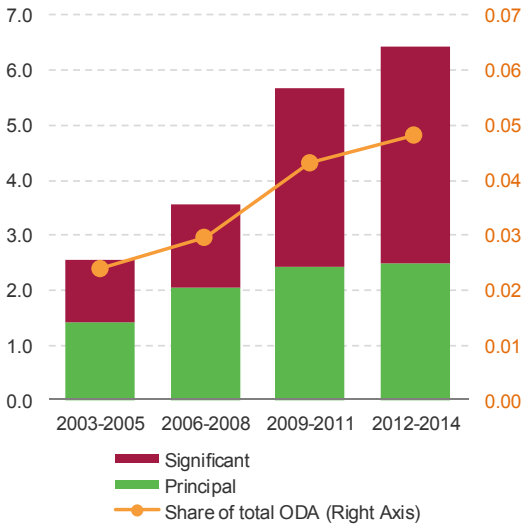
The Inter-agency Expert Group on Sustainable Development Goal indicators selected "*Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems*" as the indicator for this target. The logic of this choice is that biodiversity-related development finance captures the extent to which biodiversity considerations have been mainstreamed and integrated into international development cooperation.



Total bilateral biodiversity related ODA averaged US$6.4 billion over the years 2012 - 2014, accounting for almost 5 per cent of total bilateral ODA. Of this, 39 per cent, or an average of just over US$2.5 billion, was targeted at biodiversity as the principle objective[15.6]. The majority of biodiversity-related ODA, almost US$4 billion, targeted biodiversity as a significant but secondary objective. The increase in biodiversity-related ODA over the past decade is indicated in figure 15.4, both in absolute and relative terms.

The Organization for Economic Cooperation and Development (OECD) notes that biodiversity-related ODA may often target multiple objectives simultaneously, such as climate change and gender equality. In other words, Development Assistance Committee (DAC) members will often deliberately exploit the co-benefits or strive for policy coherence between biodiversity and other objectives (OECD DAC Statistics, 2016).

Figure 15.4. Value of biodiversity-related bilateral ODA, three-year averages (2014 constant prices), 2003-2014
(US$ billions; percentage)



Source: (OECD DAC Statistics, 2016)

The bulk (77 per cent) of biodiversity-related ODA since 2007 has typically targeted general environment protection; agriculture, forestry, fishing and rural development; and water supply and sanitation programmes. Asia has received the highest share of bilateral biodiversity-related ODA since 2007 (30 per cent), followed closely by Africa (29 per cent).

The vast majority (61 per cent) of biodiversity-related ODA flowing to Asia has targeted biodiversity as a prime or principal objective, whereas for Africa the opposite is true, with the bulk (70 per cent) targeting biodiversity as a secondary objective.

Notes and references

Notes

15.1 For example, 31,128 plant species currently have a documented use. The term "*use*" describes plant species that have been documented as fulfilling a specific need for humans, animals or the wider environment. This includes use for human or other animal food, medicines, poisons, fuels, materials, social uses (for example, smoking), gene sources and other environmental uses.

15.2 To examine which global biomes are experiencing the greatest changes in land-cover, and to assess whether the predominant cause is human modification or climate change, a number of existing satellite imagery datasets covering the period between 2001 and 2012 was used. See more at https://stateoftheworldsplants.com/report/sotwp_2016.pdf.

15.3 "*Total economic value*" incorporates both "*use*" and "*non-use*" values. "*Use*" comprises direct, indirect and optional use and refers to the benefits that can be taken directly from an ecosystem, indirectly as societal or functional benefits derived from an ecosystem, or optionally as potential future direct or indirect use. "*Non-use*" is comprised of existence and bequest values. Existence value concerns the value put on knowing that species and ecosystems will continue to exist, while bequest value concerns the value put on maintaining or preserving biodiversity and ecosystems, perceived as having no use now, so that they will be available for future generations.

15.4 The System of Environmental–Economic Accounting (SEEA) accounts for resources of minerals and energy, land, soil, timber, aquatic environments and water; in terms of ecosystem services it focuses on the provisioning services for which market prices exist.

15.5 UNCTAD's BioTrade Initiative is supported by several countries, with the State Secretariat for Economic Affairs of Switzerland as a major partner providing continuous support.

15.6 That is, activities that would not have been funded but for their biodiversity-related objective.

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PROSPERITY

"We are determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature."

Prosperity is dependent on a stable, **peaceful environment** and good **governance**.

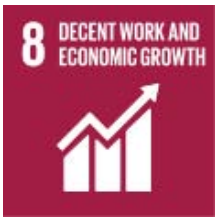
Economic growth is a powerful **instrument** for reducing poverty, creating prosperity and improving the **quality of life** in developing countries.

Research has shown **sustained growth** and **investment** is important to supporting the objectives of the **Sustainable Development Goals**.

It is important that our **prosperity today** is **sustainable** and does not negatively impact on the prosperity of **future generations**.

The Prosperity section of this report consists of Sustainable Development Goals 7 - 11 along with selected targets from those goals.

How efficiently society uses energy and where that energy comes from are key aspects of the United Nations Agenda 2030. The efficiency gains in emissions and energy usage have been offset by growing population and wealth at the global level. As population, wealth and energy usage have increased, the overall level of emissions has grown consistently over the last decades.



Growth in gross domestic product (GDP) has been widely used as an indicator of human development. However, using GDP as a direct measure of welfare has a variety of limitations. Although GDP should not be interpreted as a precise and direct measure of social welfare, economic growth is nevertheless an important, widely available and internationally comparable, summary indicator for an economy's advancement in its capacity to produce resources for the satisfaction of people's needs. As such, it is of high value in the context of measuring progress in sustainable development.

In today's information age, more attention must be given to soft infrastructure. In particular, given the growing complexity of policy decisions, it is essential that countries put in place a well-organized and coherent national data infrastructure. Such an infrastructure will be of paramount importance from a statistical perspective, as modern national statistical systems must be able to access and use administrative data from all parts of the national administrative system if they are expected to meet the significant information requirements of Agenda 2030 and the Addis Ababa Action Agenda.

Inequality, and how it affects economies and societies, is of growing concern to politicians, economists and the global community. There is an emerging consensus that existing levels of inequality are not only morally unacceptable, but also economically and politically damaging. Hence the growing interest in trying to assess whether globalization and new technologies have exacerbated or improved the situation. Inequality has implications far beyond simple economic development, as it is recognized that it can be damaging to society, even threatening peace and security.

Goal 11 is a complex cross-cutting goal, of immediate relevance for a rapidly urbanizing planet. The successful implementation of this goal will play a vital role in the wider realization of the aspirations for planet, people, peace, partnership and prosperity. It aims to provide safe and affordable housing and public transport, and develop well-planned cities with environmentally sustainable buildings and increased green public spaces where cultural and natural heritage is protected.

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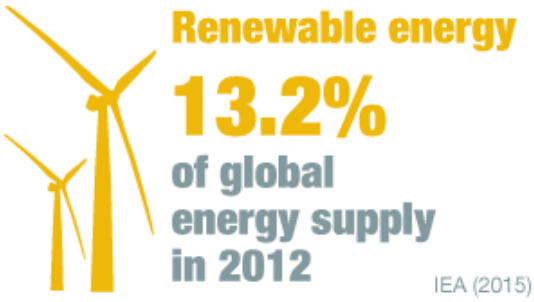
Goal 7: Affordable and clean energy

Ensure access to affordable, reliable, sustainable and modern energy for all.

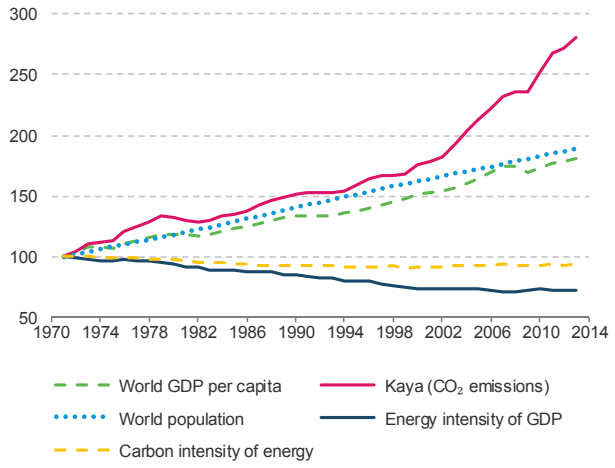
The way society uses energy, how efficiently it uses it and where this energy comes from are key aspects of the United Nations Agenda 2030. The Kaya identity (Kaya and Yokobori, 1997; Pacini and Silveira, 2013) illustrates this problem well.



The Kaya identity suggests that damage to the climate system is directly proportional to the global population, the wealth of the population, the amount of energy used to run each unit of the global economy and the carbon footprint associated with every unit of energy produced. With growing population and wealth, even unevenly distributed, emissions increase when the economy uses fossil fuel sources, thus creating an impact on the environment.

Figure 7.1 uses data from the International Energy Agency (IEA) to provide empirical illustration of the Kaya identity, showing that any efficiency gains in emissions and energy usage have been clearly offset by growing populations and wealth at the global level. As population, wealth and energy usage have increased, the overall level of emissions has grown consistently over the last decades.

Figure 7.1. Evolution of the world's gross domestic product (GDP) per capita and population, and of selected emissions indicators
(Percentage, baseline = 1971)



Source: UNCTAD secretariat, based on data from International Energy Agency (IEA) (CO2 emissions from fuel sources).
Notes: Kaya represents the overall impacts on the climate system.

With the adoption by the United Nations Member States of the Sustainable Development Goals in September 2015, the linkages between energy and development will be high on the international agenda until 2030.

Goal 7 deals with sustainable energy and the targets call for universal access to affordable, reliable and modern energy services, a substantial increase in the share of renewable energy in the global energy mix, as well as gains in energy efficiency. To achieve these targets, Goal 7 also calls for greater international cooperation to facilitate access to clean energy research and technology, including the upgrade of energy services and supply infrastructure particularly in least developed countries least developed countries (LDCs) and small island developing States (SIDS).

Therefore, energy should be a fundamental part of developing countries' strategies to meet these specific goals set out by Agenda 2030, including their actions geared towards tackling climate change in accordance with commitments adopted at the 21st session of the Conference of Parties (COP21), as well as creating new sources of employment compatible with low-carbon development strategies.

This global commitment also calls for broad international cooperation for trade in energy products and for transfer of renewable and efficient energy technologies and feedstocks among different countries in the world.

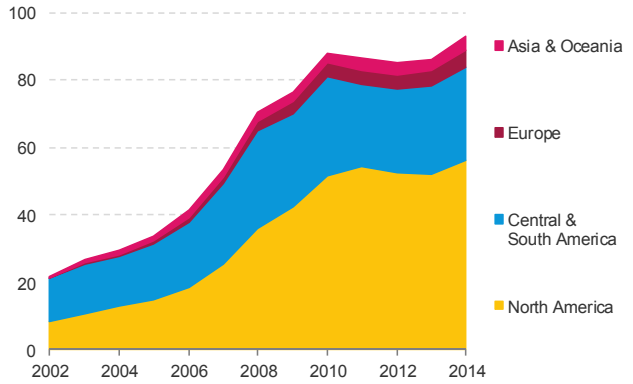
The further exploitation of low-carbon and renewable energy sources will be a fundamental part of developing countries' strategies to tackle rising carbon emissions. The report *The State of the Biofuels Market: Regulatory, Trade and Development Perspectives* (UNCTAD, 2014) discusses one of the renewable energy options available for countries to reduce their dependence on petroleum products, so-called biofuels.

The most popular biofuels in the world are biodiesel (produced mainly from canola, soybean and sunflower) and bioethanol (produced mainly from corn, wheat and sugar cane) followed by other types of vegetable oil and biogas.

Global biofuel production grew steadily from about 23 billion litres per year in 2002 to over 120 billion litres per year in 2014. While biofuel markets have grown considerably larger over the last decade, they remain a controversial energy option as their unregulated production and usage can increase competition for food, put pressure on biodiversity and sometimes represent small greenhouse gas (GHG) savings compared to fossil fuel usage. This is why regulatory oversight and sustainability certification are a fundamental part of responsible biofuels usage, which should themselves be a part of broader strategies for renewable energy deployment and energy efficiency.

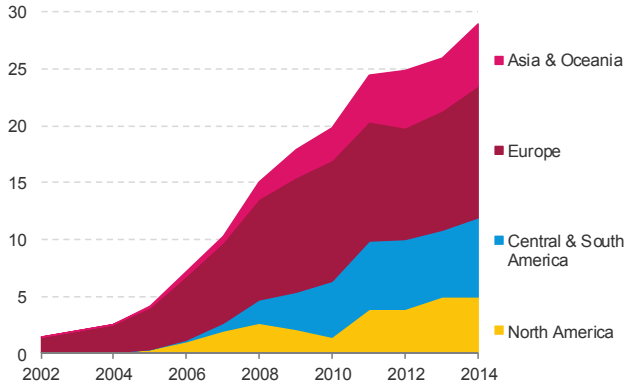
Figure 7.2 shows that the bulk of the growth in bioethanol has occurred in the United States of America, whereas figure 7.3 shows the growth in biodiesel has been more regionally balanced – while the biggest growth has been in Europe, there has been notable growth in the Americas and also Asia and Oceania.

Figure 7.2. Global bioethanol production
(Billion litres)



Source: BP.
Notes: United States Energy Information Administration (EIA) region definitions.

Figure 7.3. Global biodiesel production
(Billion litres)



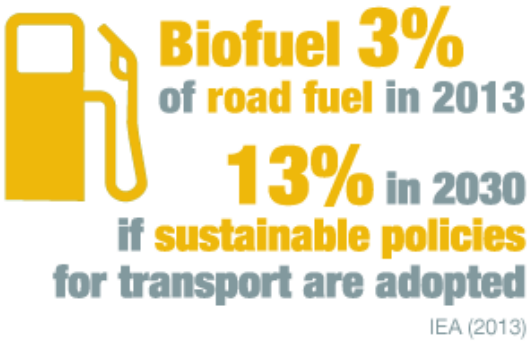
Source: BP.
Notes: EIA region definitions.

There are many factors that simultaneously constrain and strengthen the growth of the global biofuel market. These include potential feedstock competition with food commodities, the availability of natural resources, government subsidies, national commitments to mitigate climate change, oil prices and other political and environmental factors. Biofuel production faces different challenges around the world. Africa suffers from overestimated expectations and agricultural difficulties with some feedstocks, such as the plant jatropha.

But despite these challenges, countries such as Ghana, Mali and Nigeria have established mandates for the use of biofuels.

In 2015, India (India, Ministry of New and Renewable Energy, 2015) proposed a target of 20 per cent bioethanol and biodiesel blend by 2017 to be added to its gasoline and diesel pools and has created incentives to production in the form of capital subsidies, tax breaks and public bidding processes. In Latin America, fuel demand is rising and fossil-fuel subsidies are being slowly phased out, while at the same time novel biofuel models are being developed, since the Brazilian experience (UNCTAD, 2014) is not replicable in many of its neighbours with smaller land availability.

Biofuels have a potential to overcome environmental challenges by reducing dependence on fossil fuels. Economically, biofuels sustain more than 1.7 million jobs around the world, including 845,000 in Brazil and 282,000 in the United States (REN21, 2015).



At present, a new generation of biofuels that are produced with non-food feedstocks are reaching markets in increasingly larger scales. While advanced biofuels are sold so far in small volumes, they hold great promise to turn low-value feedstocks such as agricultural and forestry residues and waste into high-value products such as fuel ethanol, while at the same time avoiding competition with food markets (Gupta and Verma, 2015).

UNCTAD Biofuels Initiative works closely with other intergovernmental organizations, civil society, academia and the private sector. It participates in the activities carried out by UN-Energy and Sustainable Energy for All; on the Nairobi Framework Partnership; on the Global Bio-Energy Partnership; and the Roundtable on Sustainable Biomaterials.

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Goal 8: Decent work and economic growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Growth in gross domestic product (GDP), the rate by which the value of output from production of goods and services in a country[8.1] increases, has always been a widely used indicator for measurement of human development. This is mainly because output from production activities determines the capabilities available for the satisfaction of needs in society. If not outweighed by population growth or inflation, GDP growth can serve a wide range of ends that are relevant to monitoring development. It provides resources that can be used, for example, for promotion of health care, education, employment, public infrastructure, environmental protection and, not least, for overcoming absolute poverty (Commission on Growth and Development, 2008). In fact, the World Bank establishes that "*economic growth has been the single most important instrument*" for the decline in poverty observed during the past 25 years (World Bank, 2014).

However, using GDP as a direct measure of welfare has limitations. These have been thoroughly reviewed by the Stiglitz Commission. First, the calculated value of output from production can be different from the value of consumption by private households resident in a country. Differences result, for example, from depreciation of capital, from changes in household wealth, and from income flowing out of and into the country. To calculate GDP, economic output is measured in production prices, but these may not accurately reflect consumption value. Second, GDP covers only goods and services traded on markets, although welfare can also be generated from consumption of non-market goods and services. Third, while GDP per capita provides an indication of the resources available per member of society on average, the level of social welfare should be assumed to be dependent also on the way these resources are distributed among them (Stiglitz et al., 2009). Using GDP as a measure of welfare is further complicated by the fact that consumer prices tend to increase over time, so that private households' real consumption possibilities associated with a constant value of nominal GDP diminish and GDP growth, expressed in nominal terms, turns out to be greater than the actual increase in welfare. A common method to correct that effect is by deflating nominal GDP through a consumer price index, an index that reflects the relative increase of the price of a representative consumption basket. However, consumption is subject to changes over time. The quality of existing products improves, and new products are developed and used. Reflecting these changes accurately is difficult, as a comprehensive study commissioned by the Unites States Senate Finance Committee has exemplified (Boskin et al., 1996). The effects of such bias on the measurement of welfare can be significant. Consider, for example, the ubiquitous use of the Internet, which has generated an improvement in welfare at a negligibly low price, and which former generations could not even dream about (The Economist, 2016).

Even though GDP should not be interpreted as a precise and direct measure of social welfare, economic growth is nevertheless an important, widely available summary indicator of an economy's advancement in its capacity to produce resources for the satisfaction of people's needs, and one which is comparable across countries. As such, it is of high value in the context of measuring progress in sustainable development. However, the Sustainable Development Agenda does not call for economic growth by all means. Rather, economic growth should be sustained, inclusive and sustainable.

Sustained, inclusive and sustainable growth

The call for sustained growth follows from the insight that overcoming obstacles to human development mostly requires some constancy in the availability of funds. Escaping from poverty traps, for example, usually requires actions implemented with a time horizon of several years, as an evaluation of the progress in achieving the Millennium Development Goals by the United Nations Development Programme (UNDP) (UNDP, 2005) has confirmed. Sustained growth usually does not evolve as an outcome of monetary expansion or government spending programmes. It rather requires structural changes, such as technological innovations, formation of know-how and knowledge, transformation of institutions or modernization of infrastructure. Such changes can be self-reinforcing and thereby stabilize growth over a longer period of time, as the various models of endogenous growth theory[8.2] have shown. In practice, conditions for sustained growth are often set by future-oriented policies targeting managed consumption, a build-up of savings and investment, particularly public investment in infrastructure (Commission on Growth and Development, 2008).

While economic growth increases the resources available for consumption in an economy as a whole, it is often accompanied by a rising inequality in the distribution of resources among individuals. This was first observed by Kuznets (1955). In his model, waves of economic growth do not sweep over the whole society at the same time. Growth is instead initially confined to narrow segments of the economy, leading to an increase in labour productivity and a rising dispersion of wages within these segments, so that income inequality in the economy as a whole increases[8.3]. The requirement for inclusive economic growth set out in the Sustainable Development Goals imposes a responsibility on governments to ensure that inequalities arising from economic development do not result in individuals, particularly those most vulnerable, being excluded from the material benefits to the extent that they become incapable of observing social norms and common lifestyles of their country[8.4]. Education policy plays an important role in avoiding income inequality, as it can help to reduce skill gaps between workers in higher- and lower-wage sectors. Deliberately designed and efficient tax and transfer systems and social protection schemes, influencing market actors' incentives as less as possible, as well as universal access to basic services constitute important additional means to adjust the distribution of market incomes and to ensure that economic growth does not increase social exclusion. In that regard, globalization has imposed new challenges, as with rising geographic mobility of capital and higher-skilled workers, national governments have entered into intensified (fiscal) competition[8.5] with each other, which reduces their scope of financing redistributive and social policies by means of taxation. Social inclusion as an objective for sustainable development is dealt with in greater detail under Goal 10, target 10.2.

In addition to being sustained and inclusive, the present Sustainable Development Goal also sets out that economic growth should be sustainable. The question about whether sustainable economic growth is possible or not, in the sense that it does not compromise "*the ability of future generations to meet their own needs*"[8.6], was at the heart of a debate in the 1970s which gave an important impetus to the idea of sustainable development. At that time, a simulation study commissioned by the Club of Rome (Meadows et al., 1972) had shown that under unchanged circumstances, growth in economic output could not last forever, as over time it would necessarily exhaust the limited stock of natural resources on earth. In response to that study, approaches calling for "*de-growth*" (advocated by Georgescu-Roegen, 1975) or a "*steady-state economy*" (advocated by Daly, 1974) gained popularity. The idea of sustainable economic growth developed as an alternative concept, emphasizing the need to use natural resources more efficiently than at present while upholding the idea of promoting economic growth as a means to overcome poverty and underdevelopment (Hopwood et al., 2005). In theory, if resource efficiency increases with the same rate as GDP or more, then the stock of natural resources passed on to future generations does not shrink. This state, commonly referred to as "*green growth*", can be achieved by, for example, technological innovations or changes in consumption patterns (Victor, 2010). In fact, a number of empirical studies find that for several types of environmental damage, when GDP per capita rises over a certain level, environmental damage ceases to grow further and finally diminishes. This has led to the hypothesis of the "environmental Kuznets curve", which assumes a bell-shaped relationship between GDP and environmental damage (Dinda, 2004). Looking at natural resources in general, studies indicate that in the medium term, "brown growth", characterized by resource efficiency increasing at a lower rate than GDP, appears more realistic to achieve (Victor, 2010). Research in this field is difficult, as measuring the extent of resource depletion is a complex task, both from the conceptual and methodological perspectives. In that regard, the setup of guidelines for the measurement of greenhouse gas emissions by the Intergovernmental Panel on Climate Change (2006) and of the System for Environmental Economic Accounting (United Nations Statistics Division (UNSD), 2016) constitute important steps.

The labour dimension

Complementary to natural resources, labour is another important input factor of GDP. Labour has, apart from its technical contribution to production, a substantial social dimension arising from the fact that it determines people's status and their ability to consume, and because people devote such a substantial amount of their lifetime to it. Full and productive employment and decent work are therefore defined as objectives of the Sustainable Development Goals.

Full and productive employment necessitates a demand for and corresponding supply of labour; that is, a sufficient number of people prepared to supply work under the conditions being offered. Labour demand is dependent on a number of factors that influence the business environment, such as local availability of input factors for production, closeness to sales markets, infrastructure, efficient institutions and tax burden, as well as employment protection legislation, State subsidies, and the degree to which human labour can be substituted by machine labour. Labour supply is dependent on factors such as the proportion of persons of working age, their skills and the conditions under which they accept working. Labour supply not met by labour demand generates unemployment, a state that implies a waste of productive resources and often a risk of poverty for the affected people.

Decent working conditions cannot be taken for granted. In a market economy, capital owners' interest to maximize profits often stands in conflict with their moral (and in many parts of the world, legal) duty to provide adequate conditions of work. In advanced economies, at the national level, this conflict is regulated by institutions that have evolved under the influence of labour movements. These institutions are under pressure for change, as globalization increases capital owners' possibilities to relocate production from one country to another and thereby bypass regulations that protect workers' rights at the expense of reduced return on investment. At the global level, conventions pursued by the International Labour Organization (ILO) and ratified by national governments have provided a basis for minimum rights for workers in many countries concerning a wide range of problem areas (ILO, 2014). With the Decent Work Agenda[8.7], ILO is engaged to further enhance protection from unacceptable conditions of work and to promote productive employment (ILO, 2008).

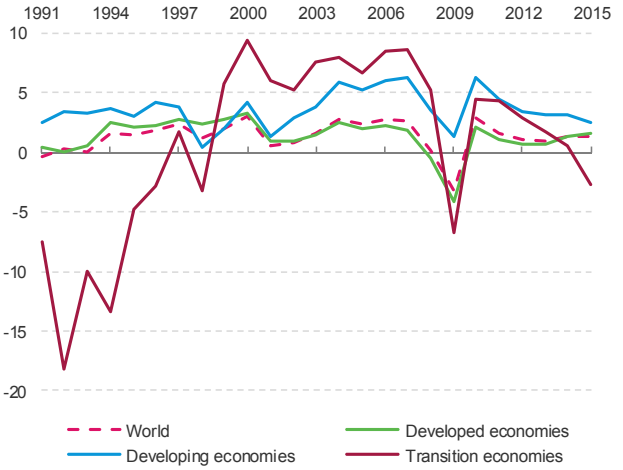
Target 8.1: Economic growth

Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries.

During the 25 years from 1990 to 2015, the value of global output from production of goods and services almost doubled, from US$31.1 trillion to an estimated US$59.7 trillion (in 2005 constant prices). With population growth of 38 per cent in the same period, average output per head increased by slightly more than one third (39 per cent) (UNCTADstat, 2016).

Economic growth between 1990 and 2015 was not constant. Rather, four economic cycles can be distinguished (see figure 8.1). A first cycle, which was strongly driven by economic restructuring in Eastern Europe and the former Soviet Union, emerged in the early 1990s and came to a halt around 1998 in response to the Asian financial crisis. A second, more short-lived cycle, emerging from the telecommunications and IT boom, and leading people to speak of a "new economy", started in 1999 and ended in 2001. A third cycle began between the years 2002 and 2004, abetted by financial deregulation, financial innovations and the emergence of multinational value chains, but ended abruptly with the world financial crisis of 2008 and 2009, which threw the world into the deepest recession since the 1930s. A fourth, ongoing cycle commenced with a resumption of economic growth in 2010. To date, this cycle has been characterized by low demand (notably investment demand) and decreasing prices for primary commodities, including oil and gas (UNCTAD, 2015; International Monetary Fund (IMF), 2016a)[8.8]. Economic growth in developed economies followed broadly the same trend as economic growth in the world as a whole, as these economies account for around two thirds of global gross domestic product (GDP). In developing economies, the growth rate was for the most part well above that of developed economies, with the exception of the years from 1998 to 2001, when developing economies were adversely affected by the Asian financial crisis. Transition economies experienced a dramatic recession after the breakdown of the socialist system in the early 1990s, experiencing decreases of economic per capita output of up to 18 per cent in a single year. After 1992, however, as economic restructuring continued, economic growth in that region recovered to the extent that in 1999 positive growth returned, and from 2000 to 2008 it was approximately 5 percentage points above that experienced in developed countries. Transition economies initially came out of the world financial crisis with relatively higher growth than the developed ones. Since 2011, however, their GDP-per-capita growth has dramatically declined, apparently in most cases due to falling oil and gas prices. Growth in 2015 is forecast to be negative (see figure 8.2).

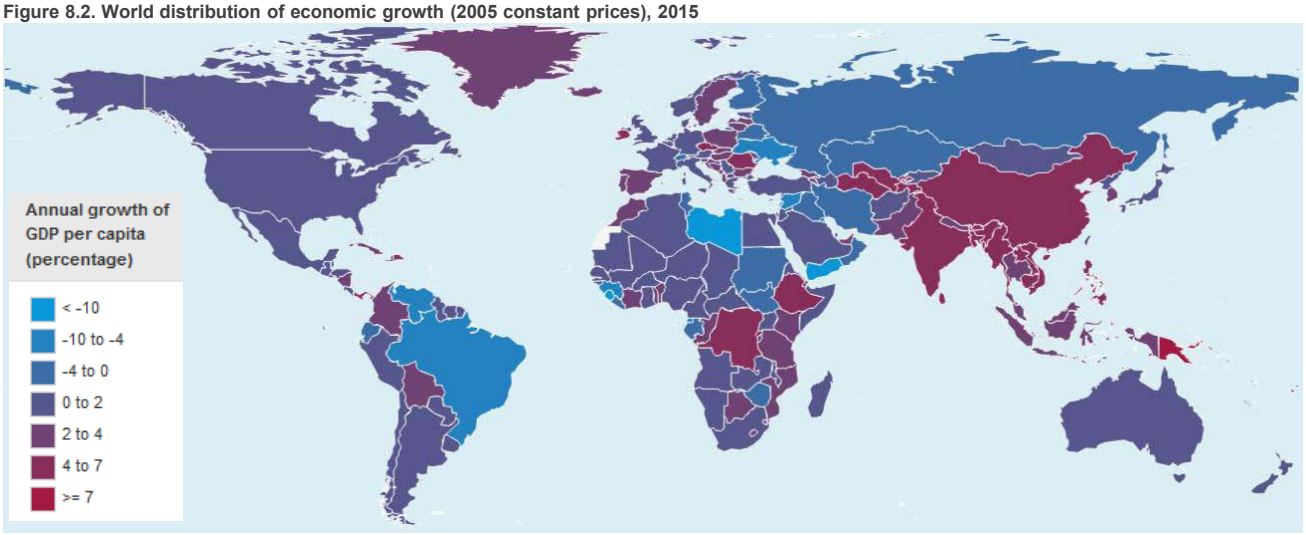
Figure 8.1. Growth of GDP per capita (2005 constant prices), 1991-2015
(Percentage)



Source: UNCTAD, UNCTADstat.
Note: 2015: UNCTAD secretariat estimates.

The average annual growth of per-capita GDP during the period 1991 to 2015 in developed economies was 1.4 per cent, 1.7 per cent in transition economies and 3.6 per cent in developing economies (UNCTADstat). The relatively strong growth in the poorer countries may be an indication of beta-convergence[8.9], a process that leads to reduction in disparities in GDP-per-capita levels. Empirically, beta convergence is confirmed by the fact that from 2001 to 2015 the growth rate of the individual countries' GDP per capita was negatively correlated with the level of GDP per capita in 2001 (correlation coefficient: -0.40, based on data from UNCTADstat, 2016)[8.10]. While it is difficult to find developed economies where growth of GDP per capita exceeded 4 per cent within a single year - exceptions can be found in some eastern member States of the European Union as well as in Ireland during the 1990s - growth of that magnitude occurred more often in transition and developing economies. While after the turn of the millennium almost all transition economies showed high per-capita GDP growth, in developing economies growth was geographically dispersed. During most of the period from 1991 to 2015, strong GDP growth was concentrated in a limited number of developing countries, primarily in East Asia and East Africa, with the exception of the period from 2002 to 2009 when it reached out to other countries, including those in West Africa and South America.

Figure 8.2. World distribution of economic growth (2005 constant prices), 2015



Source: UNCTAD, UNCTADstat.
Notes: 2015: UNCTAD secretariat estimates.

Target 8.1 calls for GDP growth rates exceeding 7 per cent in least developed countries (LDCs). Growth rates of that scale were indeed not exceptional within that group of countries during the last 25 years - 37 out of the 41 LDCs experienced growth rates of that magnitude or more at least once during the period, 13 of them over five or more years consecutively (see table 8.1). The most impressive growth was enjoyed by Equatorial Guinea, where a sustained economic growth lasted for 14 years from 1992 to 2005, resulting in an expansion of the economy by a factor of 20. In Myanmar, GDP growth remained high from 1999 to 2014, with the effect that GDP tripled. In Ethiopia, GDP has now been growing strongly for the past 11 years, with rates well above 7 per cent, in most years higher than 10 per cent. And in the Lao People's Democratic Republic, growth rates have been remaining slightly above 7 per cent for 10 years in a row. In all of these cases, the growth in GDP was only partly offset by population growth.

Table 8.1. Phases of sustained high GDP growth in LDCs, 1991-2015

			GDP growth (percentage)		
Economy	Period	Number of years	Whole period	On average per year	Per capita per year
Equatorial Guinea	1991-2005	14	2 077	24.6	20.5
Myanmar	1998-2010	12	293	12.1	11.1
Ethiopia	2003-2015	12	240	10.7	7.9
Lao People's Dem. Rep.	2005-2015	10	113	7.8	6
Liberia	1995-2002	7	644	33.2	26.1
Zambia	2003-2010	7	74	8.3	5.3
Liberia	2004-2010	6	98	12.1	8.1
Uganda	2004-2010	6	64	8.5	5
Burundi	2007-2012	5	117	16.8	12.8
Chad	2000-2005	5	99	14.8	10.6
Angola	2003-2008	5	80	12.5	8.7
Cambodia	2002-2007	5	66	10.6	8.9
Rwanda	2003-2008	5	54	9	6.5
Bhutan	1998-2003	5	51	8.6	5.5
Cambodia	2010-2015	5	42	7.2	5.5

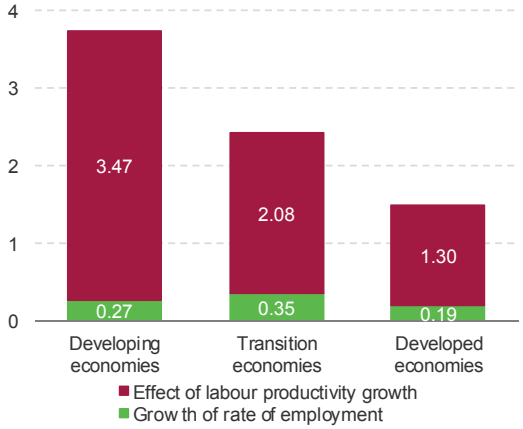
Source: UNCTAD secretariat calculations based on UNCTADstat.
Notes: Phases in which annual growth of GDP was higher than 7 per cent during five consecutive years, ranked by the length of these phases. GDP is measured in 2005 constant US$.

Target 8.2: Economic productivity

Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors.

Growth of GDP per capita can in principle have two drivers: expansion in the proportion of employed persons in the population and an increase in the output achieved per worker. During the last 25 years, the second of these drivers was by far the more important one, as the decomposition in figure 8.3 reveals. In developing economies, the share of employed persons in the entire population increased on average by 0.23 per cent each year. In developed economies, where the labour force participation rate has been negatively impacted by a declining proportion of persons of working age, this growth was lower (0.19 per cent per year), while in transition economies, where new companies emerging under market conditions provided more and more opportunities to work, growth of the workforce share in the population was higher (0.35 per cent per year).

Figure 8.3. Growth of GDP per capita by driving factor, 1993-2014
(Percentage)



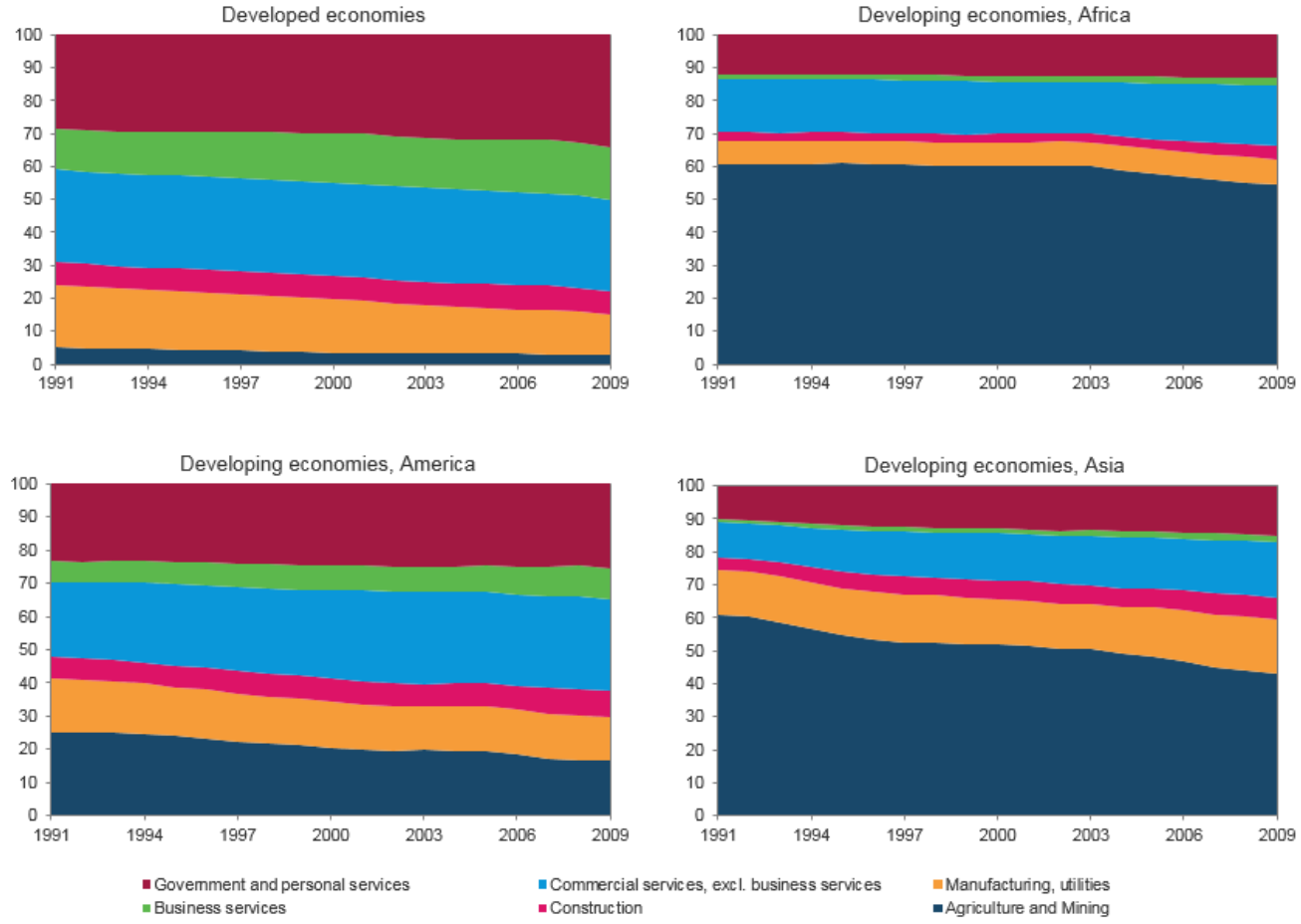
Source: UNCTAD, UNCTADstat and the World Bank, World Development Indicators.
Note: GDP per capita is the product of labour productivity and the proportion of employed persons in the population. Growth of gross domestic product (GDP) per capita not caused by growth of employment, relative to population growth, is therefore fully attributable to growth of labour productivity.

In all three groups, the major part of GDP-per-capita growth can be attributed to a growth in labour productivity.

His three-sector model (differentiating between agriculture, manufacturing and services) uses as a starting point a pre-modern economy dominated by agriculture. Innovations lead to a gradual substitution of human labour with machines. Rising incomes result in a shift of consumer demand from agricultural to manufactured products, thereby causing an expansion of production in the manufacturing sector, a sector characterized by high value added per worker and a large potential for innovations. The growth of the manufacturing sector thereby boosts labour productivity in the economy as a whole. In a later phase, rising per-capita incomes induce a shift of consumer demand towards services, leading to a growth of the service sector. Although Fourastié's model considers only three fairly broadly defined economic sectors, it demonstrates the importance of innovations and structural transformation for economic development in general. Promoting the emergence of highly productive sectors, particularly in manufacturing, by making use of various measures of industrial policy can therefore be seen as a promising strategy for economic development (UNCTAD, 2014).

Developing and developed economies have substantial differences in their sectoral composition or structure. These structures have been changing in different ways over the last decades. As figure 8.4 reveals, developed countries are characterized by small and shrinking agricultural and mining sectors. In 2007, only 3 per cent of employed persons worked in these sectors. The proportion of workers employed in manufacturing and utilities has also been contracting, relative to employment in services, mainly in business-related services, such as financial intermediation, insurance and renting services, but also in government and personal services, which include public administration, education, health and social work. Employment in developing economies, by contrast, is still dominated by agriculture and mining as well as by smaller manufacturing, utilities and services sectors.

Figure 8.4. Changes in the composition of employment by sector, 1991-2007
(Percentage)

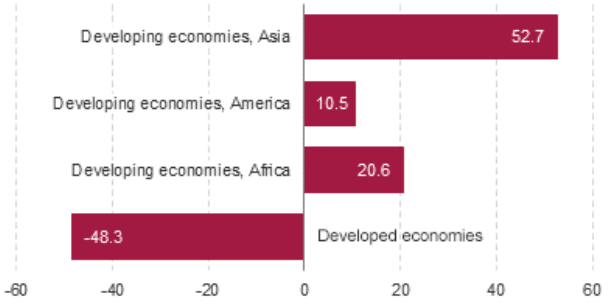


Source: Groningen Growth and Development Centre 10-Sector Database.
Note: Only economies available in the source are covered.

However, considerable differences exist across continents. In Africa, the proportion of workers in agriculture and mining remained almost unchanged at around 61 per cent from 1991 to 2004, and since 2005 it has decreased only slightly. In the developing economies of America, the proportion was only 17 per cent in 2007. In the developing economies of Asia, at the beginning of the 1990s the share of workers in agriculture and mining in total employment was comparable to Africa, but 16 years later, after a strong and continuous decline, it accounts now for only 45 per cent of total employment. While in developing economies of Africa and Asia both the manufacturing, mining and services sectors grew, in American developing countries the reduction of agriculture and mining was counterbalanced by an increase in services only. All in all, the diagrams in figure 8.4 broadly reflect a relocation of manufacturing activities from developed economies to developing economies in Asia and Africa.

Structural transformation, even when examined at the level of broadly defined economic sectors as in figure 8.4, constitutes an important source of labour-productivity growth in developing economies. In the developing economies of Asia, its contribution to the observed increase in labour productivity is even larger than the contribution of developments taking place within the sectors.

Figure 8.5 Contribution of sectoral change to total labour-productivity growth (2005 constant prices), 1991-2007
(Percentage)



Source: Groningen Growth and Development Centre 10-Sector Database.
Note: Country groups cover only countries available in the source. Labour productivity in the economy is the weighted sum of sectoral labour productivity rates, where the weights are given by the sector shares in the total number of employed persons. The contribution of sectoral change to labour productivity growth is the amount by which labour productivity changes when sectoral labour productivity rates are held constant.

In the developing economies of Africa and America, where the transition from agriculture-based to manufacturing-based economies has been less pronounced than in Asia, the relative contribution of sectoral change to labour productivity growth was also smaller. In the developed world, sectoral change even had a negative effect on labour productivity, meaning that if the sectoral composition of the workforce had remained unchanged, labour productivity would have increased by twice as much as it actually did, assuming that output per worker within the sectors had remained constant. This is mainly due to the shrinkage of the manufacturing sector, the sector in which output per worker is highest.

Target 8.3: Productive activities

Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.

Economic growth is dependent on productive employment. This is facilitated by a business environment that provides the ground for entrepreneurship, creativity and innovation, particularly for micro-, small- and medium-sized enterprises, to promote labour demand, as well as by ensuring open access to education and training, so that people ready to work can match their skills to the needs of production. In this regard, globalization has brought about new opportunities. Today, technological innovations spread around the world more quickly than ever before. These innovations have enhanced work methods and created job opportunities with comparatively high pay, particularly in newly emerging sectors. Furthermore, goods and services can be traded all around the globe with continuously decreasing transport and transaction costs. Barriers to international capital movements have been lifted, and mobility of the higher skilled workers has increased.

From a sustainable development perspective, labour should not only be productive, as measured by economic output per worker, but should also be "*decent*". Child labour, forced labour, inappropriate health and security conditions, violence and harassment in the workplace are extreme examples of indecent work conditions that persist all around the world (UNDP, 2015). A side effect of the increasing interconnection of the world economy and international mobility of capital and goods is that workers all around the world are under growing pressure to adapt to a rapidly changing environment. They increasingly need to adjust to fluctuations in product demand, resulting in unforeseeable changes in their working conditions and requiring greater geographic mobility and job flexibility. Today, acquired skills can become obsolete very quickly compared with the past, and new skills need to be acquired more rapidly in order to avoid unemployment and low pay. Competition among workers worldwide has intensified, allowing an erosion and avoidance of national labour regulations (ILO, 2011, 2016a; Organization for Economic Cooperation and Development (OECD), 2015; UNDP, 2015).

Figure 8.6. World population covered by fundamental labour conventions
(Percentage)

Source: UNCTAD, UNCTADstat and ILO, Normlex.
Note: The numbers of the underlying ILO Conventions and their date of issuance are given in parantheses.

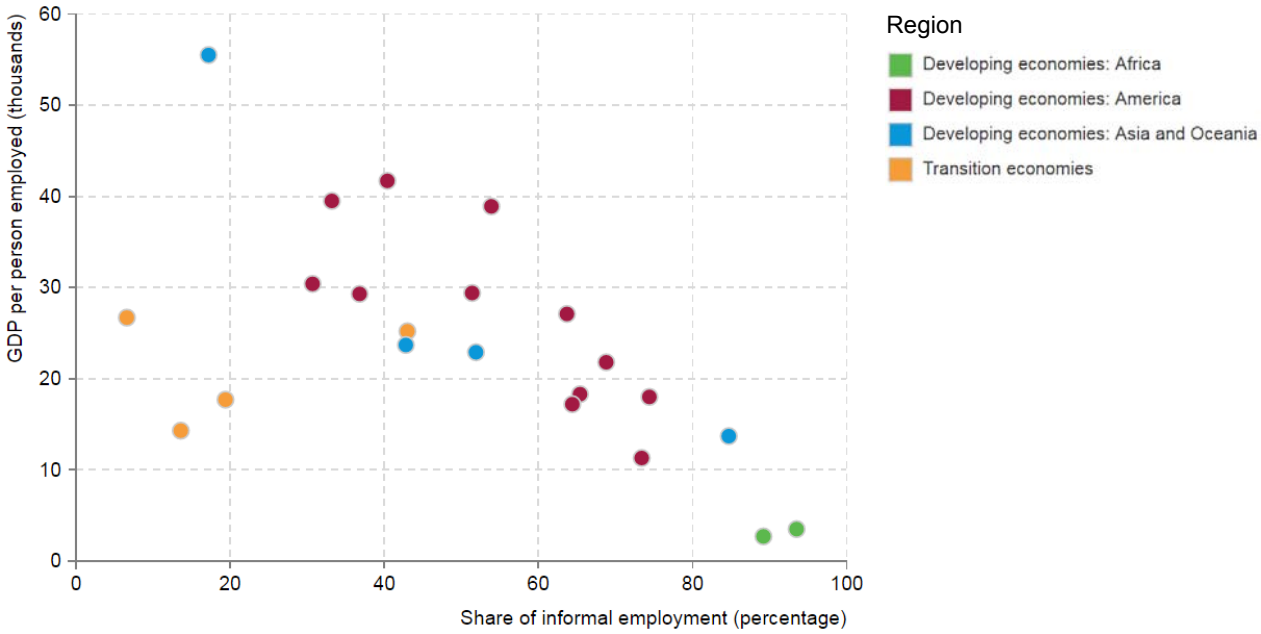
In most developed countries, human development was accompanied by the formation of workers' movements that successfully struggled to establish workers' rights in national legislation, such as minimum wage levels, the right for freedom of association and the right to strike. These prevent workers from having to accept work that does not comply with certain minimum standards. At a global level, conventions pursued by ILO on a wide range of problem areas, and ratified by national governments, have provided a basis for certain minimum rights for workers all around the world (ILO, 2014). Among the various subjects addressed by the 188 conventions issued since 1919, ILO considers as most fundamental: freedom of association and recognition of the right to collective bargaining; elimination of all forms of forced or compulsory labour; abolition of child labour; and elimination of discrimination in respect of employment and occupation (ILO, 2014). As figure 8.6 shows, today the international standards addressing forced and compulsory labour, child labour and discrimination each cover more than two thirds of the world population. Their coverage has increased considerably over the last 15 years. Legal protection from child labour, which was strengthened in 1999 with the Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, and legal protection from work-related discrimination (ratified by China in 2005), have seen the greatest increase in coverage. By contrast, the international standards on freedom of association and recognition of the right to collective bargaining have been ratified by a smaller number of governments. Today less than half of the world's population are protected and this coverage has increased only slightly over the last 15 years.

Informal employment in developing economies goes hand in hand with low labour productivity

While coverage of formal labour standards is increasing, indecent conditions of work are most prevalent among workers in informal employment, as informal workers are not recognized or protected under a country's legal and regulatory framework. These usually represent the most vulnerable group of employed persons. Many of them are denied legal or social protection, are unable to enforce contracts, have limited access to public infrastructure and benefits and are reliant on informal, often exploitative, institutional arrangements. They are highly dependent on the attitudes of public authorities and relatively exposed to harassment by them. Empirical studies have shown that informal workers have a higher propensity to work long hours and receive lower pay relative to formal workers. Their incomes are also typically more irregular (ILO, 2002, 2011; OECD, 2015).

Informal activities not only reflect a deficit in the decency of work, they are also on average relatively labour intensive and thereby associated with low output per worker (Palmer, 2008). Accordingly, they do not tend to contribute greatly to economic growth. The empirical relationship between labour productivity and informal employment, observed throughout the set of transition and developing countries for which ILO has collected nationally representative and internationally comparable data, is depicted in figure 8.7. The data illustrate the negative relationship between informality of employment and output per worker. In African countries, such as Madagascar and Uganda, informal employment is particularly widespread, accounting for around 90 per cent and more of total employment and, correspondingly, productivity is, with less than US$5,000 per worker, extraordinarily low. Most transition economies in the sample, namely Armenia, the Republic of Moldova and Serbia form a group of their own characterized by low informality of employment despite below-average labour productivity.

Figure 8.7. Labour productivity and informal employment in developing and transition economies, 2012-2013
(US$ constant international; informal employment in percentage)



Sources: ILO, ILO, ILOStat and World Bank, Word Development Indicators.
Notes: GDP per person employed is expressed in constant international US$, PPP 2011. Circles represent the latest available pair of figures in 2012 and 2013.

Target 8.9: Sustainable tourism policy

Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries.

Tourism worldwide is on the increase, particularly in developing and transition economies. Over the last 20 years, the number of arrivals in international tourism has doubled. Arrivals in developing economies increased on average by 5.5 per cent and in transition economies by 6.9 per cent each year, as compared to 2.6 per cent in developed economies (UNCTAD calculations based on World Bank, 2016). For the group of developing countries as a whole, a significant impact of international tourism on total output cannot be recorded. International tourism receipts in proportion to gross domestic product (GDP) remained around 2 per cent over the last 20 years, with slightly higher rates only between 2000 and 2005. Some individual countries/territories, however (primarily small islands), developed their tourism industries into important fundaments of their economies (see figure 8.8).

In Aruba, Maldives and Palau, the expenditures of international tourists now account for more than one half of GDP, and in Bahamas, Cabo Verde, Curaçao, Seychelles and Vanuatu they account for more than a quarter. This is often the result of a strong expansion of the tourism sector during recent years. For example, in Cabo Verde, Maldives and Palau, 10 years ago the rate of international tourist expenditures to GDP was less than half what it is today.

In the last 20 years number of arrivals of cross-border tourists increased each year:

Developing economies +5.5%

Developed economies +2.6%

Several case studies suggest there are positive spillover effects from the tourism industry to other sectors, with positive effects for local employment and public services (United Nations Environment Programme (UNEP) and United Nations World Tourism Organization (UNWTO), 2012). Dynamic international tourism industries can be found in some non-island developing economies, such as Lebanon, Rwanda or Yemen, as well as in some transition economies, notably Albania, Armenia, Georgia and Kyrgyzstan. However, as these developments are constrained to single, often small, economies, around 95 per cent of the population in developing and transition economies live in countries in which receipts from international tourism amount to less than 5 per cent relative to national GDP (UNCTAD calculations based on World Bank, 2016).

Figure 8.8. International tourism receipts
(Percentage of GDP)

Source: UNCTAD, UNCTADstat and World Bank, Word Development Indicators.
Notes: International tourism receipts represent expenditures by international inbound visitors, including payments to national carriers for international transport.

A downside of tourism can be seen in ecological and environmental damage. Tourism is estimated to account for 5 per cent of global greenhouse gas emissions. Its impact on radiative forcing, a measure of the change in the balance between incoming and outgoing energy in the earth's atmosphere, is suspected to be much higher (UNEP and UNWTO, 2012). This is not only due to the sheer increase in the volume of tourism worldwide, but also to changes in the way people travel. The trend is to travel farther and over shorter periods of time, and preference is given to energy-intensive modes of transportation, such as airplane and car, over train and coach.

Furthermore, tourism is often connected with excessive water consumption, discharge of untreated water, generation of waste, damage to biodiversity and threats to local cultures, built heritage and traditions. A number of initiatives are under way to make tourism more sustainable. Examples consist of energy- and water-saving programmes implemented by large hotel chains, raising awareness among consumers on the unfavourable effects of their travels, promotion of tourist destinations at which sustainability can be better ensured, and introduction of internationally recognized standards, such as the Global Sustainable Tourism Criteria (UNEP and UNWTO, 2012).

Measuring the success of those measures on lowering tourism's negative effects on the environment will be an important task for the Sustainable Development Goal monitoring framework. The development and implementation of tools to measure the impact of tourism on unsustainable development, such as Tourism Satellite Accounts (UNSD et al., 2010), deserve a sustainable development target in their own right.

Target 8.10: Banking, finance and insurance

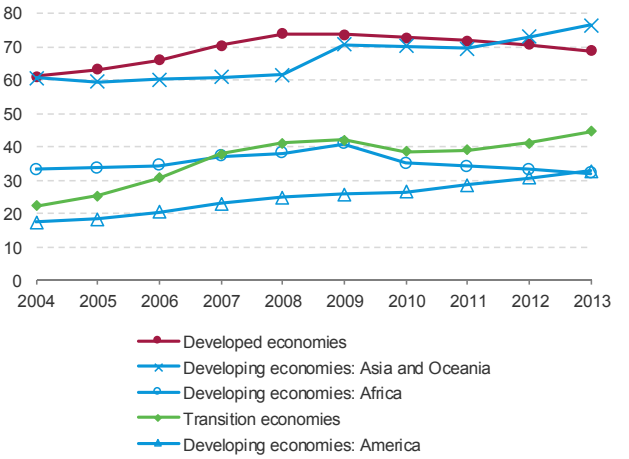
Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.

Financial intermediation plays an important facilitation role within economic systems allowing income not spent on consumption to be made available as capital for investment and allocated among different types of use in an efficient way. Financial institutions, such as banks and insurance companies, transform assets provided by savers with regard to size, risk and duration, to match them with the needs of investors. In theory, they can help to reduce information costs by producing information about potential creditors and evaluating their creditworthiness. They should also help to reduce transaction costs by facilitating the trading and management of risks and by exercising corporate governance. By diversifying investment portfolios, they should also contribute to reducing the amount of risk.

As a result, when well-functioning financial institutions are in place, investment projects that would otherwise lack sufficient financing can be realized, and higher interest is paid to savers as a return for lending their capital. Thereby, financial intermediation, if functioning properly, makes an important contribution to economic growth (Levine, 2005; Saunders and Cornett, 2008, pp. 2-8). In practice, unfortunately, the financial crisis of 2008-2009 demonstrated fundamental deficits of many banks, insurance companies, regulators and credit rating agencies in assessing risk (UNCTAD, 2015). Looking at the developments in past decades, a positive impact of financial intermediation on economic growth has been confirmed empirically by a growing volume of research. In the early stages of economic development, banks play a particularly important role, whereas in the later stages financing is to a large extent also channelled through equity markets (Demirguc-Kunt et al., 2012; Seven and Yetkiner, 2016).

In developed economies in 2013, the loans given by commercial banks to resident private households and enterprises were on average slightly more than the equivalent of two thirds of GDP (see figure 8.9). In the developing economies of America and Africa, this ratio was only half as high, whereas in developing economies in Asia and Oceania commercial banks had an even higher propensity to provide loans to residents than in developed ones. In transition economies, the ratio of commercial bank loans to GDP amounted to slightly less than one half. Considering the developments between 2004 and 2013, the global financial crisis of 2008, which was followed by longer-lasting uncertainty, negative prospects concerning future growth and weakened trust in governments' potentials to accommodate financial risks (IMF, 2016b), had a significant impact on commercial bank lending. This impact is particularly evident in developed economies and in Africa, where the rate of commercial bank loans has continuously declined since then, as well as in transition economies where the smooth longer-term upward trend was sharply interrupted for one year. It is noteworthy that developing economies in Asia and Oceania saw a strong expansion of commercial bank loans relative to GDP in the first year of the crisis and, after two subsequent years of stagnation, a resumption of the increasing trend. In developing economies in America, the rate of commercial bank loans to GDP increased continuously, hardly showing any sign of disturbance caused by the turbulences on the world financial markets at the end of the last decade.

Figure 8.9. Outstanding loans from commercial banks
(Percentage of GDP)



Source: IMF, Financial Access Survey (FAS).
Note: Country groups cover only countries available in the source.

Target 8.a: Aid for Trade

Increase Aid-for-Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries.

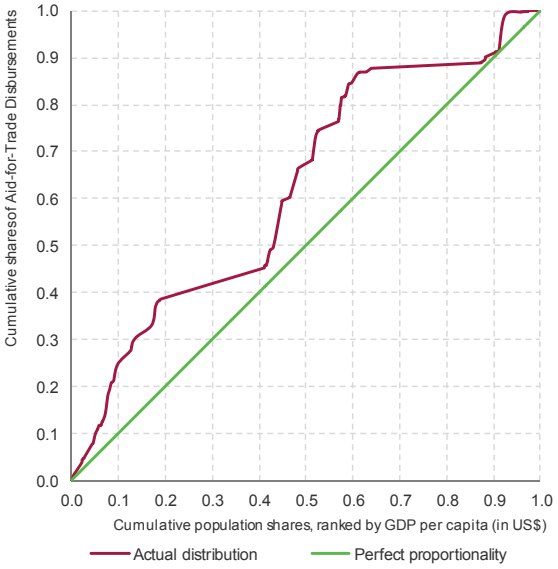
International trade constitutes a powerful source of economic growth, allowing countries to concentrate their production of goods and services where they have a comparative advantage (specialization) and exchange these on the world market for other goods and services that are more efficiently produced elsewhere. Historically, export growth has been an important driver of economic development (UNCTAD, 2014).

Between 2002 and 2013 annual Aid-for-Trade disbursements to developing economies increased constantly from 8 to 32 billion US$

First, international trade can generate export demand for manufacturing products, thereby facilitating growth of the manufacturing sector and giving an impetus to structural transformation, an important driver for economic development (see target 8.2). Second, there is evidence that export orientation induces a selection process, as an outcome of which the most productive firms remain in the market. Firms with strong export orientation tend to improve productivity through learning effects emerging from their cross-border connections and activities. Transfer of knowledge and know-how is particularly strong when firms form part of international production networks. Over time, this knowledge and know-how can spill over to other domestic companies (UNCTAD, 2014). The promotion of exports in developing countries as an objective for sustainable development is dealt with in greater detail under Goal 17, target 12.

The Aid-for-Trade Initiative, led by the World Trade Organization (WTO), was launched at the 2005 WTO Ministerial Conference in Hong Kong (China) with the aim of helping developing countries maximize their gains from trade and reducing trade costs, notably by assisting them to analyse, implement and adjust to trade agreements and to build the supply-side capacity and infrastructure they need to compete internationally. Aid-for-Trade assistance is targeted at the enhancement of national trade policy and regulations, developing infrastructure and building up productive capacity (OECD and WTO, 2015). The Enhanced Integrated Framework is a multi-donor programme, set up in 1997 and substantially reviewed in 2005, providing assistance to LDCs. Its explicit aim is to help least developed countries (LDCs) becoming "*more active players in the global trading system"* and "*tackle supply-side constraints to trade*". Its specific objectives are to mainstream trade into national development strategies, set up structures needed to coordinate the delivery of trade-related technical assistance and build capacity to trade. The programme is supported by a trust fund built up by contributions from 23 donors worldwide (Enhanced Integrated Framework, 2016).

Figure 8.10. Concentration curve of the distribution of Aid-for-Trade disbursements to developing economies, 2013



Source: OECD Aid-for-Trade statistical queries.
Note: The concentration coefficient measures the area between the concentration curve and the diagonal line. It is positive if the concentration curve runs below that line and negative if it runs above it. The concentration coefficient can take values between 1, indicating extremely overproportional relation between the distribution of the two analyzed variables, and -1, indicating an extremely disproportional relation.

Between 2002 and 2013, annual Aid-for-Trade disbursements to developing economies increased constantly from US$8 billion to US$32 billion, and the disbursements to LDCs from US$3 billion to US$11 billion (UNCTAD calculations based on OECD, 2016). The funding target of the Enhanced Integrated Framework has been set at US$250 million over a period of five years (Enhanced Integrated Framework, 2016). Aid-for-Trade disbursements are slightly disproportionally related to levels of GDP per capita, as indicated by a concentration coefficient of -0.078 in 2013. As figure 8.10 reveals, assistance has the tendency to be more concentrated on the poorest. Roughly 40 per cent of the total amount of disbursements were provided to the developing economies inhabited by the 20 per cent poorest people in terms of national GDP per capita, and almost 90 per cent of the disbursements were given to the benefit of the economies that cover the two thirds of the population with lowest GDP per capita. The concentration curve develops two marked steps at the position of China and India that push the curve close to the diagonal line representing the theoretical state of a fully proportional distribution of disbursements. This is because China and India receive a relatively small proportion of the assistance in proportion to their rank in the GDP-per-capita distribution and to their population size. (The main criterion for the determination of Aid for Trade is the prevalence of trade costs.)

Notes and references

Notes

8.1 For the calculation of GDP, intermediate consumption is subtracted and the value of taxes on products less subsidies on products added to the total output produced by resident production units (European Commission et al., 2009, paragraph 6.70).

8.2 The foundations of endogenous growth theory have been laid by the works of Romer, Lucas and Rebelo in the late 1980s. See, for an overview, Barro and Salah-i-Martin (1995).

8.3 In Kuznet's model, the increase in inequality continues until the "booming" segment of the economy has attracted a sufficiently large number of workers and wage levels within that segment have become less dispersed, so that in a later phase income inequality in the economy declines while economic output continues growing (Kuznets, 1955).

8.4 The criterion of inclusive growth leaves some scope for interpretation, due to the ambiguity of the concept of social exclusion, as shown by the thorough review of Silver (1994).

8.5 See the models of fiscal competition developed by Wildasin (1991, 1992).

8.6 See the definition of sustainable development in the Brundtland Report (World Commission on Environment and Development, 1987).

8.7 The Decent Work Agenda rests on four pillars: promotion of employment; development and enhancement of social protection; promotion of social dialogue and tripartism; respect, promotion and realization of fundamental labour standards and rights at work (ILO, 2016c).

8.8 The persistently low growth since 2010 has been identified by some observers as a case of "secular stagnation", a state in which, in response to an economic shock, the macroeconomic conditions have been fundamentally changed in a way that monetary and fiscal policy are ineffective (UNCTAD, 2015).

8.9 Beta-convergence is one of two major concepts of convergence found in discussions on economic growth. The other concept is sigma-convergence, which applies if dispersion, as measured, for example, by the standard deviation, declines over time (Barro and Salah-i-Martin, 1995).

8.10 Proponents of neo-classical growth theory may be inclined to interpret this as a sign of conditional convergence, a process predicted by the Solow-Swan model, at the end of which each economy reaches a state of zero growth.

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Goal 9: Industry, innovation and infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Infrastructure can be defined as the basic physical systems of a nation. So, typically, when we think of infrastructure, we think of roads, bridges, water, sewage, electricity networks, air and seaports, and so on. Infrastructure of course includes communications, so we must also include telephones, broadband, and the like. But in an information age, more attention must also be given to what can be termed "*soft infrastructure*". In particular, given the growing complexity of policy trade-offs and the growing amount of information required by national administrations to run a modern State, it is essential that countries put in place a well-organized and coherent national data infrastructure (NDI) (MacFeely and Dunne, 2014). A NDI is also of paramount importance from a statistical perspective, as modern national statistical systems must be able to access and use administrative data from all parts of the national administrative system if they are expected to meet the significant information requirements of Agenda 2030 and the Addis Ababa Action Agenda.

National public administrations typically collect, maintain and update sizeable volumes of data on a regular basis. These data pertain to the wide range of administrative functions in which States are involved, ranging from individual and enterprise tax payments to social welfare claims and education and farming grants. Typically, these administrative records are collected and maintained at the lowest level of aggregation (that is, transactions or interactions by individual taxpayers/applicants/recipients with the State) making these data very rich from an analytical perspective and critical to the ideal that no one gets left behind.

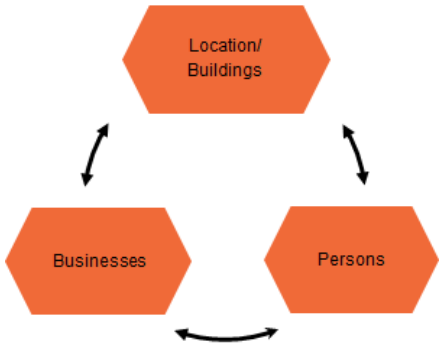
National administrations expend considerable resources ensuring that administrative records are maintained and accurate. With some additional effort these records could become exponentially more powerful, not only as a tool to help design and appraise policy but also as an instrument to assist in implementing policy itself. In effect, administrative data should be viewed not as an unfortunate burden or cost to the State but as a valuable asset. Well-organized and open public-sector information can contribute to democratic transparency, administrative efficiency and economic value (United Kingdom of Great Britain and Northern Ireland Cabinet Office, 2013; Commission of the European Communities, 2003; National Statistics Board of Ireland, 2011). Administrative data are an essential part of the "*soft infrastructure*" necessary to efficiently run a modern State and fuel a modern statistical service.

A national data infrastructure

The architectural design for an NDI must take a whole-of-system perspective to ensure that all the important elements of a national administration are integrated in a way that allows data systems to "*talk*" to one another. If designed properly, the resulting data infrastructure will not only contribute to public-sector efficiency but also better support public policy design, implementation and evaluation by allowing public-sector data to be shared between the different parts of government.

An NDI could take various shapes and designs. One design, proposed by MacFeely and Dunne, is to develop an NDI centred on three key national databases: (1) a database of all persons in the State; (2) a database of all businesses in the State; (3) a database of all locations/buildings (see figure 9.1) (MacFeely and Dunne, 2014). Each database would have a set of unique and permanent identifiers to facilitate interlinkages between them. These unique, permanent, official and commonly used identifiers would permit public-sector data to be analysed in a way that would facilitate the identification of longitudinal, latitudinal, spatial and relational linkages. These linkages would allow movements in time and space to be properly understood. Thus, an "*object*" or unit (individuals, enterprises or buildings) can be tracked over time, as can their "*attributes*" or characteristics (for example, spatial location) and their relations to other units (for example, family, employer, school, car). Hence, the importance of an NDI, to both understand geography and space and also to develop dynamic indicators, is clear. The significance of permanent or "*persistent*" official identifiers is central to this approach.

Figure 9.1. Basic components of an NDI



Source: MacFeely and Dunne (2014).

The importance of being able to reuse and match public-sector information cannot be overstated, both for the compilation of modern official statistics and also for the efficient running of a modern State. Quite obviously, if the data made available to the national statistical organization can be shared across the statistical system it will have a profoundly positive impact on the quality and range of official statistics that can be made available.

It is vital that the underlying data generated or associated with these services are organized in a coordinated way using the permanent public service identifiers and the same internationally agreed classifications and codes. By better organizing and coordinating the management of administrative data, the potential of that information can be unlocked. To get maximum benefit from such an information system, the architectural design is crucial and must involve the relevant permanent and official unique identifiers associated with each database or register. For those interacting with the State in any service or activity, use of these official identifiers should be mandatory. A move to such a universal design will broaden the operational use of systems. Only with such systems can the interactions and interrelationships between citizens, business and the State be measured and understood.

Target 9.1: Resilient infrastructure

Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

Transport infrastructure is integral to any national, regional and transborder infrastructural assets. Existing definitions of sustainable and resilient transport vary and tend to promote one particular dimension, such as the environment (green transport), society (inclusive transport) or the economic dimension (efficient and competitive transport). A clearer definition and an improved understanding of the concept is, however, required to help better identify relevant sustainability and resilience criteria. A universally agreed definition would facilitate a better assessment and quantification of progress (UNCTAD, 2015a). Sustainable and resilient transport infrastructure entails, among other features, the ability to provide transportation that is safe, socially inclusive, accessible, reliable, affordable, fuel-efficient, environmentally friendly, low-carbon, and resilient to shocks and disruptions, including those caused by climate change and natural disasters (UNCTAD, 2015a).

Figure 9.2. The three pillars of sustainable and resilient transport infrastructure

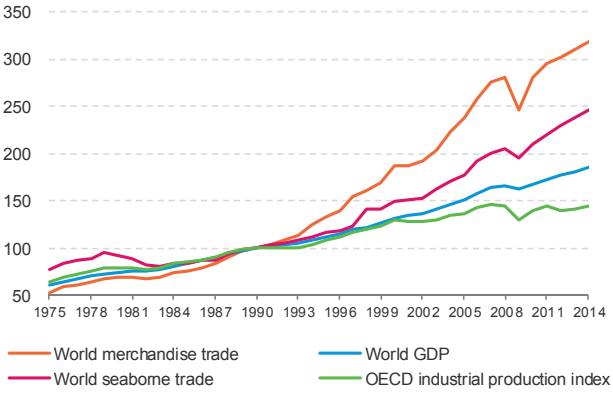
Source: UNCTAD (2015a).

Figure 9.2 illustrates the intersection between the economic, social and environmental dimensions of sustainable development as applicable to transport and the transport infrastructure. Given the strong nexus between trade-led growth, energy use and environmental concerns, including those related to climate change, integrated consideration of these issues is required to devise policies that ensure sustainable and inclusive long-term growth. Achieving Goal 9 will require that relevant sustainability and resilience criteria be integrated and mainstreamed into all modes of transport.

In 2012, UNCTAD published a report (UNCTAD, 2012a) to assist in evaluating the benefits of accession to the most modern international legal instruments in the field, which may offer Contracting States substantial compensation in case of an oil spill. The report was prepared with particular reference to the interests of coastal developing states, including SIDS, as their exposure to damage arising from ship-source oil pollution incidents poses a potentially significant economic threat. Also in the context of marine pollution, UNCTAD has also been analyzing the potential implications of the carriage of HNS substances.

Recognizing the importance of transport infrastructure, the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has proposed that "*freight volumes, including by mode of transport*" be used to measure progress towards the realization of target 9.1. The proposed indicator recognizes that absent or insufficient transport infrastructure capacity, including ports, rail and road networks, can significantly jeopardize and constrain the levels and movement of freight volumes. Maritime freight is critical in particular given the role of maritime transport as the backbone of globalization that underpins regional and international cross-border transport networks, and supports supply chains, cross-border trade and international production processes. The added importance and relevance of freight volumes as an indicator of the state of infrastructure stems from the role of the transport sector in enabling industrial development through, inter alia, driving manufacturing growth, linking rural and urban economies, enhancing the productivity of farmers, bringing together consumers, intermediate and capital-goods industries, generating employment, and promoting regional economic and trade integration.

Figure 9.3. The Organization for Economic Cooperation and Development (OECD) Industrial Production Index and indices for world gross domestic product (GDP), merchandise trade and seaborne shipments, 1975–2014
(1990=100)



Source: UNCTAD (2015b).
Note: World merchandise trade refers to exports. The seaborne trade data reflect goods loaded at ports worldwide (a proxy or equivalent to exports). Data on goods loaded at ports worldwide and carried on international maritime routes are compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries and as published on the relevant government and port-industry websites, and by specialist sources.

Although freight volumes provide a useful measure from which to infer the quality and adequacy of the underlying transport infrastructure, it should be noted that apart from infrastructure, other factors also contribute to driving freight volume levels. Demands for transport infrastructure, and by extension freight volumes, are also derived from growth in, among others, the economy, population, consumption needs, industrial activity, urbanization and trade (see figure 9.3).

Maritime freight volumes

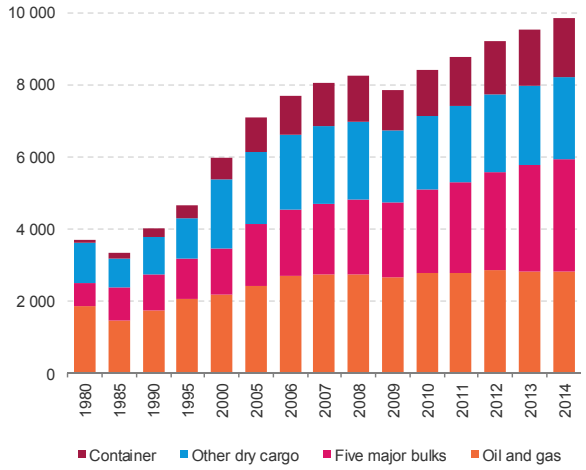
UNCTAD has an extensive set of time series measuring international maritime freight volume as well as other related performance indicators that could be used to indicate the level and quality of the underlying transport infrastructure, such as transport costs and the Liner Shipping Connectivity Index (UNCTADstat). Latest UNCTAD estimates for 2014 indicate that international seaborne trade volumes grew by 3.4 per cent in 2014, adding more than 300 million tons and taking the total volume to an estimated 9.8 billion tons (UNCTAD, 2015b). UNCTAD further estimates that maritime freight accounted for about 80 per cent of world merchandise trade by volume in 2014. In value terms, some observers such as Lloyd's List Intelligence have estimated the share of maritime seaborne trade at 55 per cent in 2013, while other estimates are closer to 70 per cent (Bingham, 2016). Containerized trade accounts for most of the total value.

Table 9.1. Development in international seaborne trade, selected years
(Millions of tons loaded)

Year	Oil and gas	Main bulks	Other dry cargo	Total (all cargoes)
1970	1 440	448	717	2 605
1980	1 871	608	1 225	3 704
1990	1 755	988	1 265	4 008
2000	2 163	1 295	2 526	5 984
2005	2 422	1 709	2 978	7 109
2006	2 698	1 814	3 188	7 700
2007	2 747	1 953	3 334	8 034
2008	2 742	2 065	3 422	8 229
2009	2 642	2 085	3 131	7 858
2010	2 772	2 335	3 302	8 409
2011	2 794	2 486	3 505	8 784
2012	2 841	2 742	3 614	9 197
2013	2 829	2 923	3 762	9 514
2014	2 826	3 112	3 903	9 842

Source: UNCTAD (2015b).
Note: Iron ore, grain, coal, bauxite/alumina and phosphate rock.

Figure 9.4. International seaborne trade, selected years
(Millions of tons loaded)



Source: UNCTAD (2015b).
Note: The seaborne trade data reflect goods loaded at ports worldwide (a proxy or equivalent to exports). Data on goods loaded at ports worldwide and carried on international maritime routes are compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries and as published on the relevant government and port-industry websites, and by specialist sources.

The critical role of sustainable and resilient infrastructure cannot be overemphasized for the attainment of Sustainable Development Goal 9, considering, in particular, the rise of developing countries as key exporters and importers. Developing countries are contributing larger shares to international maritime freight volumes, with their 2014 contribution in terms of global goods loaded being estimated at 60 per cent and their import demand as measured by the volume of goods unloaded having reached 61 per cent (see figure 9.5).

Figure 9.5. World seaborne trade by country group, 2014
(Percentage share in world tonnage)

Source: UNCTAD (2015b).
Note: The seaborne trade data reflect goods loaded at ports worldwide (a proxy or equivalent to exports). Goods loaded (or exports) are generally used as the main measure of seaborne trade. It is assumed that if goods were loaded from ports on board deep sea ships (that is, sailing on international maritime routes) somewhere, they will end up being unloaded (imports) somewhere else. Data on goods loaded at ports worldwide and carried on international maritime routes are compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries and as published on the relevant government and port-industry websites, and by specialist sources.

Behind the headline figures however, the individual contributions vary by region and type of cargo, reflecting, among other factors, differences in countries' economic structures, composition of trade, urbanization, levels of development, levels of integration into global trading networks and supply chains, and the quality of transport infrastructure.

Figure 9.6. World seaborne trade by region, 2014
(Percentage share in world tonnage)

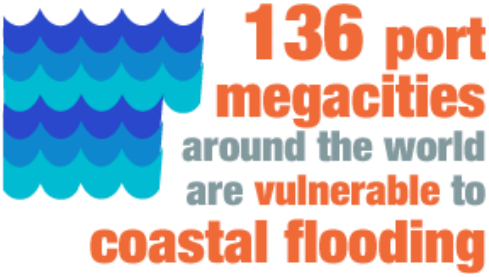
Source: UNCTAD (2015b).
Note: The seaborne trade data reflect goods loaded at ports worldwide (a proxy or equivalent to exports). Data on goods loaded at ports worldwide and carried on international maritime routes are compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries and as published on the relevant government and port-industry websites, and by specialist sources.

In recent decades, developing countries have incrementally shifted their patterns of trade. Since the 1970s the distribution between the goods loaded and unloaded has been altered significantly, with developing countries becoming major importers and exporters and a key driving force underpinning maritime freight volumes and demand for maritime transport services. Developing countries are no longer simply sources of supply of raw materials, but are now key players in globalized manufacturing processes and a growing source of demand. In terms of regional influence, Asia remained the main loading and unloading area in 2014, followed by the Americas, Europe, Oceania and Africa (figure 9.6).

Sustainable and resilient transport

Sustainable and resilient transport infrastructure systems are a prerequisite for successful trade and economic integration, as well as for attracting investment, developing enterprise and building productive capacities. However, with transport being a derived demand that responds to developments and trends in the world economy, significant pressures are being imposed on international transport systems. Trade-related international freight is expected to grow more than fourfold by 2050 (compared with 2010). It is projected that one third of trade in 2050 will occur among developing economies (compared to 15 per cent in 2010) (OECD and International Transport Forum (ITF), 2015). World road and rail freight volumes are expected to increase by 230 per cent and 420 per cent, respectively, by 2050 (compared with 2010), depending on freight intensity of GDP growth. The share of road freight in international freight tonnage is expected to increase by 40 per cent by 2050 (OECD and ITF, 2015).

These pressures increase exposure to global risks such as unsustainable energy use, high oil prices, environmental degradation and climate change. Indeed, in addition to raising transport costs and acting as a barrier to trade, heavy reliance on oil for propulsion undermines resource-conservation objectives and leads to environmental deterioration through pollution as well as carbon emissions. Carbon dioxide (CO_2) emissions generated by all modes engaged in international trade between 2010 and 2050 are projected to grow by a factor of 3.9 (OECD and ITF, 2015). In this context, locking in fossil fuels and related technologies into freight transport, including maritime transport, will perpetuate unsustainable transport patterns. Breaking away from fossil-fuel-intensive maritime transport systems and a shift towards greater sustainability and resilience, including through tailored and targeted policies, regulations, incentives and programmes, is an imperative for freight transport (UNCTAD, 2009a, UNCTAD, 2010, UNCTAD, 2015a). UNCTAD has made available much-needed empirical data to advance the understanding of oil prices as a determinant of maritime freight rates (UNCTAD, 2010).

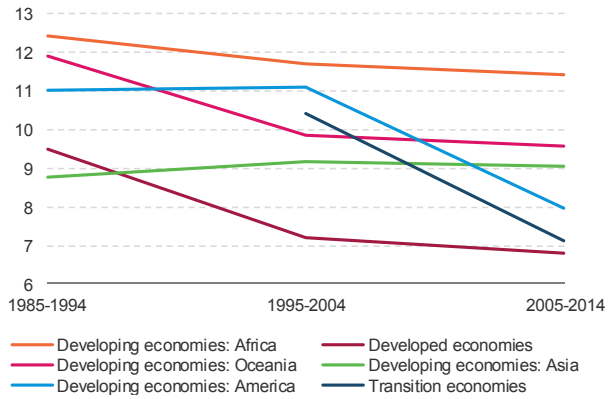


While reducing greenhouse gas emissions (GHG) remains an urgent imperative to ensure manageable global warming levels, the effects of climate variability and change – irrespective of the causes – are already being felt, often in the poorest countries with low adaptive capacity (UNCTAD, 2012b). Transport networks and coastal transport infrastructure in particular ports are likely to be highly affected by climate change factors given the ports' location and vulnerability (UNCTAD, 2009a, UNCTAD, 2011a, Becker et al. 2013). One study estimated in 2005, that the value of potential damage induced by the exposure of 136 port megacities to coastal flooding was US$3 trillion (Nicholls et al., 2008). Assuming a sea level rise of half a metre by 2050, the asset exposure of these 136 ports was projected to be US$28 trillion (Lenton et al., 2009). Building climate resilience of transport infrastructure, including maritime and inland, is therefore a pre-condition for sustainability (UNCTAD, 2011a, UNECE, 2013, Becker et al. 2013). The special case of the geographically disadvantaged and economically vulnerable countries, namely landlocked developing countries (LLDCs) and small island developing States (SIDS) requires particular focus given the underlying vulnerabilities and the particular transport and logistical challenges, as well as the sustainable development gaps facing these economies (UNCTAD, 2014a and UNCTAD, 2014b).

UNCTAD, as part of its work on transport policy and legislation has been working, "*ahead of the curve*", on the implications of climate change for maritime transportation, since 2008. The particular focus of this work is on impacts and adaptation needs of seaports and other coastal transport infrastructure. Ongoing work drawing also on insights gained at a number of expert meetings (UNCTAD, 2009a, UNCTAD, 2011b, UNCTAD, 2012b, UNCTAD, 2014c) includes a technical assistance project on "*Climate change impacts on coastal transport infrastructure in the Caribbean: enhancing the adaptive capacity of SIDS*" (UNDA 9th tranche), which is being implemented over the period 2015-17. The aim of the project is to strengthen the capacity of policy makers, transport planners and transport infrastructure managers in SIDS to (a) understand climate change impacts on coastal transport infrastructure – in particular seaports and airports - and (b) take appropriate adaptation response measures. To this end, based on a case-study approach focusing on two vulnerable SIDS in the Caribbean region (Jamaica and St. Lucia) a transferable methodology for assessing climate-related impacts and adaptation options is being developed.

For many developing countries these pressures are compounded by persistent challenges such as relatively high transport costs and important infrastructure gaps and requirements. Prohibitive transport costs undermine the ability to achieve a more inclusive trade-led growth, requiring access to affordable, reliable and cost-effective transport systems (UNCTAD, 2010, UNECE, 2015). Although maritime freight costs as a percentage of the value of traded goods has fallen globally by around 15 per cent over the last two decades, it remains very high for many developing countries (see figure 9.7). To level the playing field and enable developing countries to effectively compete in the global market place and therefore make progress towards sustainable and resilient transport systems, managing transport costs is crucial.

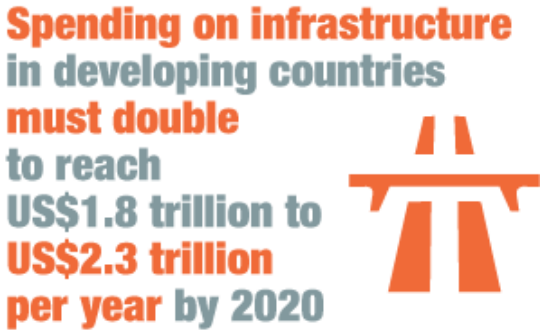
Figure 9.7. International freight costs by country group, 1985–2014
(Percentage of value of imports, 10-year averages)



Source: UNCTAD (2015b).

In addition to transport costs, addressing the persistent infrastructure issues (that is, insufficiency, inadequacy, congestion, and poor maintenance) is key to ensuring the sustainability and resilience of transport systems that support trade flows and freight movements. Transport infrastructure gaps are a challenge that raise costs, reduce access and undermine effective participation in global transport networks (UNECE, 2015).

Infrastructure development needs, and the associated financing gaps, have been widely acknowledged. Various estimates for future investment needs in the transport sector have been put forward. These include: US$1.1 trillion per annum worldwide over the period 2013–2030 (International Energy Agency (IEA), 2014); around US$1.1 trillion per annum worldwide over the period of 2014–2025 (PricewaterhouseCoopers and Oxford Economics, 2015); US$2.5 trillion in 2008 prices (comprising US$1.8 trillion for new capacity and US$0.7 trillion to replace life-expired assets) in 30 countries in Asia for the period 2010–2020 (Asian Development Bank (ADB) and ADB Institute, 2009); US$1.4 trillion per annum worldwide over the period 2013–2030 (The Economist, 2014); and US$11 trillion over the 2009–2030 period (OECD, 2011).



To close the gap on the large infrastructure deficit in developing countries, including in transportation, existing estimates indicate that spending must reach US$1.8 trillion-US$2.3 trillion per year by 2020, compared with the current levels of US$0.8 trillion–US$0.9 trillion (United Nations Development Programme, 2013) (See Goal 7). Currently, 60 per cent of estimated total annual transport infrastructure investments are allocated to countries of the Organization for Economic Cooperation and Development (OECD) (Partnership on Sustainable Low Carbon Transport, 2015). Sustainability, resilience, affordable and equitable access require that investment in transport infrastructure be scaled up and that a greater share of relevant investments be channelled towards the transport infrastructure of developing countries. Furthermore, new sources and mechanisms of finance and greater cooperation between public and private investment partners are required (UNCTAD, 2009a, UNCTAD, 2011b, UNCTAD, 2011c, UNCTAD, 2015a).

Target 9.2: Inclusive and sustainable industrialization

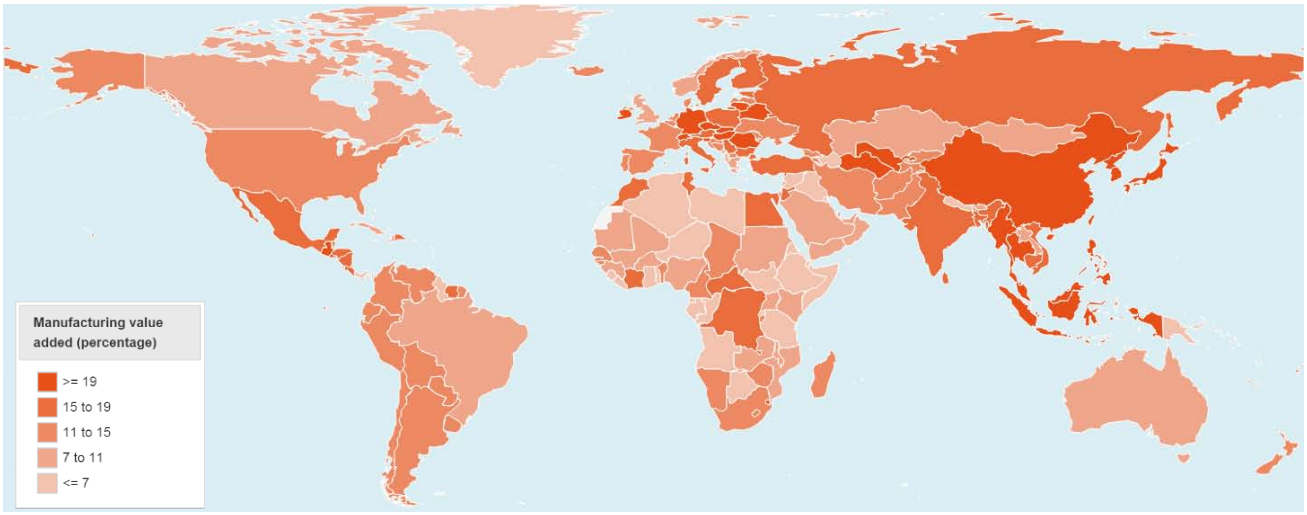
Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.

Historically, the countries that have succeeded in achieving sustained economic growth and development are those that have been able to transform their production activities effectively from low to high productivity, and to diversify from the production and export of a single or a few primary products to the manufacture and export of finished products (UNCTAD, 2014d). The need to industrialize remains for many poor countries as they try to catch up with more advanced economies and to improve living standards - an outstanding challenge. Deepening global value chains, access to knowledge and technology, the risks of climate change, jobless growth in manufacturing, social tensions and the rise of China as the workshop of the world have all been cited as reasons that make it more difficult for late industrializers to export manufactured products on the world market (Szirmai et al., 2013).

Manufacturing value added (MVA) is widely used by researchers and policymakers to measure the contribution of the manufacturing sector to the total production of an economy. The basic indicator of a country's industrialization level is captured with MVA per capita, while MVA growth measures the rate of change of a country at constant prices[9.1]. The United Nations Industrial Development Organization (UNIDO) Industrial Development Report notes that countries experiencing faster structural change tend to experience faster economic growth. Among different types of structural change, industrialization has been the engine of growth for developing countries (UNIDO, 2016a).

For this reason, IAEG-SDG selected "*Manufacturing value added as a proportion of GDP and per-capita GDP*" as one of two indicators to measure progress[9.2]. Figure 9.8 illustrates the varying contribution that manufacturing makes to different economies around the world[9.3].

Figure 9.8. Manufacturing value added, 2014
(Percentage of GDP, current US$)



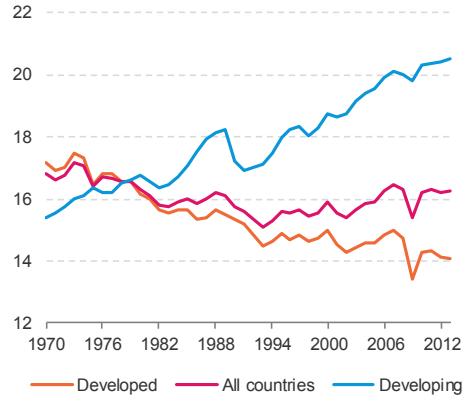
Source: UNCTAD, UNCTADstat.

Among developing countries, all regions except Asia have reduced their manufacturing shares in GDP; the Americas and Europe have dropped their shares by more than 9 percentage points. South-East Asia had the largest increase in manufacturing share - more than 7 percentage points. East Asia experienced a decline over the period but still keeps a remarkably high share of more than 28 per cent, mainly due to increases in China and the Republic of Korea. Africa's share dropped sharply after 2000, and Western Asia and sub-Saharan Africa are at their lowest in the past four decades, at around 10 per cent. Oceania steadily decreased its manufacturing share from an already low point in the 1970s and now has the lowest share of all regions."

In developed countries over the last 40 years, the share of MVA in GDP showed a stable downward trend, while in developing countries it remained unchanged around 20 per cent. Contrary to this overall trend, strong expansion of manufacturing occurred in Africa from the early 1980s to middle of 1990s, in South-East Asia from the 1970s until the 1990s, and in East Asia during one and a half decades starting from the early 1990s (UNIDO, 2016a).

It is noteworthy that, when measured constant prices, the share of MVA in GDP in developing countries shows an increasing, rather than declining, trend (see figure 9.9) (UNIDO, 2016a).

Figure 9.9. MVA share of world GDP, 1970–2013
(Percentage; constant 2005 US$)



Source: UNIDO (2016a, 2016b).
Notes: UNIDO region definitions. Shares are calculated as world MVA over world GDP (constant 2005 US$). The number of countries included (n) varies according to the period: n = 185 (1970-1990); n = 204 (1991), n = 205 (1992-1993), n = 206 (1996-2010) and n = 207 (2011–2013).

Least developed countries

In the least developed countries (LDCs), between 1991 and 2012 the share of industry in overall output increased by 5 percentage points or more (see table 9.2). This change was driven by Asian LDCs and manufactured goods exporters. African and island LDCs (and Haiti) all recorded double-digit changes towards industry, as did exporters of fuel and manufactured goods. By contrast, the economic structure in other developing countries (ODCs) changed relatively little. The growth of industry at the expense of agriculture reflects the transfer of resources from agriculture to industry.

Manufacturing employment

As noted above, IAEG-SDG selected two indicators to measure progress towards this target. The second target is "*Manufacturing employment as a proportion of total employment*".

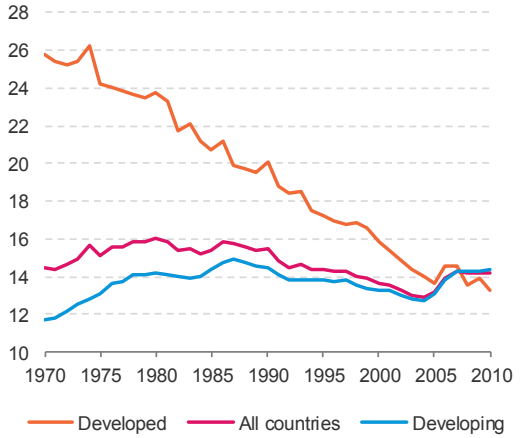
Since the 1970s, manufacturing has been the source of a relatively high-productivity employment. The share of manufacturing in total employment in developed countries (UNIDO's definition) has been steadily declining since 1970s (see figure 9.10). After a 7 percentage-point drop, the manufacturing share in developed Asia is still over 20 per cent, the highest among all regions, including developing ones. In the developed regions of Oceania, Europe and the Americas, the share declined by 15, 13 and 10 percentage points, respectively (UNIDO, 2016a). In developing countries, the manufacturing employment share grew until the late 1980s, and then continuously declined until turn of the millennium. Expansion of manufacturing employment is East-Asia was strongly driven by rapid industrialization in China, where manufacturing employment has increased by 130 million jobs during the past four decades. By contrast, in other developing regions, with the exceptions of Central America and North Africa and Middle East, average manufacturing employment shares in 2010-2013 were lower than those 40 years ago. In sub-Saharan Africa, for example, the share declined although it had already been at a low level (UNIDO, 2016a).

Table 9.2. Sectoral composition of output, 1991-2012
(Percentage and percentage points)

Output shares	Agriculture				Industry				Services			
	1991	2000	2012	Change 1991-2012	1991	2000	2012	Change 1991-2012	1991	2000	2012	Change 1991-2012
Developed economies	1	1	2	0	28	26	24	-4	71	72	75	4
ODCs	11	10	8	-4	38	40	40	2	51	51	52	2
LDCs	33	30	25	-8	23	27	31	9	45	43	44	-1
LDCs: Africa and Haiti	34	32	26	-8	23	28	34	10	43	40	40	-3
LDCs: Asia	30	26	22	-8	21	27	27	6	48	47	51	2
LDCs: Islands	31	30	13	-18	22	25	64	42	47	44	23	-24
Food and agricultural exporters	48	45	37	-10	12	12	20	8	40	43	43	3
Fuel exporters	21	22	19	-2	36	45	48	11	43	33	34	-9
Mineral exporters	39	36	31	-8	20	22	25	5	41	42	44	3
Manufactures exporters	28	23	18	-10	20	24	29	9	53	53	53	0
Services exporters	44	40	30	-14	16	18	22	5	40	43	48	9
Mixed exporters	38	38	33	-5	17	17	22	5	45	44	45	0

Source: UNCTAD (2014a).
Notes: UNCTAD secretariat calculations based on UNDESA, Statistics Division, National Accounts Main Aggregates database (June 2014). Differences are due to rounding. UNCTAD LDC Report 2014 country grouping definitions

Figure 9.10. Manufacturing employment share of total employment worldwide, 1970–2010
(Percentage of total employment)



Source: UNIDO (2016a, 2016b).
Note: UNIDO region definitions.

In LDCs the overall pattern of structural transformation in employment took place mainly towards the services sector and to a lesser extent towards industry (table 9.3). In all groups of LDCs, defined by main export products, the services sector showed the strongest employment growth, exceeding 3 per cent per year (UNCTAD, 2014d). Despite the relatively rapid growth of employment in the industrial and services sectors combined, agriculture, though shrinking, still accounts for the largest share of employment (65 per cent in 2012). The structural transformation proceeded was fastest among manufacturers and services exporters, and slowest among exporters of minerals (table 9.3).

Table 9.3. Sectoral composition of employment, 1991-2012
(Percentage and percentage points)

Employment shares	Agriculture				Industry				Services			
	1991	2000	2012	Change 1991-2012	1991	2000	2012	Change 1991-2012	1991	2000	2012	Change 1991-2012
Developed economies	7	5	4	-3	31	27	23	-9	62	67	74	12
ODCs	53	46	34	-19	20	20	25	5	27	33	41	14
LDCs	74	71	65	-9	8	8	10	1	18	21	26	8
LDCs: Africa and Haiti	76	75	70	-7	6	5	7	1	18	20	24	6
LDCs: Asia	70	65	57	-14	11	11	14	2	18	24	30	11
LDCs: Islands	66	57	55	-12	8	10	11	3	25	33	34	9
Food and agricultural exporters	75	73	71	-3	8	8	8	0	17	19	20	3
Fuel exporters	57	57	50	-7	9	8	10	0	34	35	40	6
Mineral exporters	76	80	76	0	6	4	4	-1	19	17	19	1
Manufactures exporters	70	65	54	-16	13	11	14	1	17	25	32	15
Services exporters	82	78	72	-10	5	6	8	3	13	15	19	7
Mixed exporters	72	68	63	-9	7	8	10	2	20	24	27	7

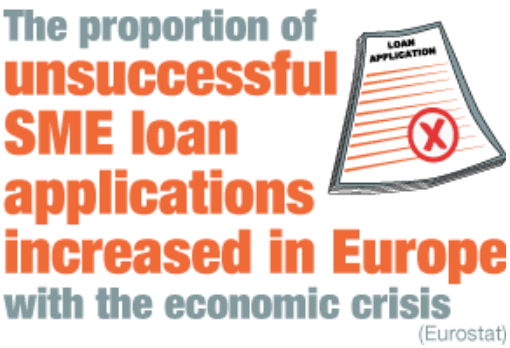
Source: UNCTAD (2014a).
Notes: UNCTAD secretariat calculations based on International Labour Organization Global Employment Trends 2014 database. UNCTAD region definitions.

Target 9.3: Financial services for small enterprises

Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.

Micro-credit is not a miracle cure that can eliminate poverty in one fell swoop. - Mohammed Yunus (Yunus, 2003)

Broadening access to economic and business opportunities for small and medium-sized enterprises (SMEs) can improve soial welfare and boost national productivity. Financing is a key element of SME sector development. As national economies develop, the number of SMEs steadily increases, as does the need for access to long-term growth capital. Hence the need to develop innovative financing models that go beyond traditional bank lending to provide timely financing opportunities for SMEs according to their needs and stages of business growth (ADB, 2015).

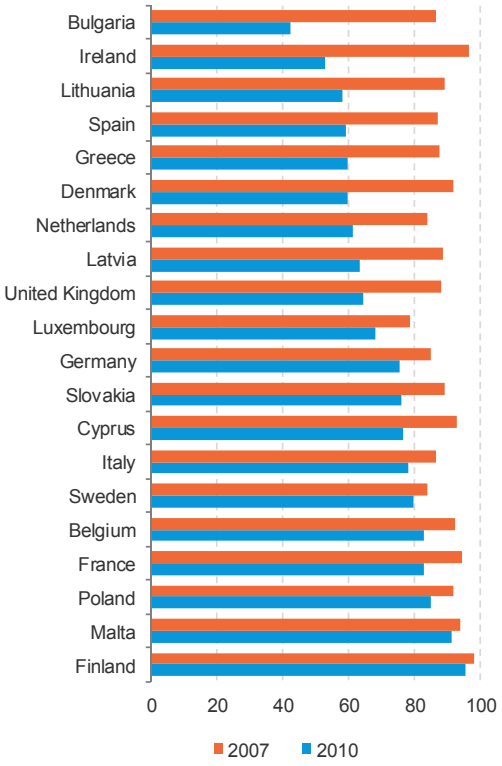


Two indicators have been selected by IAEG-SDG to measure progress towards target 9.3. The first indicator, the "*Proportion of small-scale industries in total industry value added*" was selected as micro and small establishments or enterprises play an important role in the economy. Often established with a relatively small investment, SMEs are an important source of direct employment and self-employment, but also indirectly through purchases of local raw materials.

The second indicator, the "*Proportion of small-scale industries with a loan or line of credit*", was selected as micro and small-scale firms often have limited access to funding and financial services. Unfortunately, in both cases, but in particular the latter case, there are few comparable data publically available to populate these indicators. Thus, the need for improved data on SME financing is obvious (ADB, 2015; United Nations, 2015).

Although comparable data on loans to firms are not available at a global level, several member States in the European Union conducted a study on the challenges of accessing finance being faced by firms following the financial crisis of 2008/09. These data, the first official statistics of their kind, provide a valuable insight on the funding constraints faced by SMEs in the aftermath of the crisis. The financial crisis was felt most acutely in developed economies and the fallout for SMEs in terms of accessing finance is evident from figure 9.11. As banks concentrated on repairing their balance sheets, loan finance available to SMEs tightened up significantly. This is particularly evident in countries such as Bulgaria, Greece, Ireland, Lithuania and Spain, where successful loan applications fell sharply[9.4].

Figure 9.11. Proportion of successful SME loan applications, 2007 and 2010
(Percentage)



Source: Eurostat (2011).

The loan patterns identified in the European Union are not unique to Europe. In Asia, a similar trend in the decline of bank loans to SMEs since the 2008/09 global financial crisis has been identified. In 2014, bank loans to SMEs accounted for almost 19 per cent of total bank lending for Asia SME Finance Monitor countries[9.5], indicating continuing problems to access bank credit (ADB, 2015). ADB has also noted there are some concerns regarding the negative impact of Basel III[9.6] on SME lending, saying these new measures may constrain banks from providing long-term credit for enterprises, and may limit financing options, including trade finance availability.

This difficulty may be exacerbated in developing countries where many SMEs lack financial documentation, making lenders reluctant to lend owing to the greater risk. But of course, finance is a necessary but not sufficient condition for small firms to develop and thrive. Other factors like entrepreneurial skills, infrastructure and supportive macroeconomic and trade policy must also be in place (Chowdhury, 2009).

Microenterprises face similar and additional challenges to SMEs when trying to access financial intermediation.

However, the constraints of accessing financial services can be overcome by the use of mobile credit made available via mobile phones. Systems such as M-Pesa[9.7] in Kenya or bKash in Bangladesh have allowed millions of entrepreneurs who do not have bank accounts to access financial services (Radalet, 2015; Rundle, 2015; Quadir, 2014). Technology is not limited to providing payment and transfer facilities, as microenterprises can also use mobile technology to access microloans. The Grameen Bank in Bangladesh, founded by Nobel laureate Professor Yunus, has developed a specialized group-based (solidarity) approach to microfinance lending, thus overcoming the traditional constraints of lack of collateral and financial records by assuming joint liability and issuing very small loan amounts.

Target 9.4: Sustainable industry

By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

IAEG-SDG selected "*CO2 emissions per unit of value added*" as the appropriate indicator to measure progress towards this target (United Nations Statistical Commission, 2016). The United Nations Framework Convention for Climate Change seeks to keep human-made global warming below a danger threshold9.8. It is agreed that, to maintain average global surface temperatures at no more than 2°C above the pre-industrial average, there is a requirement to reduce global GHG emissions to 50–85 per cent of 2010 levels by 2050 (Intergovernmental Panel on Climate Change, 2014). Assuming that global output continues to rise at its long-term annual average rate of 3.5 per cent, this implies that GHG emissions per unit of GDP must fall by at least 5 per cent annually (Randers, 2012). The challenge is to how to balance such a reduction with continued economic growth, particularly in the developing world.

There are various ways that the required emissions reductions might be achieved, including through voluntary actions, carbon taxes, regulation, and emission quota systems. Since the United Nations Framework Convention for Climate Change was adopted in 1992, most governments have been reluctant to apply economic instruments to limit emissions due to concerns over their potentially adverse economic impacts. Over this same period, however, growing consumer and firm preferences for cleaner production and consumption has catalysed global movement towards a greener economy while significantly reducing GHG emissions from business-as-usual trajectories.

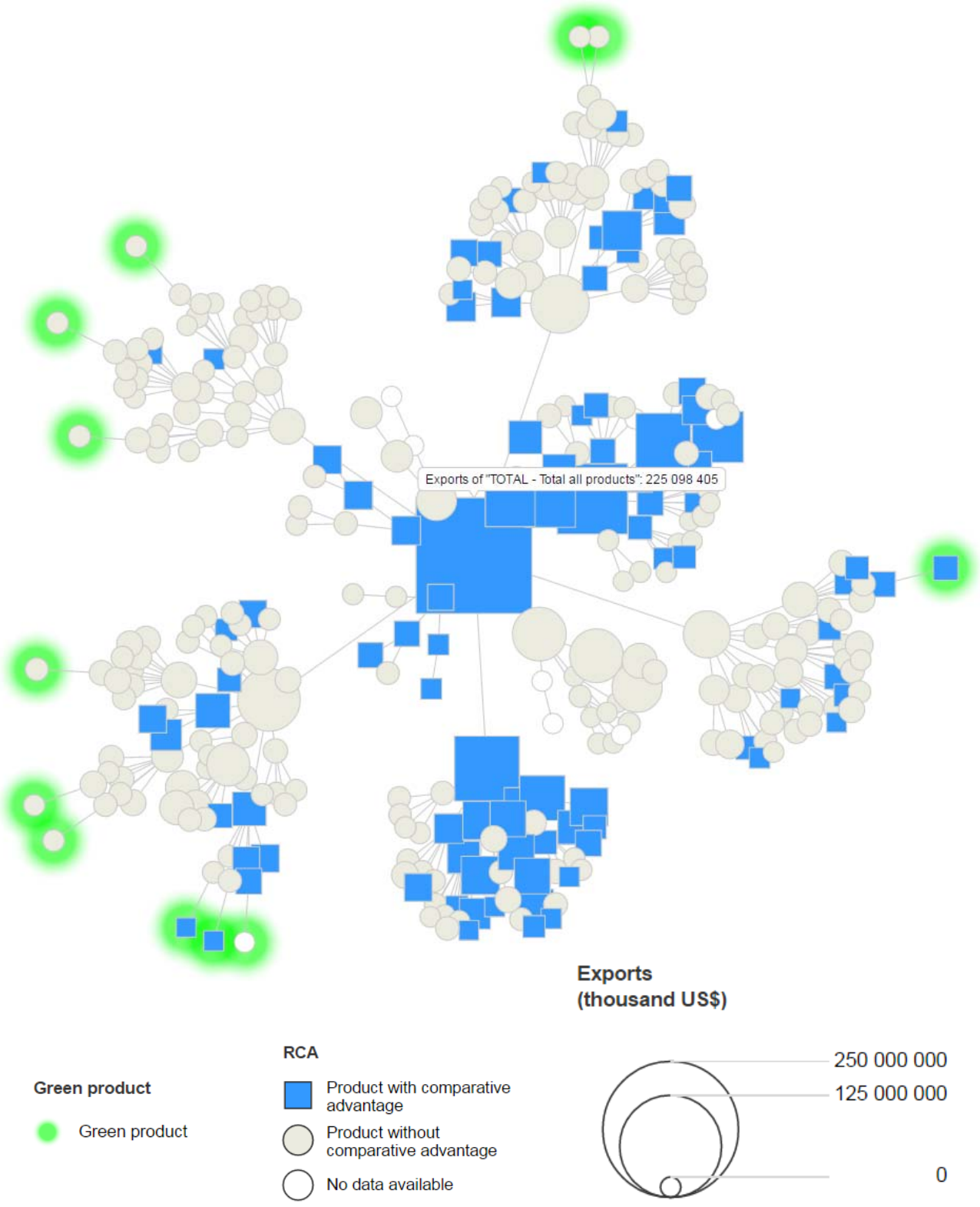
The 2012 Rio+20 Conference9.9, as well as the subsequent adoption of Sustainable Development Goal 9 and the COP 219.10 agreement in 2015 all serve to illustrate the growing importance being given to environmental issues and the recognition that countries' transitioning to a green economy can contribute to sustainable development through economic diversification, employment creation and export earnings. Internationally traded commodities, manufactures and services that are sustainably produced and promote sustainable consumption offer considerable opportunities for developing countries to shift their economic bases to more sustainable models. This can be done by exploring a variety of "*green*" goods and services (See Target 17.7), including biotrade (See Target 15.9), biofuels (See Goal 7), ecotourism (See Target 12.b), recycling, renewable energy, resource-efficient organic agriculture and sustainably harvested timber and fisheries products, among others. And because many green products are produced in rural areas by SMEs and by lower and medium-skilled workers, including women and youth, their production can contribute significantly to job creation and poverty reduction in economically marginalized areas of developing countries.

To seize these new sustainable growth opportunities, both developing and developed countries must work to identify their production and export strengths for green products and establish the national policies, regulations and institutions needed to create an enabling environment for their production and export. In most developing countries, particularly LDCs, there are significant gaps in awareness of national production and export opportunities in green product sectors among national policymakers and other stakeholders, including the private sector and civil society. Building awareness will be essential for steering industrial capacity and infrastructure development towards more sustainable models compatible with the Sustainable Development Goals.

Green product space is one example of a conceptual approach that can be used to build such awareness and help guide industrial policy towards sustainable paths (Hamwey et al., 2013; Hidalgo et al., 2007). An illustration of a green product space map is plotted in figure 9.12, using real 2014 export data from Brazil. The figure consists of a network in which each node is a product exported by Brazil. Nodes shown as blue squares indicate competitive exports, i.e., products for which Brazil has a revealed comparative advantage (RCA > 1), whereas nodes shown as grey circles indicate products that are not competitive exports (RCA < 1).

Adding green halos to a product space map reveals potential green growth opportunities. Nodes with a green halo designate products that are considered to be environmentally friendly or "*green products*". Within this scheme, blue squares with a green halo indicate green products that are competitively produced and exported while grey circles with a green halo indicate green products that are not. Scaling up production and adding value to currently competitive green products is pursued as a strategic policy objective by many countries. Additionally, product space theory suggests that when uncompetitive green product nodes (shown as grey circles with green halos) are in close proximity and connected to competitive product nodes (blue squares, with or without green halos) that targeted industrial strategies and policies can promote their future growth into competitive green exports. Some countries aim to promote green growth in such cases where the potential for competitiveness appears strong. To summarize, by identifying current and potential future green product strengths, a green product space map can help countries formulate green industrial policy options that pull productive resources to green products thereby generating new green export and employment opportunities while reducing greenhouse gas emissions, limiting harmful pollution and protecting the environment.

Figure 9.12. Product space map for Brazil, 2014



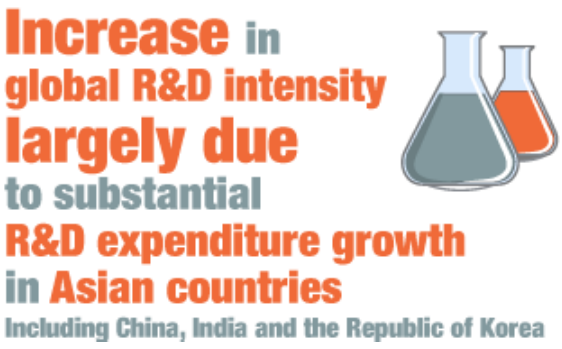
Source: Hamwey et al., 2013.
Note: Green circles denoting green products.

Target 9.5: Science, technology and innovation

Enhance scientific research, upgrade technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and increasing the number of research and development workers per 1 million people and public and private research and development spending.

Research and development comprise creative and systematic work undertaken to increase the stock of knowledge, including the knowledge of humankind, culture and society, and to devise new applications of available knowledge (OECD, 2015a). IAEG-SDG selected "*Research and development intensity as a proportion of GDP*" as one of two measures for target 9.5 (the other being the number of researchers, in full-time equivalent, per million inhabitants). Research and development covers three types of activity: (1) basic research, (2) applied research, (3) experimental development, and may be financed or performed by businesses, government, higher education institutions or the private non-profit sector (see target 12.a).

Between 2010 and 2013, the world research and development intensity as a proportion of GDP grew very marginally from 1.6 to 1.7 per cent. This small increase was mainly due to substantial research and development expenditure growth in the Asian countries, including China, India and the Republic of Korea (see table 9.4). Beyond these exceptions, increases in research and development intensity were limited. Nevertheless, increasing research and development intensity remains a long-term objective. For instance, in 2000 European countries set the research and development expenditure as a percentage of GDP target at 3 per cent. To date, only a few European countries have reached that target and the objective remains in place for 2020. Many developing countries have also set research and development intensity objectives. For example, the African Union's Science, Technology and Innovation Strategy for Africa 2024 requires each member State to take concrete actions to allocate at least 1 per cent of GDP to research and development.



Economies with higher levels of research and development expenditure as a proportion of GDP include Israel (4.2), the Republic of Korea (4.2), Japan (3.5), Finland (3.3) and Denmark (3.1). Only two developing economies (China and the Republic of Korea) have a research and development intensity above the world average. During the period 2010–2013, a number of economies (Israel, Japan and the Republic of Korea) made remarkable increases in their relative research and development expenditure, despite their already high research and development intensity. On the other hand, several developed economies hit by the global economic crisis, namely Canada, Finland and Luxembourg, have seen a marked contraction in research and development intensity during this period (table 9.4).

Table 9.4. Research and development intensity, regions and selected economies, 2010 and 2013
(Percentage of GDP)

	2010	2013
World	**1.6**	**1.7**
Arab States	**0.3**	**0.3**
Central and Eastern Europe	**0.9**	**1**
Czech Republic	1.3	1.9
Slovenia	2.1	2.6
Central Asia	**0.2**	**0.2**
East Asia and the Pacific	**1.9**	**2.1**
China	1.7	2
Japan	3.3	3.5
Korea, Republic of	3.5	4.2
Latin America & Caribbean	**0.7**	**0.7**
North America and Western Europe	**2.4**	**2.4**
Canada	1.8	1.6
Denmark	2.9	3.1
Finland	3.7	3.3
Luxembourg	1.5	1.2
South and West Asia	**0.7**	**0.7**
India	0.8	-
Israel	4	4.2
Sub-Saharan Africa	**0.4**	**0.4**

Source: United Nations Educational, Scientific and Cultural Organization Institute of Statistics.
Note: UNESCO region and sub-region definitions.

Research and development efforts may be performed and financed by enterprises, government or higher education institutions, among others. Public and private research has typically different purposes. Public research is generally moved by a purpose of expanding the knowledge base and obtaining recognition for this, and may not necessarily result in the upgrading of the technological capabilities of industrial sectors. On the other hand, private research is primarily moved by the practical application of the

knowledge it develops. Because of this, business research and development is seen as particularly relevant for upgrading technological capabilities of industrial sectors and for encouraging innovation.

The global average for business research and development as a share of GDP has slightly increased from 1.1 to 1.2 per cent between 2001 and 2011. On the other hand, the contribution of business research and development to total research and development expenditure has dropped since 2006 in sub-Saharan Africa, the Americas and the former Soviet States (United Nations Educational, Scientific and Cultural Organization, 2016).

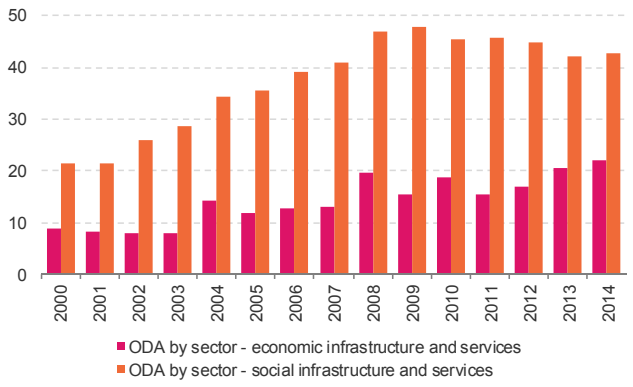
Target 9.a: Sustainable and resilient infrastructure

Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States.

Since 2000, the ratio of ODA spending on Social to Economic Infrastructure has been almost 3

There is a general consensus on the important contribution of infrastructure to economic growth and development (Foster and Briceño-Garmendia, 2010). Better infrastructure reduces transaction costs, makes capital goods more durable and facilitates trade and investment. Solid infrastructure creates more business opportunities and boosts private entrepreneurship. Investment in regional transport systems and communications is also crucial for the facilitation of economic integration, the development of markets, and the promotion of intraregional trade. The World Bank (2016a) estimates that poor infrastructure depressed firm productivity by around 40 per cent in low-income African countries and improved infrastructure explains for more than half of recent growth in sub-Saharan Africa and still has a higher potential (Foster and Briceño-Garmendia, 2010). For this reason, IAEG-SDG has selected "Total official international support (official development assistance plus other official flows) to infrastructure" as the indicator for this target.

Figure 9.13. ODA by sector, economic and social infrastructure, 2000–2014
(Constant 2014 US$ billions)



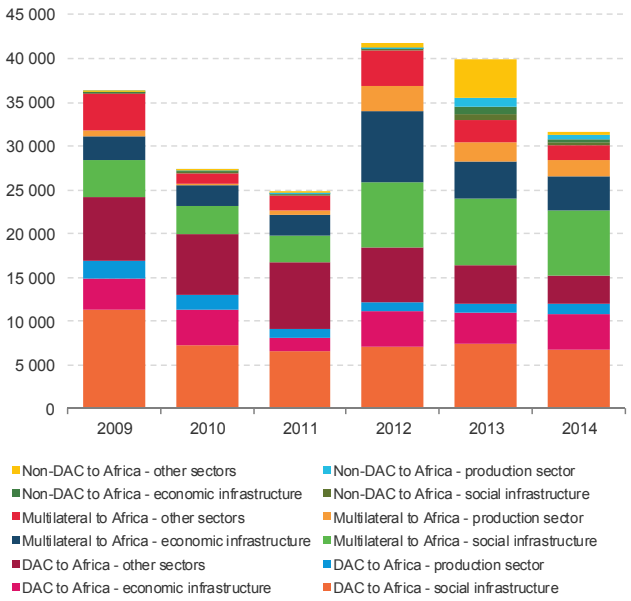
Source: OECD (2016).

Figure 9.13 shows the total ODA spent on infrastructure, both social and economic. In 2014, these two categories combined accounted for roughly US$65 billion or 44 per cent of total net ODA. Spending on social infrastructure has accounted for between three quarters and two thirds of this spending. The relative importance of spending on economic infrastructure has increased since 2013.

In 2014, net ODA to Africa was almost US$60 billion, accounting for almost 34 per cent of total net ODA to developing countries. Of this over US$48 billion dollars went to sub-Saharan countries; almost US$52 billion to LDCs.

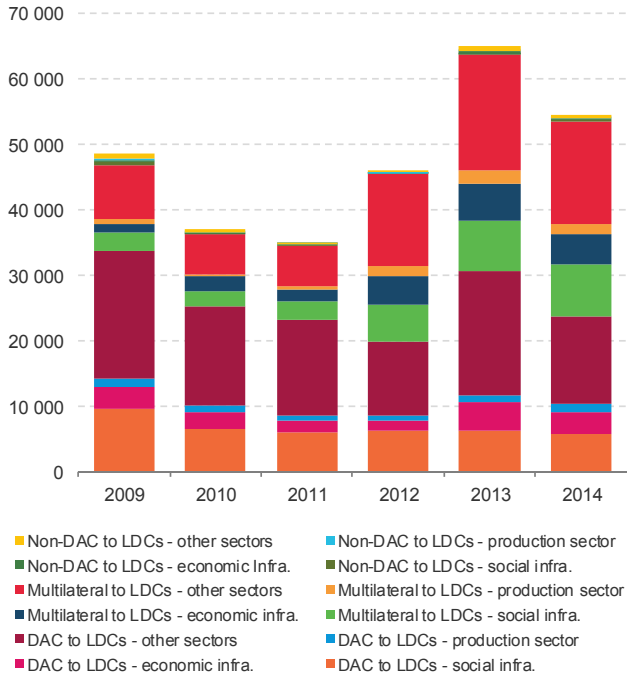
In recent years, bilateral Development Assistance Committee aid to LDCs has targeted social infrastructure (over 42 per cent of aid to LDCs for the years 2010–2014). This was done partly to achieve the Millennium Development Goals. Most of the ODA for social infrastructure was given in the form of grants[9.11]. In contrast, relatively low grant ratios were given for economic infrastructure, 63 per cent to LDCs and only 38 per cent for Africa as a whole[9.12] (OECD, 2016) (see figures 9.14 and 9.15). Economies of scale apply to infrastructural development. The per-capita fixed costs of infrastructure provision decrease with increase of population density[9.13]. In addition, infrastructure services in Africa are expensive[9.14] due to lack of competition (Foster and Briceño-Garmendia, 2010).

Figure 9.14. ODA commitment to Africa by donor and sector,2009–2014
(Constant 2014 US$ billions)



Source: OECD.stat Creditor Reporting System Aid Activity database.

Figure 9.15. ODA commitment to LDCs by donor and sector,2009–2014
(Constant 2014 US$ billions)

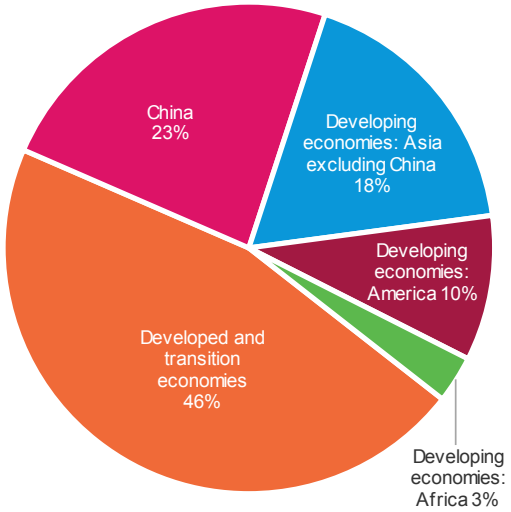


Source: OECD.stat Creditor Reporting System Aid Activity database.

Africa's most serious infrastructural deficit exists in the power sector. Power outages are frequently cited as a common problem[9.15], accounting for 6 per cent of losses in revenues and damaged equipment (World Bank, 2016b; African Development Bank Group, 2016).

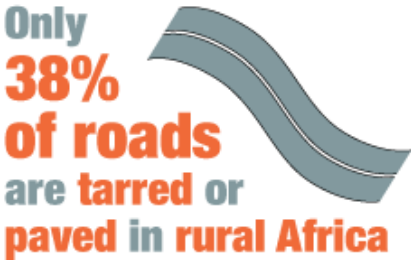
In 2013, Africa's electricity generation was 723 terawatt hour (TWh); while Africa's population represented 15.6 per cent of the world total, its share of total world electricity generation was only 3.1 per cent (figure 9.16). Access to electricity is very limited in rural areas. Only 11 per cent of rural populations in sub-Saharan Africa had access to electricity in 2014, compared to 72 per cent in urban areas[9.16]. Demand for power in Africa is expected to exceed 3,100 TWh by 2040[9.17], more than four times current capacity. To meet this demand, Africa will need to increase installed power generation capacity by a factor of five compared with 2012 levels (Economic Commission for Africa (ECA) and African Union, 2012a).

Figure 9.16. Breakdown of total world electricity generation by region, 2013
(Percentage)



Sources: OECD and IEA (2015); UNCTAD calculations and estimates based on OECD/IEA data.

Transport systems and information and communications technology (ICT) are other elements of economic infrastructure that countries in Africa need to improve to enhance their productivity. Provision of better transport network coverage (air, land – both road and rail - and water) will not only reduce costs, but will integrate economies into regional and world markets. An assumption of more than six per cent annual GDP growth in Africa between 2010 and 2040 underpins the United Nations Economic Commission for Africa and the African Union joint Programme of Infrastructure Development. Based on this, Africa's transport volume is expected to increase by six to eight times by 2040 compared with current levels (ECA and African Union, 2012a).



Transport infrastructure can be measured not only by network coverage but also by quality. For instance, "*Volume of sealed or paved road networks*" is one of the available indicators that can be used to estimate the quality of surface connectivity[9.18]. The most recent AFRO Barometer results[9.19] reported that only 38 per cent of roads were tarred or paved in rural areas, compared to 76 per cent in urban areas (AFRO Barometer, 2016).

Unlike transport systems, ICT has already made a substantial contribution to productivity in Africa (World Bank, 2006; OECD, 2015b). Rural areas are better connected virtually than physically, at least with mobile cell phones. In 2014, mobile cellular subscription rates in sub-Saharan Africa were 71 per 100 inhabitants, while Internet

usage lagged behind at 19 per 100 persons (see targets 5.b and 17.19). When measured in terms of the services available, 89 per cent of rural areas and 99 per cent of urban areas surveyed had mobile phone service (AFRO Barometer, 2016). Although demand for broadband is expected to grow much faster and earlier than for other services[9.20], Africa will need an improved fibre infrastructure both in quantity and quality if this demand is to be met. International connectivity is another bottleneck due to lack of competition among providers (International Telecommunication Union (ITU), 2014). With regard to social infrastructure, an urban–rural gap still persists. Only 56 per cent of rural households in sub-Saharan Africa had access to clean water and 23 per cent had access to good quality sanitation in 2015, compared with 87 and 40 per cent in urban areas, respectively (see Goal 6). A very strong demand for water will likely cause environmental damage to several river basins, including those of the Niger, Nile, Orange and Volta (ECA and African Union, 2012b) (see Goal 15).

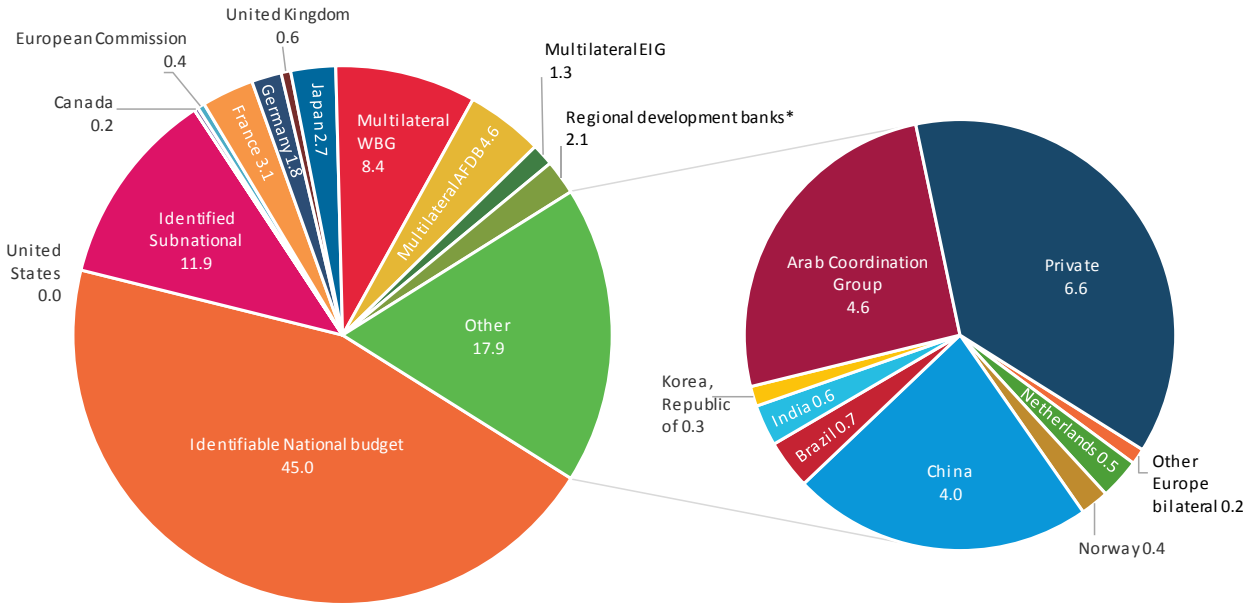
For the years 2006 to 2015, the World Bank estimated that Africa needed approximately US$93 billion a year to improve its infrastructure, of which two thirds (US$62 billion) was needed for capital expenditures and the remainder for maintenance of existing facilities. This amount was equivalent to 15 per cent of Africa's total GDP, 25 per cent of GDP for low-income non-fragile States and 36 per cent for fragile States (Foster and Briceño-Garmendia, 2010).

According to the most recent data, total funding available for capital infrastructure development[9.21] in 2014 was US$74.5 billion, a reduction of 25 per cent on the previous year (Infrastructure Consortium for Africa, 2014). Several factors contributed to the fall: China readjusted its African infrastructure financing; the 2013 figure included an exceptional commitment of the United States of America of US$7 billion; transport infrastructure financing was reduced; and there was more rigorous national government reporting on budgets (Infrastructure Consortium for Africa, 2014).

In 2014, funding for capital infrastructure development in Africa was US$74.5 billion a reduction of 25% from the previous year.

In 2014, only the governments of Angola, Côte d'Ivoire, Gabon, Mauritania and Togo spent more than 5 per cent of GDP on capital infrastructure expenditures. Another twelve African countries[9.22] allocated more than 2 per cent of GDP to capital infrastructure, while the Democratic Republic of the Congo, Guinea, Liberia and Mauritius all spent less than 0.1 per cent of their GDP. It is noteworthy that some African governments have recently entered into new forms of financing, for instance, issuances of sovereign bonds[9.23], subnational government bonds (Nigeria) or internally generated budget funds (South Africa) (Infrastructure Consortium for Africa, 2014).

Figure 9.17. African infrastructure funding by source
(Commitment base, percentage of total funding)



Source: UNCTAD calculations based on Infrastructure Consortium for Africa (2014).
Note: * Only Development Bank of Southern Africa is the member of ICA.

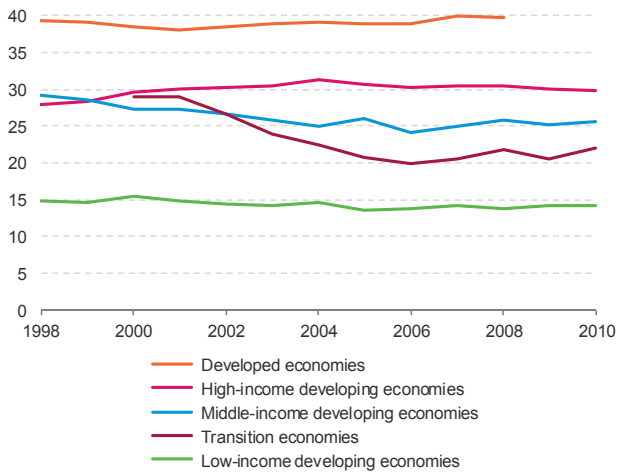
Target 9.b: Industrial diversification through technology

Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.

Economic development involves a process of structural transformation towards more diversified and higher-value-added activities. The proportion of medium- and high-technology (MHT) industry[9.24] value added to total value added gives an indication of the utilization of production technology in the manufacturing sector of an economy. Hence the relevance of the indicator "*Proportion of medium and high-tech industry value added in total value added*" selected by IAEG-SDG.

Modern manufacturing is essential for economic development. Although MHT manufacturing tends not to generate as much employment as low-skilled, labour-intensive manufacturing, modern manufacturing nevertheless generates well-paid employment (including through manufacturing-related services) and income; plays a critical role in increasing labour productivity; and creates spill-over effects for other economic sectors through embodied and disembodied technical change.

Figure 9.18. Proportion of medium and high-technology industry value added in total manufacturing value added, 1998-2010
(Percentage of total manufacturing value added)



Source: UNCTAD estimates based on UNIDO data (INDSTAT4 database).
Notes: The number of economies included in each group is limited, especially for developing groups: 22 high-income developing economies, 11 middle-income developing economies, 7 low-income developing economies, 7 transition economy and 36 developed economies. The trends represent broad approximations for these groups only, and are based on the weighted average of proportions for individual economies for which data are available. Total manufacturing value added is used as weight. For some missing years, estimates were obtained by simple interpolation or extrapolation.

More advanced economies tend to show higher shares of MHT industry value added in total MVA (see figure 9.18 and table 9.5).

The different human capital and natural resource endowments available to a country have an important influence on their economic structure. For instance, in 2008 the level of MHT industry value added in total MVA was relatively low in several developed economies: Luxembourg (5 per cent), New Zealand (14 per cent) and Australia (16 per cent).

For several high-income developing economies, like Iran (41 per cent), Malaysia (42 per cent) and Singapore (75 per cent) the importance of MHT industry value added was considerable. The same is true for some middle-income countries (for example, Indonesia - 38 per cent).

Country data reveal that increasing the economic weight of MHT industries in MVA is a slow and uncertain process. Only a handful of economies (Hungary, Oman, Poland, Slovakia and Switzerland) have increased the weight of MHT value added in total MVA by more than 10 percentage points in a 10-year period (table 9.5). Meanwhile, a number of countries have seen this weight reduced by more than 5 percentage points (Australia, Azerbaijan, Canada, Greece, India, Ireland, Luxembourg, Malaysia, Mexico, Nepal, the Russian Federation and Senegal).

Table 9.5. Proportion of medium and high technology industry value added in total manufacturing value added, selected countries, around 2000 and 2010
(Percentage)

Economy	Year		Economy	Year	
	2000	2010		2000	2010
Developed economies			**High-income developing economies**		
Australia	23% [2]	15%	Brazil	35%	35% [-3]
Canada	43%	29% [-2]	Lebanon	11% [-2]	20% [-3]
Denmark	24%	30% [-2]	Malaysia	50%	42% [-2]
Estonia	17%	17% [-3]	Mexico	43%	29%
Finland	40%	45% [-2]	Oman	9%	19%
Germany	54%	59% [-2]	Singapore	74%	75% [-2]
Greece	21% [-2]	12% [-3]	South Africa	24%	23%
Hungary	42%	52% [-2]	Turkey	28%	29% [-2]
Ireland	53%	31% [-2]	**Middle-income developing economies**		
Israel	53%	56%	India	41%	34% [-3]
Japan	51%	54% [-3]	Indonesia	35%	38% [-1]
Lithuania	15%	24% [-2]	Morocco	20%	28%
Luxembourg	13%	5% [-2]	**Low-income developing economies**		
Poland	22%	34% [-2]	Kenya	9%	8%
Slovakia	25%	41% [-2]	Malawi	9%	11%
Slovenia	36%	43% [-3]	Nepal	12% [1]	1% [-2]
Sweden	43%	52% [-2]	Senegal	25%	18%
Switzerland	52%	62% [-2]	**Transition economies**		
United Kingdom	35%	43% [-2]	Azerbaijan	13% [1]	6% [-1]
United States	50%	50% [-2]	Russian Federation	32% [1]	25%

Source: UNCTAD calculations based on UNIDO INDSTAT4 database.
Note: -/+n = data are for n years before or after the reference year.

Target 9.c: Access to ICT

Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020.

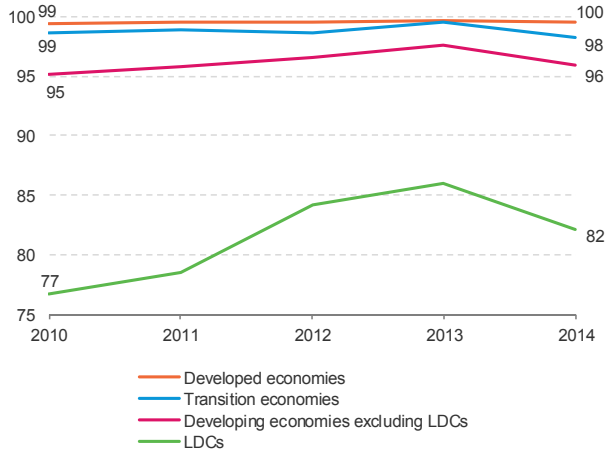
In order to measure progress towards target 9.c, the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has selected the "*Percentage of the population covered by a mobile network, broken down by technology*" (United Nations, 2016a). This indicator reflects a minimum requirement for information and communication technology (ICT) access, showing the population that can potentially subscribe to and use mobile cellular services to communicate.

The future of mobile is incremental innovation with a transformational impact - Reijo Pold, Telefónica United Kingdom

The Partnership on Measuring ICT for Development has noted that over the past decade, mobile cellular networks have expanded rapidly and helped to overcome the basic infrastructure barriers to fixed telephony (United Nations, 2016b). For many people in developing countries, mobiles are often their only way of accessing the Internet.

For example, in Africa, Internet use is primarily conducted via mobile devices, influencing the scope for and the nature of e-commerce (UNCTAD, 2015a). In least developed countrie (LDCs) mobile phones have allowed the poorest to become connected, and that increasingly mobiles are tools for entrepreneurship, empowerment, and even financial inclusion. Nevertheless, as figure 9.19 illustrates, despite the rapid improvements in coverage, LDCs still lag someway behind other development groupings.

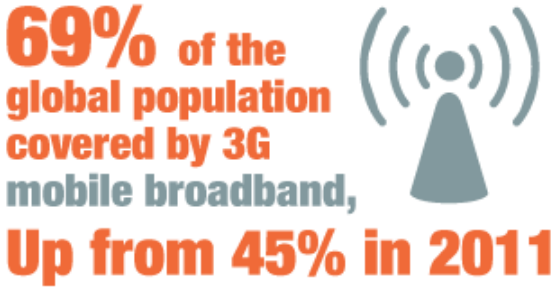
Figure 9.19. Mobile network coverage by development status, 2011–2015
(Percentage of the population covered by a mobile-cellular network)



Source: ITU World Telecommunication/ICT Indicators database (ITU, 2015a).

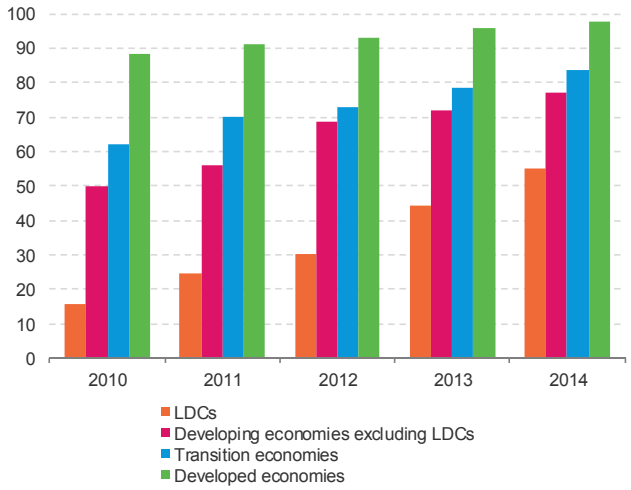
In the context of international trade and development, access to broadband Internet, through third generation (3G) and fourth generation (4G) systems, in particular, are important because it allows access to more sophisticated and value-added content for the business sector.

In 2015, ITU estimated that 69 per cent of the global population was covered by 3G mobile broadband, up from 45 per cent in 2011[9.25].



Africa has had the highest regional growth rate over the past three years, with mobile-broadband penetration increasing from an estimated 2 per cent in 2010 to over 17 per cent in 2015. Nevertheless, it remains the region with the lowest mobile broadband penetration.

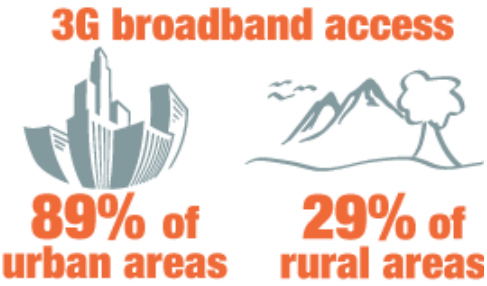
Figure 9.20. 3G coverage by development status, 2011–2015
(Percentage of the population covered by at least a 3G mobile network)



Source: ITU World Telecommunication/ICT Indicators database (ITU, 2015a).

In a similar pattern to that shown in figure above, figure 9.20 shows a dramatic improvement in 3G coverage for LDCs in recent years but also illustrates the considerable gap that remains between LDCs and other development categories.

Broadband access differs in urban and rural areas. Globally, 3G network signals cover 89 per cent of urban areas but only 29 per cent of rural areas.

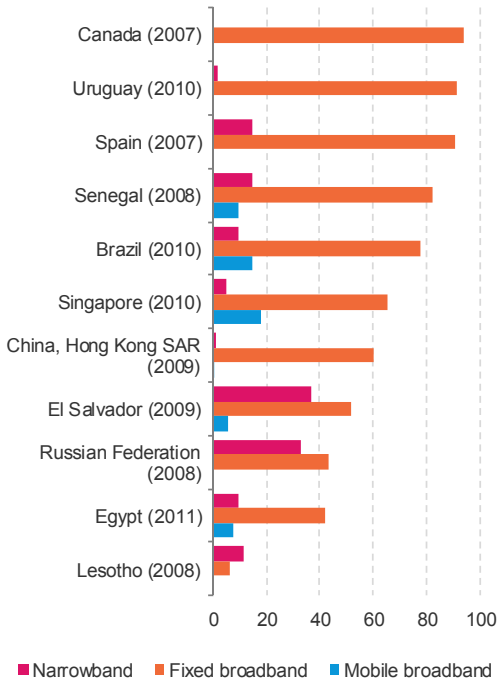


Given the important enabling role of broadband in the digital economy, the "*Number of businesses using the Internet by type of access*" provides a good indicator of the productive sector leveraging Internet to create opportunities and foster innovation. The adoption of Internet by microenterprises and SMEs is also a tool for "*inclusive and sustainable industrialization*" and an important factor in engaging in both online and offline international trade in goods and services. However, the ability of developing countries to assess the extent to which businesses use Internet and to monitor progress towards their ICT development policies is curtailed by the lack of official statistics. Unfortunately, there is very little data on the use of either fixed or mobile broadband by enterprises in developing countries, and almost none from LDCs[9.26].

The available data show that within countries there is a persistent gap in Internet use between small and large enterprises, and between countries there is a divide in Internet use through broadband connections. Since Internet use by employees has been positively correlated with productivity (World Bank, 2016c), then smaller enterprises in developing countries will struggle to improve the relative effectiveness of their productive effort. Internet use is also a determinant of e-commerce, and data from enterprises in European countries show a positive correlation between online sales and labour productivity, with a larger impact on service industries and smaller enterprises (UNCTAD, 2015c). E-business has also been shown to contribute to poverty reduction, innovation and financial inclusion, and to integrating value chains and enabling exports (World Summit on the Information Society (WSIS), 2015). Figure 9.21 shows business use of Internet (narrowband, fixed broadband, and mobile broadband) in selected developed, developing, and transition economies.

Despite increased connectivity, Internet access (in particular broadband) remains unaffordable for many people in LDCs (ITU, 2015b). Consequently, an additional indicator on targeting broadband Internet prices, including mobile broadband, would be useful for assessing the "*affordable access*" element of target 9.c. Reducing prices should also contribute to "*significantly increase access*" to ICT.

Figure 9.21. Proportion of businesses using Internet by access type, selected economies, most recent year
(Percentage of total enterprises)

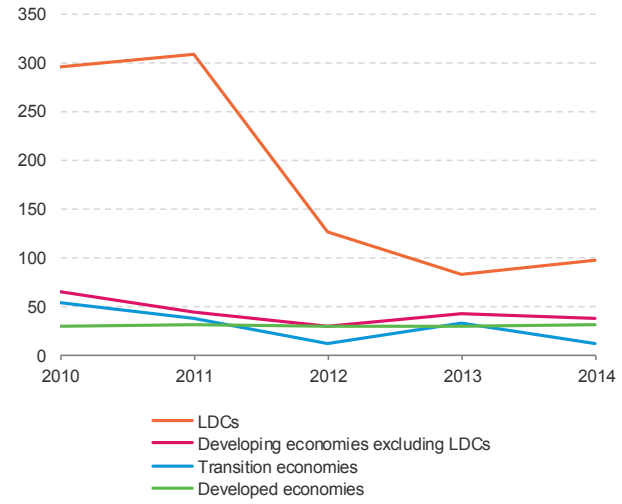


Source: UNCTADstat.

The Broadband Commission for Digital Development set a broadband affordability target of a cost of 5 per cent of monthly per-capita gross national income for basic fixed-broadband services (Broadband Commission for Sustainable Development, 2015). This target was achieved in 105 out of 181 countries (58 per cent) for which data were available by 2014 (ITU, 2015b). Of the remaining 76 economies, 54 per cent were LDCs. Despite the improvement in broadband affordability and the fact that mobile broadband is becoming cheaper than fixed broadband, there is still a large gap between countries.

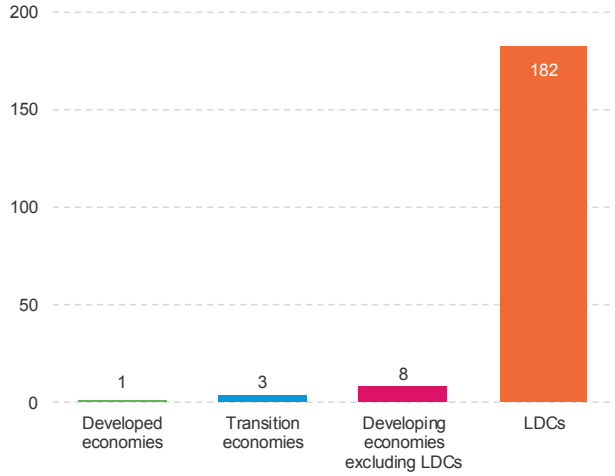
Figures 9.22 and 9.23 show that fixed-broadband prices can be three times higher in developing countries compared with developed countries, and mobile broadband can be twice as expensive.

Figure 9.22. Fixed-broadband monthly subscription charge, 2010-2014
(US$)



Source: ITU World Telecommunication/ICT Indicators database (ITU, 2015a).
Note: ITU region definitions.

Figure 9.23. Broadband affordability: fixed broadband monthly subscription charge, 2014
(Percentage of gross national income per capita)



Source: ITU World Telecommunication/ICT Indicators database (ITU, 2015a).
Note: ITU region definitions.

Notes and references

Notes

9.1 Manufacturing value added (MVA) is an indicator widely used by researchers and policymakers to assess the level of industrialization of a country. MVA measures the contribution of manufacturing to economy. The indicator is exceptionally good for international comparison. Share of MVA in GDP establishes the role of manufacturing in the economy. In other words, this indicator specifies the contribution of the manufacturing sector to total production. MVA per capita is the basic indicator of a country's level of industrialization adjusted for the size of the economy. And finally, the MVA growth provides insight into the general direction and magnitude of growth for the manufacturing sector. In practice, it is a measure of the rate of change that an economy's MVA goes through from one year to another at constant prices.

9.2 The other indicator selected is "*Manufacturing employment as a proportion of total employment*".

9.3 Care should be exercised here, as the relative openness of an economy and the extent of foreign direct investment, and the sectors in which that investment takes place, can have a significant effect on the calculation on an economy's valued added. Ireland is a case in point - a small, open economy with a very high degree of foreign direct investment specializing in a select number of high-value-added sectors, such as pharma-chemical and IT software, the indicator can give a distorted or inflated picture of the national economy.

9.4 Change from 2007 to 2010: Bulgaria: from 87 to 45 per cent; Greece: from 88 to 60 per cent; Ireland: from 97 to 53 per cent; Lithuania: from 89 to 58 per cent; Spain: from 87 to 59 per cent.

9.5 The Asia SME Finance Monitor countries are Bangladesh, Cambodia, China, Fiji, India, Indonesia, Kazakhstan, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Papua New Guinea, Philippines, the Republic of Korea, the Solomon Islands, Sri Lanka, Tajikistan, Thailand and Viet Nam.

9.6 Basel III is an international regulatory framework for banks that has adopted new rules – liquidity frameworks and leverage ratio frameworks – to strengthen the risk management of banks, as well as introducing strengthened capital requirements.

9.7 M stands for money and pesa means money in Swahili.

9.8 The COP 21 (Paris) agreement aims to limit the rise in global temperatures to within 2°C of pre-industrial levels.

9.9 The United Nations Conference on Sustainable Development took place in Rio de Janeiro on 20–22 June 2012 to mark the twentieth anniversary of the 1992 United Nations Conference on Environment and Development, which also took place in Rio de Janeiro.

9.10 COP 21 was the twenty-first annual session of the Conference of the Parties to the 1992 United Nations Framework Convention on Climate Change.

9.11 The grant ratios were typically over 90 per cent.

9.12 Several factors need to be taken into account in the evaluation of the aid effectiveness in developing countries. ODA, as defined by the OECD Development Assistance Committee, includes aid through different modalities, varying from one donor and type of aid to another. Aid is delivered in the form of grants or loans channelled through different executing agencies – bilateral, multilateral, non-governmental organizations or public–private partnerships – and covers broad types of activities, such as project finances, budget support with no specifically defined purpose, debt relief, technical assistance, scholarship, or other in-donor expenditures. Some of these activities – for instance, technical assistance, administrative costs, costs of educating foreign students and costs of hosting refugees – do not necessarily result in a transfer of funds to developing countries, nor debt relief. One of the major criticisms of ODA on the over-counting side has been that any loans with a grant element of more than 25 per cent have been recorded as ODA, and a flat reference rate of 10 per cent has been used to calculate the grant element of ODA loans. The reference rate at 10 per cent for the determination of concessionality has been too high, and even loans at commercial interest rates could be counted as ODA. In July 2015, Development Assistance Committee members agreed to modernize the measurement of ODA loans. Hence, only the grant element of the loan will be accounted as ODA, and the method to determine the concessionality of loans has been adjusted to change the reference rate from the ongoing 10 per cent to a range of rates; that is, the International Monetary Fund reference rate (currently 5 per cent) plus a premium risk of 1–9 per cent depending on the income grouping to which the borrower belongs. In the case of LDCs, only loans with over 45 per cent grant element count as ODA. Repayment of past loans will not be subtracted from ODA. (OECD, 2014, OECD 2015a).

9.13 The per-capita cost of providing high-quality infrastructure in megacities with a population density of 30,000 people per square kilometre is approximately one fifth of that for cities with a population density of around 1,247 people per square kilometre (Foster and Briceño-Garmendia, 2010).

9.14 They are twice as expensive as elsewhere (Foster and Briceño-Garmendia, 2010).

9.15 Manufacturing enterprises experience power outages on average 56 working days per year (World Bank, 2016b).

9.16 World generation of electricity in 2013 was 23,322 TWh (World Bank, World Development Indicators database).

9.17 Based on an assumption of 6.2 per cent annual GDP growth in Africa between 2010 and 2040 (ECA and African Union, 2012a).

9.18 Quality of transport infrastructure is measured by the qualities of different modes of transport (air, rail, road or water) including, for instance, overall infrastructure and kilometres of road and railroad infrastructure, port infrastructure, air transport infrastructure and available airline seats.

9.19 Surveys for round six were undertaken in 35 countries between 2014 and 2015.

9.20 Twenty times by 2018, with the Programme for Infrastructure Development in Africa's GDP growth assumption at 6.2 per cent.

9.21 Infrastructure budget (hard and soft) defined by the Infrastructure Consortium for Africa includes energy, water and sanitation, transport, and ICT allocations.

9.22 Cabo Verde, Cameroon, Chad, Ethiopia, Guinea-Bissau, Kenya, Namibia, Rwanda, Sierra Leone, Uganda, the United Republic of Tanzania and Zambia.

9.23 Angola, Côte d'Ivoire, Gabon, Ghana, Kenya, Namibia, Nigeria, Rwanda, Senegal, Seychelles, South Africa and Zambia.

9.24 Classification of industry by technological intensity is based on research and development intake in manufacturing output. The higher the share of research and development expenditure, the higher the level of technological intensity is. MHT industries are classified at the three-digit level of the International Standard Industrial Classification and include the manufacture of chemicals and chemical products (24); machinery and equipment not elsewhere classified (n.e.c.) (29); office, accounting and computing machinery (30); electrical machinery and apparatus n.e.c. (31); radio, television and communication equipment and apparatus (32); medical, precision and optical instruments, watches and clocks (33); motor vehicles, trailers and semi-trailers (34); railway and tramway locomotives and rolling stock (352); aircraft and spacecraft (353); and transport equipment n.e.c. (359). The indicator is calculated as the relation of the sum of the value added of MHT to the total value added of manufacturing.

9.25 This refers to the population within range of at least a 3G mobile cellular signal, irrespective of whether or not they are subscribers. See at https://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/ITU_LQ_2015.pdf.

9.26 UNCTAD monitors the evolution of the information economy, including the use of ICT by businesses, and international trade in ICT goods and services. Until 2015, only Lesotho and Senegal had reported on enterprise use of Internet by type of access. See the UNCTAD statistics portal http://unctadstat.unctad.org/wds.

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Goal 10: Reduced inequalities

Reduce inequality within and among countries.

Inequality, and how it affects economies and societies, is a growing concern shared by politicians, economists and the global community. There is an emerging consensus that existing levels of inequality are not only morally unacceptable, but also economically and politically damaging (UNCTAD, 2013a).

Intellectual and political debate about the distribution of wealth has long been based on an abundance of prejudice and a paucity of fact.
- Piketty (2013)

Hence the growing interest in trying to assess whether globalization and new technologies have exacerbated or improved the situation. Inequality has implications far beyond simple economic development, as it is recognized that it can be damaging to society, even threatening peace and security. Resentment over injustice, unequal access to public goods or social services, or political or social exclusion may all trigger unrest, hostility and violence (Brinkman et al., 2013).

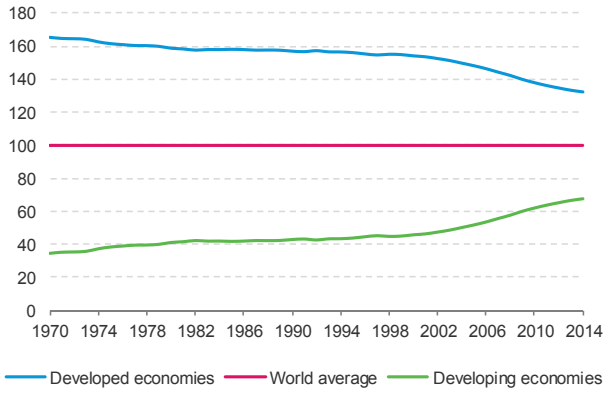
Definitions of inequality typically refer to an absence of equal dignity, status, rank, privileges, rights or opportunities with others. They often also refer to lack of equal chance and rights to seek success in one's chosen sphere regardless of social factors such as class, race, religion and sex[10.1]. Inequality is often a complex amalgam of social, political and economic factors. Goal 10 reflects this broad spectrum, setting a series of targets promoting income growth, social and economic inclusion, equal opportunity, wage and social protection, improved financial regulation, safe migration of people and an improved representation for developing countries in decision-making and global international institutions.

But trying to assess whether global inequality is increasing or decreasing is not a straightforward task. What type of inequality is being assessed? If the aim is to determine whether economic inequality is improving or not, then some internationally comparable measures of income and or consumption must be agreed upon. These measures must also allow for comparison over time. Further, should the measure compare inequality between countries or simply between all of the people in the world? Not surprisingly, inequality can be measured in a variety of ways[10.2] and many of the measurement instruments are not without problems and biases[10.3].

Figure 10.1 presents a simple, if crude, measure of global economic inequality. Using gross domestic product (GDP) per capita at constant prices as the basis for comparison, the contribution of the developing[10.4] and developed economies is benchmarked against a world baseline. From this narrow perspective, inequality between developing and developed countries has been declining since the 1970s, but very noticeably since the end of the twentieth century.

The trend illustrated in figure 10.1 captures the ascent of the developing world or the South (Radelet, 2015). In 1970, developing economies accounted for 17 per cent of global GDP, by 2014 their contribution had doubled to 34 per cent. This shift has led to an entire middle class in the North having to lower their expectations of a constantly "*better life*" as a new "*poor elite*" from the South gets rich (at their expense) at a faster pace than probably ever experienced by such a large group of people in history (Bhalla, 2002).

Figure 10.1. Global inequality: GDP per capita in relation to the world average by development status, 1970-2014
(Percentage of world average, constant 2005 US$)



Source: UNCTAD secretariat calculations, based on UNCTADstat.

Target 10.2: Social, economic and political inclusion

By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

In order to measure inequality, statistical measures need to be specific. Different dimensions of inequality, such as income, wealth, power, occupation prestige, education, gender, race or ethnicity all have different measures. Depending on what precisely is to be measured, a variety if indexes can be used[10.5].

We are living through a new gilded age exceeding the gaudy excesses of the 1870s and the 1920s. The extent of riches at the top of the income and wealth distributions is unimaginable. - Sachs (2011)

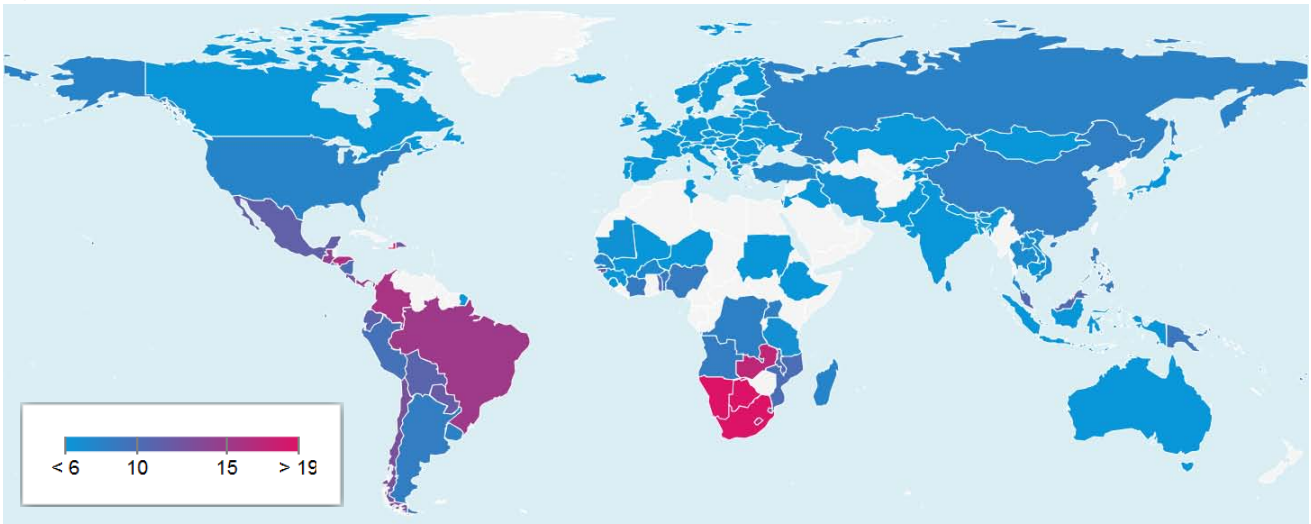
The Gini index is a widely used indicator of income inequality or wealth concentration within an economy or society. It indicates how far the distribution of income among individuals (or households) deviates from a "*perfectly*" egalitarian distribution. The Gini index is not a perfect measure of inequality, however[10.6]. It has some undesirable characteristics; not least, it has been criticized for being more sensitive to changes in the middle of the distribution, rather than the tails where the focus should be placed. It has also been criticized for being difficult to interpret.

Other measures of inequality, such as the poverty headcount ratio and the Palma index, are intuitively more appealing than the Gini index and do not require knowledge of Lorenz curves. Like the Gini, the poverty headcount ratio and Palma index are measured from income distributions of national household survey data.

The Inter-agency Expert Group on Sustainable Development Indicators (IAEG-SDG) has adopted the poverty headcount ratio of people living under 50 per cent of national median income as the indicator for target 10.2. An empirical comparison of poverty headcount ratios across countries is not straightforward either, as two different types of household surveys, income and consumption, are used as data sources[10.7]. Cross-country comparisons of inequality, therefore, require some caution[10.8].

A Palma index for the latest years available is presented in figure 10.2. The average Palma index value of 121 countries was 7.8 and the middle value of the index (median, 50 percentile) was 6.1. Forty-five countries scored Palma indices lower than 5.4 and the average incomes of the richest 10 per cent were 3.6 to 5.4 times more than those of the poorest 40 per cent in the respective distributions, indicating lower concentrations of income/consumption in these countries.

Figure 10.2. Palma index for the latest available year



Source: World Bank
Note: The Palma index is defined as the ratio of average income per capita of the richest 10% households to that of the poorest 40%.

Income inequalities within African and developing American countries are on the decline, but remain at a high level. The richest 10 per cent in Brazil, Colombia, Haiti, Honduras and Panama have at least 15 times

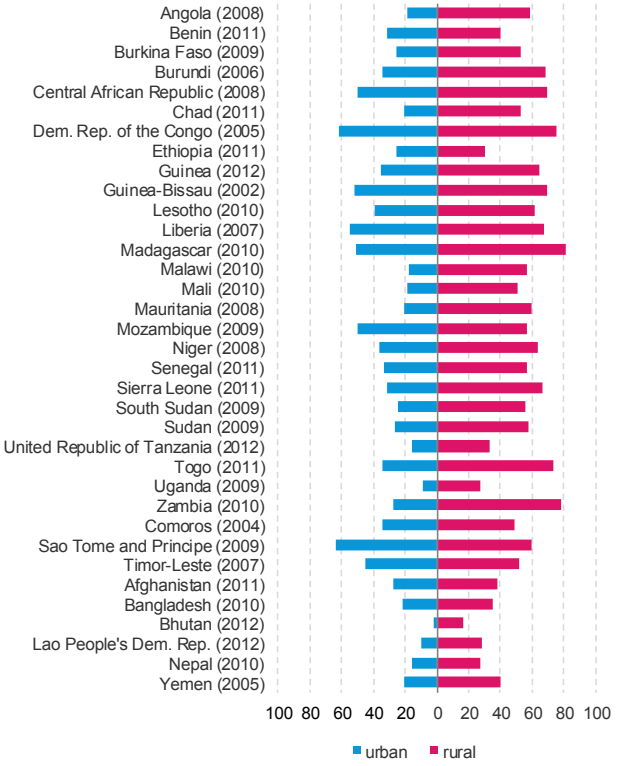
higher average per capita income than the poorest 40 per cent. In Africa, Botswana, Lesotho, Namibia, South Africa and Zambia have income inequalities in the same range. At the other end of the spectrum, Belarus, Norway, Slovakia, Slovenia and Ukraine have low index values.

Although it is possible to locate where the income inequality exists in the world, household survey statistics usually do not provide information on the age or gender inequality of poverty, as the unit of measurement is the household. Study at the individual level provides better insights into gender inequality. According to the Millennium Development Goal Report 2015, a recent study reported that, in 41 out of 75 countries, women were more likely to live in poverty than men. Moreover, a higher prevalence of households headed by women[10.9] was found in countries where women are over represented in the lowest wealth quintile of households[10.10], indicating a greater risk of poverty for such households[10.11].

In least developed countries (LDCs), nearly half of the populations live in extreme poverty and the majority reside in rural areas. Reducing rural-urban inequality will be of crucial importance for these countries if Agenda 2030 is to be achieved. In almost all LDCs for which data are available, the poverty headcount ratio (national poverty line) in rural areas was higher than in urban areas, often more than double (figure 10.3). This rural-urban pattern of extreme poverty in LDCs contrasts with emerging global trends of poverty urbanization. Greater increases in income in rural areas will be required to eradicate extreme poverty in LDCs (UNCTAD, 2015a).

The United Nations (2015a) projects that the populations will continue to grow at high rates in the LDCs (see special note on population). Although the growth rate of the LDC group is expected to slow down from the current 2.4 per cent per annum, the absolute population is projected to reach 1.3 billion by 2030, up from 954 million in 2015 (a growth of 40 per cent). The working-age population[10.12] of LDCs is expected to increase from 521 million in 2015 to 764 million in 2030 (plus 47 per cent), of which approximately 33 per cent will be youths[10.13]. The size of the rural population in LDCs is projected to grow by about 70 per cent, although the proportion of rural population is expected to decrease from the current 69 per cent to 62 per cent by 2030[10.14]. Agriculture remains the main source of income for women in LDCs, and the majority work in the agriculture sector[10.15]. With continuing population growth, the governments of LDCs face the challenge of meeting the Sustainable Development Goals and ensuring that no one is left behind. Achieving the Goals will be more demanding since a rapid growth in the rural workforce[10.16] will require governments to provide greater economic opportunities in order to provide incomes above the poverty line (United Nations, Department of Economic and Social Affairs, 2014; UNCTAD, 2015a; United Nations, 2015a).

Figure 10.3. Poverty headcount ratio by urban and rural areas (national poverty line) in least developed countries
(Percentage)



Source: UNCTAD (2015a).
Note: The poverty headcount ratio measures the proportion of the population below the poverty line. The figures refer to the latest available years.

Target 10.5: Financial markets and institutions

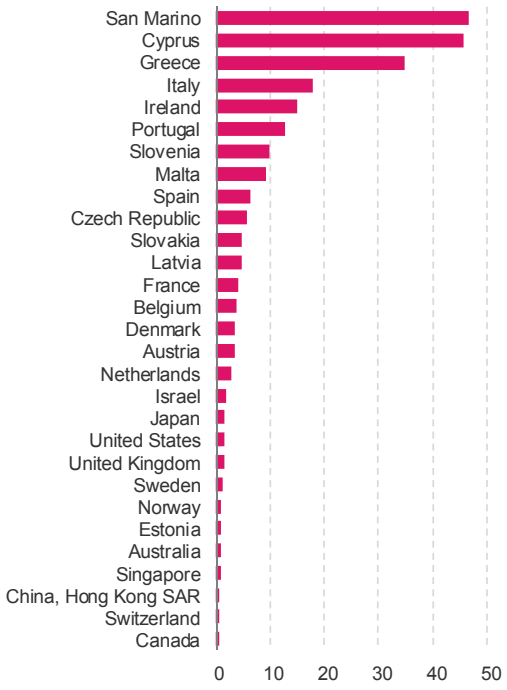
Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations.

Economies are particularly vulnerable to financial instability when international capital flows are mainly of a short-term nature. Unlike the foreign capital that is used in fixed capital formation, short-term flows are normally used for the acquisition of financial assets, real estate investments or consumption credit, directly or through the intermediation of domestic financial systems. Such flows are particularly prone to boom-and-bust cycles, depending mainly on events in the more developed economies. They exacerbate the fragility and vulnerability of domestic financial systems and lead to unsustainable current-account deficits. Further, the drying up or reversal of such inflows has frequently resulted in pressures on the balance of payments and on the financing of both the private and public sectors, and has led to recurrent debt crises and protracted economic depressions.

The very high costs caused by international financial instability explain why an increasing number of countries have resorted to capital management policies, including inward and/or outward capital controls. There is indeed a strong case for governments to manage capital flows by seeking to influence not only the amount of foreign capital movements, but also their composition and use. Such a pragmatic and selective approach to capital flows, rather than unrestricted openness or a complete ban, could help maximize policy space within a given development strategy and given existing international institutional arrangements. Such measures are allowed by the International Monetary Fund (IMF) Articles of Agreement, and their legitimacy has been further corroborated by other international institutions. However, their implementation requires non-negligible administrative capacities and resources at the national level. In addition, their effectiveness is also limited, given that private speculative capitals may try to circumvent controls by many different ways.

This is one reason why national efforts should be complemented by a global approach, in other words - a global solution to a global problem. Target 10.5 therefore aims to reduce global financial instability through improved monitoring and regulation. IAEG-SDG has proposed a set of "*financial soundness indicators*" as the best way to measure implementation progress. Unfortunately, at the time of writing no further information was available on what exact indicators IAEG-SDG was proposing. However, the IMF Financial Soundness Indicators are probably a good gauge of the type of dashboard we might expect[10.17]. The impact of the 2008 financial crisis is evident in the data - in particular for the so-called "*advanced economies*" where, for example, the percentage of non-performing bank loans remains very high[10.18] (see figure 10.4).

Figure 10.4. Share of non-performing loans in total bank loans in selected advanced economies, 2015
(Percentage of loan amount)



Source: IMF, 2016.

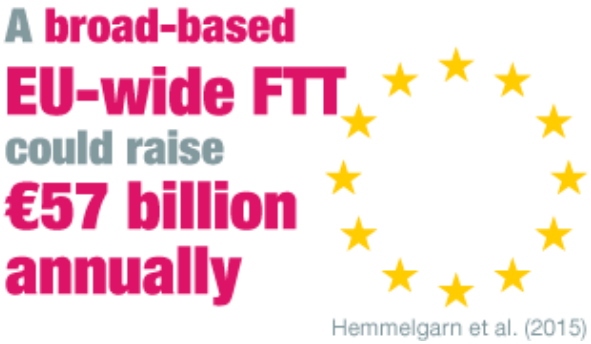
One proposal for discouraging speculative capital flows without hampering long-term financing is to establish a small fee for international financial transactions: small enough to be irrelevant for financial operations linked to real investment, but sufficient to undermine the benefits expected from very short-term speculative operations. The taxation of international currency transactions was initially proposed by the economist James Tobin in 1972 and has been generically known since then as the "*Tobin tax*" (New Rules for Global Finance Coalition, 2003; Palley, 2003).

Such a tax could deliver a number of positive outcomes. First, it would discourage an activity that has proved to be detrimental to economic stability and development. Second, it represents a progressive tax on wealthy

financial actors. Third, it sets similar rules of the game for all the countries participating in such a system and allows for a centralized and efficient system for collecting the tax - for instance, during the clearing or settlement process - which would be easier to apply than most measures that can only be implemented at national level. Last but not least, international financial transactions are so large that even a very small taxation rate would generate significant fiscal resources, which could either be distributed among the participating countries or used to finance other global public goods or development programmes[10.19].

Several countries have already established different kinds of taxes on financial transactions. However, the most relevant initiative is the Financial Transaction Taxation (FTT) proposed by the European Commission in 2011[10.20] and endorsed by 11 countries in 2013[10.21]. This regional agreement proposes to set a tax of 0.1 per cent on stock and bond trades and 0.01 per cent on the notional value of derivatives. Trading platforms and clearing houses would collect the taxes and pass the revenue to national tax authorities.

It was estimated that, if applied to the whole European Union, the tax would generate €57 billion annually (Hemmelgarn et al., 2015); the tax take would fall to between €30 billion and €35 billion (Mehta, 2013; Hemmelgarn et al., 2015) if the tax only applied to the 11 countries that in principle agreed to adopt the system.



If applied among most of the major countries of the eurozone, FTT will provide valuable experience on the international taxation of financial flows. If implementation of FTT is successful, extending it to other countries and regions, or replacing it with a similar, but multilateral system could then be considered. A global FTT system could generate a very significant amount of resources, similar if not larger than that actually mobilized through official development assistance (ODA). Those resources, based on globalized financial flows, could be made available for the financing of global public goods, such as environmental protection or sustainable development.

Target 10.6: Participation in institutions

Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions.

The 2008 financial crisis has clearly demonstrated not only the greater vulnerability of national economies to global economic shocks and the continued dependency of developing economies on developed countries, but also the critical importance of emerging economies to global economic growth. Countries such as Brazil, China, India and South Africa that were less significant in the global economy in the post-war era now account for more than 14 per cent (UNCTADstat) of global gross domestics product (GDP). Globalization has led to a greater understanding that emerging and developing economies should gain greater voice and representation in the governance of international economic and financial institutions (Foundez and Tan, 2010). The Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has selected the "*Percentage of members and voting rights of developing countries in international organizations*" as the appropriate indicator to measure progress.

The Organization is based on the principle of the sovereign equality of all its Members. - *United Nations Charter, Article 2(1)*

The present voting systems in the United Nations and most other international organizations are organized on the principle of "*one member one vote*", ensuring the sovereign equality of Member States. It implies that each Member State or group[10.22] has the same voting weight across all the main organs: the United Nations General Assembly; the Health Assembly of the World Health Organization; the FAO Conference; the World Meteorological Organization Congress; and the like. In principle, this system allows developing countries to out vote more powerful developed countries by forming alliances or blocks. However, it is worth noting that the vast majority of organizations only issue recommendations rather than legally binding decisions. Nevertheless, in order to avoid stalemates or other such situations, international organizations adopt a number of approaches, such as adjusting the size of the majority needed for a particular decision, using a consensus mechanism in decision-making, adopting a system of weighted voting or allowing the use of a veto.

While the United Nations Charter does not formally recognize consensus decision-making, in practice, the General Assembly adopts most resolutions without a vote. Moreover, General Assembly resolutions are only recommendations. In contrast, the United Nations Security Council can issue resolutions that are legally binding on all United Nations Member States.

Furthermore, the five permanent members[10.23] can veto any decision. Since the 1980s there have been many proposals to move from the "*one member one vote*" system to weighted voting based on selected criteria - for example, share of world population, financial contributions to the budget of the organization or a country's GDP (Strand and Rapkin, 2010).

The system in which votes are weighted according to the financial contributions of member States, named by some analysists as the "*one-dollar-one-vote*" system (White, 2005), exists already in the Bretton Woods organizations (IMF and the World Bank). For example, each member State of IMF currently has 250 basic votes plus one additional vote for each 100,000 special drawing rights of quota[10.24]. This gives, for example, the United States of America 16.81 per cent, Germany 5.41 per cent and Palau 0.03 per cent of relative voting rights.

Progress towards enhancing the voice and participation of developing countries, especially low-income countries, in IMF governance was made with the reform package launched on 26 January 2016. The reforms include shifting more than 6 per cent of quota shares from overrepresented to underrepresented member countries, shifting more than 6 per cent of quota shares to dynamic "*emerging market and developing countries*", and preserving the quota and voting shares of the poorest member countries.

China will become the third largest member country in IMF and there will be four emerging-market and developing countries (Brazil, China, India and the Russian Federation) among the 10 largest shareholders in the Fund.

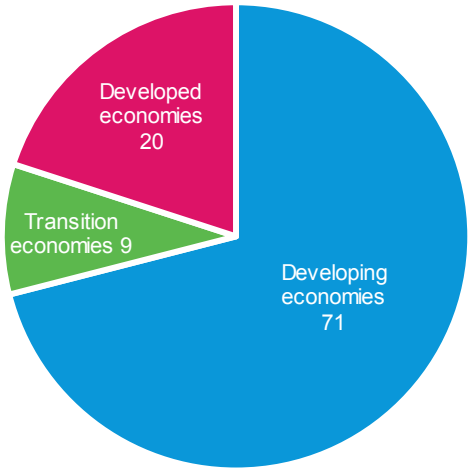
World Trade Organization (WTO) membership has greatly expanded - from the original 23 signatories to the General Agreement on Tariffs and Trade in January 1948 to 162 members at the end of 2015. Developing countries account for 70 per cent of the membership of WTO and are increasingly able to use their power to influence multilateral trade negotiations that have been traditionally dominated by developed countries. But of course, the reality of negotiations and of the decision-making process in WTO is more complex, despite the fact that WTO tries to operate by consensus[10.25].

Some analysts (for example, White, 2005) have argued that consensus decision-making cannot be regarded as a "*major concession by powerful States*". Consensus in the context of a formal rule allowing for majority voting often means that "*a weak State will reluctantly acquiesce in the decision being discussed rather than vote against*", as "*a vote against will not prevent the decision from being taken but it may have consequence for that State*" (Klabbers and Wallendahl, 2011). As Rolland (2007) notes "*In most cases, developing countries have to act in coalitions in order to gain sufficient leverage and some developing*

country members have little - if any - voice if they do not ally with others".

Figure 10.5 shows that the overall voting share of developing countries in the international organizations operating with "*one-member-one-vote*" governance (United Nations General Assembly, United Nations specialized agencies, WTO) constitutes around 70 per cent, while developed countries' share amounts to only 20 per cent.

Figure 10.5. Voting rights by develoment status in the United Nations, UN specialized agencies and the World Trade Organization
(Percentage of total)

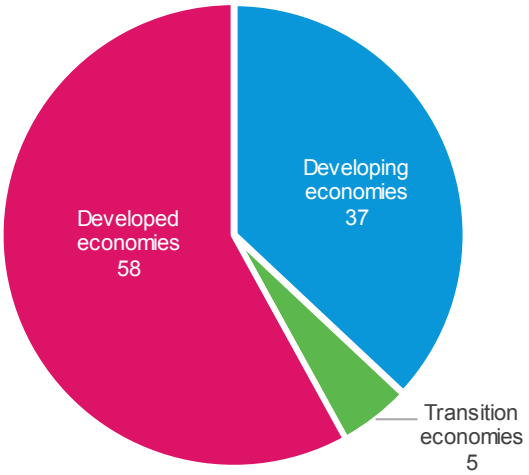


Sources: UNCTAD secretariat calculations based on lists of membership and rules of procedures of the following decision-making bodies: United Nations General Assembly, FAO Conference, International Civil Aviation Organization Assembly, Universal Postal Congress, World Health Assembly, World Meteorological Congress, and World Trade Organization.
Note: Average of voting rights of developing, developed and transition countries in the decision-making bodies above, as of 1st of March 2016.

The situation is different in the case of the International Bank for Reconstruction and Development (IBRD) and IMF, which use weighted voting and where different States have different numbers of votes. The share of developing countries in decision-making in IBRD and IMF currently totals 37 per cent, whereas developed nations control 58 per cent of voting rights (see figure 10.6).

The voting shares employed by the IBRD and IMF do not reflect the increasing economic weight of developing countries in the global economy and are in the opinion of many considered outdated (Radelet, 2015). Citing growing concerns with the legitimacy and credibility of the IMF (Government of India, 2014) this had led to China announcing its intention to establish an Asian Infrastructure Investment Bank (AIIB) and the BRICS countries (Brazil, Russia, India, China and South Africa) announcing their intention to set up their own development bank.

Figure 10.6. Voting rights by development status in the International Bank for Reconstruction and Development and the International Monetary Fund
(Percentage of total)



Sources: UNCTAD secretariat calculations based on IMF members' quotas and voting power and IBRD subscriptions and voting power of member countries.
Note: Average of voting rights of developing, developed and transition countries, as of 1 March 2016.

Target 10.a: Differential treatment for trade

Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements.

This target is very closely related to Goal 17 target 12 and the objective to improve market access conditions to LDCs exports by giving special and differential treatment to LDCs in accordance with the WTO agreements.

The indicator selected by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDG) for this target is the "*Proportion of tariff lines applied to imports from least developed countries and developing countries with zero tariff*".

Table 10.1 presents the percentage of duty-free tariff lines applicable to LDC exports in selected countries.

Commerce is the life blood of a free society. We must see to it that the arteries which carry that blood stream are not clogged again, as they have been in the past, by artificial barriers created through senseless economic rivalries.

- President Franklin D. Roosevelt[10.26]

Table 10.1. Duty-free tariff lines applicable to LDC exports in selected markets, 2013
(Percentage of total number of tariff lines)

Selected developed countries and regions	
Australia	100
Switzerland	100
EU28	99
Japan	98
United States	83
Selected developing countries	
China	62
India	82

Source: UNCTAD (2016).

Almost all developed countries already apply duty-free tariff lines to LDC exports. The main exception is the United States, where more than 15 per cent of tariff lines have a non-zero rate that is applied to LDC exports.

The tariffs facing LDC exports are zero or close to zero in the majority of developed countries and a number of important developing countries that are major markets for LDC exports.

Information on duty-free tariff lines can be usefully supplemented with information on the average tariffs facing LDC exports to assess the implementation of duty-free quota-free market access (see target 17.12).

Target 10.b: ODA and FDI

Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes.

Today, the principles of development finance identified and agreed by the first Conference on Financing for Development - the 2002 Monterrey Consensus (United Nations, 2003) - still remain the basis for international development finance cooperation. "*Increasing international financial assistance and technical cooperation for development*" and "*mobilizing international resources for development: foreign direct investment (FDI) and other private flows*" are two of the six pillars of the Monterrey Consensus. In 2015, at the third Conference on Financing for Development in Addis Ababa, United Nations Member States agreed on a series of new initiatives and concrete measures to "*overhaul global finance practices and generate investments for tackling a range of economic, social and environmental challenges*".

When you don't invest in infrastructure, you are going to pay sooner or later. - *Mike Parker (2005)*

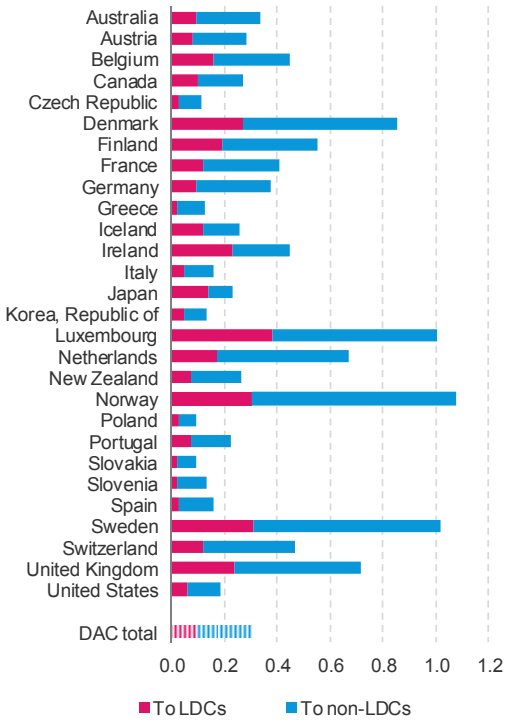
On ODA, developed countries recommitted to achieving the target of 0.7 per cent of gross national income within the time frame of Agenda 2030. The action agenda of the Conference also recognized "*the importance of focusing the most concessional resources on those with the greatest needs and least ability to mobilize other resources*", and urged countries to achieve the target of 0.15 to 0.25 per cent of ODA for LDCs and to reverse the decline in the share of ODA to LDCs.

On mobilizing international resources for development, the Addis Ababa Action Agenda reaffirms that "*international private capital flows, particularly FDI, along with a stable international financial system, are vital complements to national development efforts*" in financing sustained economic growth.

FDI, however, is concentrated in certain sectors in many countries, and "*often bypasses countries most in need*". FDI will not automatically generate technology transfer or linkages with domestic enterprises, nor will it automatically guarantee diversification into more dynamic activities[10.27]. United Nations Member States agreed to adopt and implement investment promotion regimes, including financial and technical support, for the poorest and most vulnerable countries.

In 2014, total development aid[10.28] reached US$161 billion, a 6.8 per cent increase on the previous year and the second consecutive yearly increase after a fall in 2012. Several DAC members reduced their ODA in 2011 or 2012 due to budgetary pressure following the financial crisis. In 2014, DAC members' total ODA rose by 1.8 per cent, to US$137 billion; 16 countries increased their ODA amounts compared to the previous year. In 2014, five of the 28 DAC member countries met the target of 0.7 per cent of gross national income of ODA (Denmark, Luxembourg, Norway, Sweden and the United Kingdom of Great Britain and Northern Ireland) (see figure 10.7). See also Goal 17 targets 17.2 and 17.9.

Figure 10.7. ODA from DAC member countries, 2013
(Percentage of gross national income)



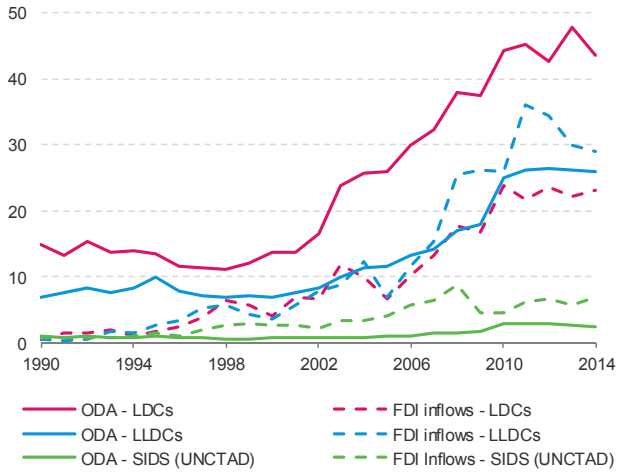
Sources: Millennium Development Goal indicators data and OECD.

ODA flows to LDCs have more than doubled since the 2002 Monterrey Consensus. Net FDI inflows to LDCs more than tripled, while inward FDI stock more than quadrupled between 2002 and 2014. In 2014, LDCs received net ODA worth US$44 billion from DAC countries, the equivalent of 30 per cent of total ODA.

FDI inflows from the world to LDCs during the same period were US$23 billion, a 4 per cent increase from the previous year. But while FDI flows to LDCs were the equivalent of half the value of ODA, FDI stock increased by 10 per cent, reaching US$222 billion (valued in current prices) in 2014. FDI inflows to LDCs are concentrated in a small number of mineral-rich economies, and in 2014, five countries (the Democratic Republic of the Congo, Equatorial Guinea, Mozambique, the United Republic of Tanzania and Zambia) accounted for 58 per cent of total FDI inflows to LDCs.

UNCTAD predicts that, based on announced FDI greenfield projects[10.29] in 2014, this skewed distribution will remain, at least, for some time (UNCTAD, 2015b; UNCTADstat) (see figure 10.8).

Figure 10.8. ODA and FDI inflows to LDCs, LLDCs and SIDS, 1990-2014
(US$ billions)

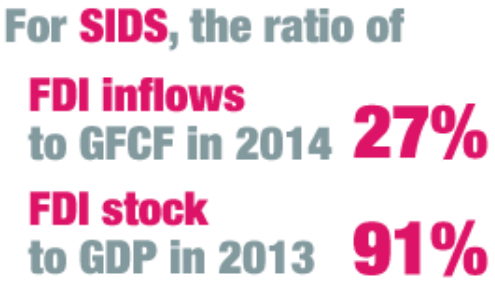


Sources: Millennium Development Goal indicators data, OECD, Development finance statistics / Charts, tables and databases; UNCTAD (2015b).
Notes: The group "*SIDS*" covers the 29 countries included in the UNCTAD's informal list of SIDS. The official list of SIDS according to UN-OHRLLS is longer and includes also the following countries: Bahrain, Belize, Cuba, Dominican Republic, Guinea-Bissau, Guyana, Haiti, Singapore and Suriname.

The Addis Ababa Action Agenda recognizes the special needs of LLDCs "*in structurally transforming their economies, harnessing benefits from international trade, and developing efficient transport and transit systems*" (United Nations, 2015b). FDI inflows to LLDCs exceeded those of ODA in 2007. Net ODA receipts to LLDCs fell by 1 per cent in 2014 but net FDI inflows fell by 2.8 per cent to US$29.1 billion. FDI inflows to LLDCs are concentrated in several economies and in 2014 the top five[10.30] economies accounted for 71 per cent of total flows. Azerbaijan, Kazakhstan and Turkmenistan have received 50 to 60 per cent of the total inflows to LLDCs since 2010 (59 per cent in 2014). FDI inflows to Ethiopia and Zambia rose from US$922 million in 2010 to US$3.7 billion in 2014, increasing these countries' share of LLDC FDI inflows from 4 to 13 per cent.

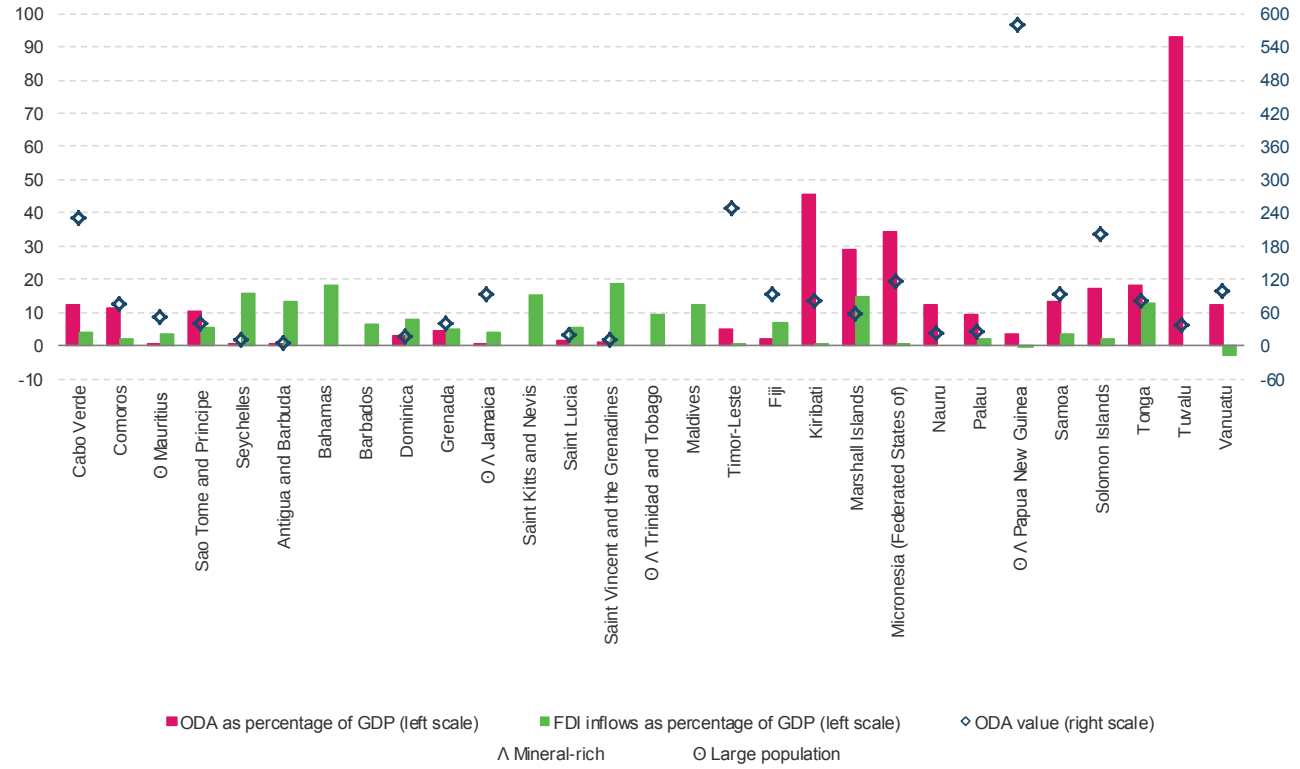
SIDS require special attention due to their particular vulnerabilities, which may constrain their achievements with regard to Agenda 2030 (United Nations, 2015c). Characterized by insularity, geographic remoteness, smallness of economies, populations and areas, SIDS have narrow resource bases and limited options for economic diversification. They are heavily dependent on volatile export markets and cannot achieve economies of scale. Climate change and rising sea levels pose significant threats to their survival. Although SIDS recognize their ownership and leadership in overcoming these challenges, their success in implementing the Sustainable Development Goals will hinge on the availability of international cooperation and the full participation of relevant stakeholders, including people, governments, civil society and the private sector.

FDI remains the main source of external financing for SIDS. Total FDI inflows to the 29 SIDS was almost US$7 billion in 2014 and the stock of inward FDI was valued at US$98 billion in 2013 - high Levels relative to the size of their economies. The ratio of FDI inflows to gross fixed capital formation (GFCF) for SIDS is much higher (27 per cent in 2014) than that of developing countries in general (almost 8 per cent) and the world (almost 9 per cent in 2013). The ratio of FDI stock (US$98 billion) to GDP (91 per cent of GDP in 2013) also reveals the significance of FDI for SIDS.



The patterns of ODA and FDI flows are quite different between SIDS (see figure 10.9). FDI inflows and stock are concentrated in a small number of countries[10.31]. FDI inflows in 2014 to Bahamas (US$1.6 billion), Jamaica (US$0.6 billion), and Trinidad and Tobago (US$2.3 billion) accounted for two thirds of FDI inflows to SIDS. The share of FDI stock of these three countries was 60 per cent. Regionally, FDI into SIDS is concentrated mostly in the Caribbean and in countries with rich mineral deposits, good tourism opportunities, or those offering fiscal advantages. Australia and the United States are the main direct investors in SIDS, although China is emerging as a new investor (UNCTAD, 2015b). ODA to SIDS was US$2.4 billion in 2014, a 14 per cent fall on the previous year, the third consecutive year of decline. In contrast, the main SIDS recipients of ODA are Cabo Verde, Papua New Guinea, the Solomon Islands and Timor-Leste. These four countries receive about 50 per cent of ODA directed to SIDS. The ODA received by Kiribati, the Marshall Islands, the Federal States of Micronesia and Tuvalu was equivalent to more than one third of their combined GDP. Seven additional countries[10.32] received ODA corresponding to more than 10 per cent of their GDP.

Figure 10.9. ODA and FDI inflows to SIDS in 2014
(billion US$; percentage of GDP)



Sources: Millennium Development Goal Indicators; OECD, Development finance statistics / Charts, tables and databases; UNCTADstat; UNCTAD (2015b).

Notes and references

Notes

10.1 Goal 10 explicitly demands equality irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status. See target 10.2.

10.2 For a more detailed discussion on this topic see Sala-i-Martin (2002), Deaton (2004) and Milanovic (2012).

10.3 For example, household surveys may exclude households of linguistic minorities, those without telephones or fixed addresses, nomadic households, and households in distant or difficult-to-reach locations. They typically exclude the homeless or those without a fixed address.

10.4 Including UNCTAD transition countries.

10.5 Sala-i-Martin (2002) lists some of the most popular indexes used in the literature: (1) The Gini index; (2) the Theil index.

10.6 The Gini index has been criticized as it does not respond in the same way to income transfers between households in the tails of the distribution as it does to transfers in the middle of the distribution. Furthermore, very different income distributions can present the same Gini index.

10.7 See United Nations, Department of Economic and Social Affairs (2015) for a good comparative summary of the key indices used to measure inequality.

10.8 Sample statistics compiled from household income and consumption surveys are not strictly comparable. In general, household consumption is determined by household income, but also by other factors, such as the size of household, location and savings. Both income and consumption are influenced by the employment status of household members. Incomes of agricultural workers in rural areas may vary periodically or may be severely affected by natural disasters such as drought or other unusual conditions, while the consumption level might be smoothed with available savings. Sample median values based on national household data sets were published by Diofasi and Birdsall (2016). Using the World Bank tool PovcalNet, UNCTAD obtained poverty headcount ratios. The results showed a consistent pattern for certain countries and groups but not for others. The World Bank warns

that 'PovcalNet was developed for the sole purpose of public replication of the World Bank's poverty measures for the widely used international poverty lines, including US$1.90 a day and US$3.10 a day in 2011 PPP. However, we cannot be confident that the methods work well for other purposes, including tracing out the entire distribution of income. We would especially warn that estimates of the densities near the bottom and top tails of the distribution could be quite unreliable". The World Bank (Development Research Group) data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, see PovcalNet at (http://iresearch.worldbank.org/PovcalNet/index.htm)

10.9 Or in households with no male adults.

10.10 That is, wealth share held by the lowest 20 per cent of the population. Percentage shares by quintile may not sum exactly to 100 because of rounding.

10.11 A wealth asset index in the demographic and health surveys and multiple indicator cluster surveys are used as a proxy for household poverty to compare the ratio of women to men of working age (20-59) who live in the lowest wealth quintile of all households.

10.12 Those aged between 15 and 59.

10.13 Those aged between 15 and 24.

10.14 The populations of 14 LDCs in Africa have a probability of growing by more than 50 per cent between 2015 and 2030. These countries are: Angola, Burkina Faso, Burundi, Chad, the Democratic Republic of the Congo, the Gambia, Malawi, Mali, the Niger, Senegal, Somalia, Uganda, the United Republic of Tanzania and Zambia, and their rural populations are projected to grow by between 28 and 69 per cent during the same period (United Nations, 2015a).

10.15 Data for 8 LDCs show that around 61 per cent of women were employed in 2014. Seventy-three per cent of these women were employed in the agriculture sector (UNCTAD, 2015a).

10.16 Based on United Nations projections (United Nations, Department of Economic and Social Affairs, 2014; United Nations, 2015a) and using projected broad age structure of populations at national levels.

10.17 The IMF Financial Soundness Indicators dashboard (which the organization has been compiling since 2011) includes indicators such as bank regulatory capital to risk-weighted assets; bank capital to assets; bank non-performing loans to total loans; bank provisions to non-performing loans; bank return on assets; and bank return on equity. See http://data.imf.org/?sk=9F855EAE-C765-405E-9C9A-A9DC2C1FEE47&ss=1411569045760.

10.18 Bank non-performing loans to total loans (2015): Cyprus 46 per cent; Greece 35 per cent; Ireland 15 per cent; Italy 18 per cent; Portugal 13 per cent; San Marino 47 per cent.

10.19 In 1996 (based on 1995 daily global foreign exchange turnover) it was estimated that a tax rate of 0.1 per cent could yield between US$150 billion and US$170 billion annually (Bird and Rajan, 1999). McCulloch and Pacillo (2011) provide a comprehensive review of global revenue arising from a Tobin tax, which they estimate ranges between US$147 billion and US$1.6 trillion annually depending on the rate of tax applied and whether over-the-counter derivatives are included or not.

10.20 Belgium and Greece already had a similar tax in place. France and Italy have since introduced their own taxes.

10.21 Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia and Spain. In December 2015, Estonia withdrew support for FTT. Countries opposed to FTT argue there are risks of reduced market liquidity and subsequent higher price volatility, which could result in the costs of capital rising and a fall in investment. The final decision on FTT is expected to be taken on 17 June 2016.

10.22 Government, employers and workers' groups at the ILO General Conference.

10.23 China, France, the Russian Federation, the United Kingdom and the United States.

10.24 IMF quotas are denominated in special drawing rights, the IMF's unit of account.

10.25 "*Where a decision cannot be arrived at by consensus, the matter at issue shall be decided by voting. At meetings of the Ministerial Conference and the General Council, each Member of the WTO shall have one vote*" (article IX of the Marrakesh Agreement establishing WTO).

10.26 Inaugural statement, Bretton Woods (Conway, 2014).

10.27 FDI flows to African countries are concentrated largely in the extractive sector that reinforces their commodity export dependence and their vulnerability to commodity price movements. FDI per se will not "*automatically generate opportunities for technology transfer, linkages with domestic enterprises and opportunities for diversification into more dynamic activities*". FDI has made a greater contribution to development in countries equipped with a well-developed and dynamic domestic enterprise sector UNCTAD (2013b).

10.28 Total development aid receipts are the sum of total net ODA flows from DAC countries, multilateral organizations, and non-DAC countries.

10.29 A greenfield FDI is a form of FDI in a manufacturing or production plant involving the construction by a parent company of new facilities where little or no physical infrastructure or facilities existed previously.

10.30 Azerbaijan, Ethiopia, Kazakhstan, Turkmenistan and Zambia.

10.31 Bahamas, Jamaica, and Trinidad and Tobago are the three main SIDS destinations for FDI.

10.32 Cabo Verde, the Comoros, Nauru, Samoa, Sao Tome and Principe, the Solomon Islands, Tonga and Vanuatu.

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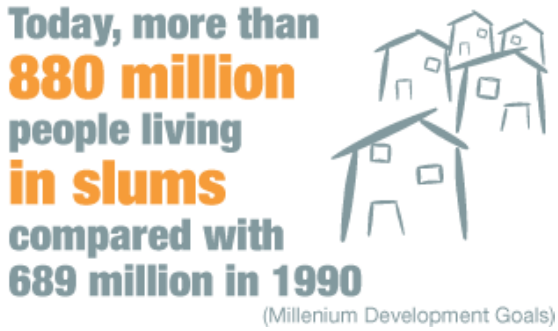
Goal 11: Sustainable cities and communities

Make cities and human settlements inclusive, safe, resilient and sustainable.

Goal 11 is a complex cross-cutting goal, of immediate relevance for a rapidly urbanizing planet[11.1]. The successful implementation of Goal 11 will play a vital role in the wider realization of the aspirations for planet, people, peace, partnership and prosperity. It aims to provide safe and affordable housing and public transport, and develop well-planned cities with environmentally sustainable buildings and increased green public spaces where cultural and natural heritage is protected.

"Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody. " - *Jane Jacobs, The Death and Life of Great American Cities*

The goal also aims to improve resilience to disasters and risk management. It also continues work begun as part of Millennium Development Goal 7 in improving basic services[11.2] and reducing slums[11.3]. As already noted in Goal 6, between 1990 and 2015, 2.6 billion people gained access to improved drinking water sources and more than 2 billion people gained access to improved sanitation.

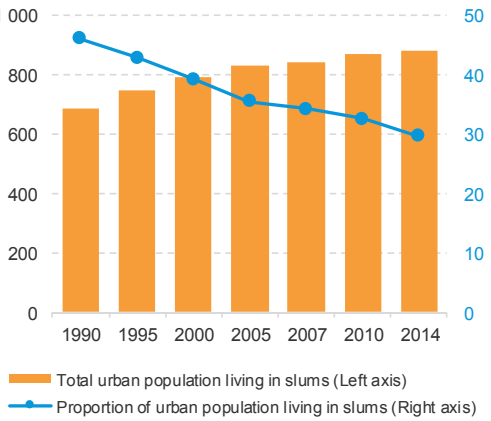


The global proportion of urban populations living in slums has fallen from 46 per cent in 1990 to 30 per cent in 2014. Simultaneously however, urban populations have grown, leading to a situation where the absolute numbers living in slums have increased from 689 million in 1990 to 881 million in 2014 (see figure 11.1).

The decline in the proportion of slums has occurred in every region of the world with the exception of Western Asia, where the proportion has been more volatile and slightly increased to 26 per cent in 2005 (see figure 11.2). In sub-Saharan Africa, one of the least urbanized regions, the proportion of slums is very high but has fallen considerably, from 70 per cent in 1990 to 56 per cent in 2014. Even more dramatic improvements are evident for Southern and South-eastern Asia.

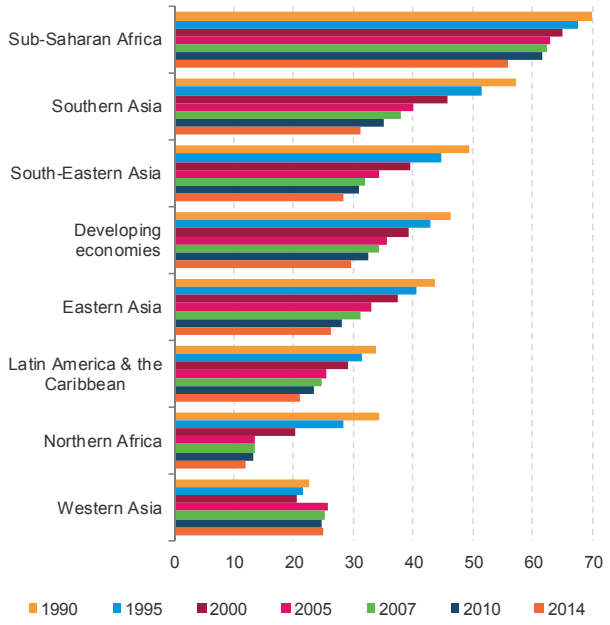
The world population living in urban areas has increased dramatically from 746 million (29 per cent urbanization) in 1950 to almost 4 billion (54 per cent urbanization) in 2014. People will continue to move to cities in search of opportunities - employment, a better quality of life, or access to modern public infrastructure and facilities. This "*turbo-urbanization*"[11.4] is expected to continue and projected to rise even further to 6.4 billion, accounting for 66 per cent of the global population by 2050 (United Nations, 2014). These additional 2.5 billion urban dwellers are the equivalent of roughly 192,000 people moving into cities across the world every single day for the next 35 years.

Figure 11.1. Population and proportion of urban population living in slums, 1990 - 2014
(Population in millions and proportion of slum population as percentage of urban population)



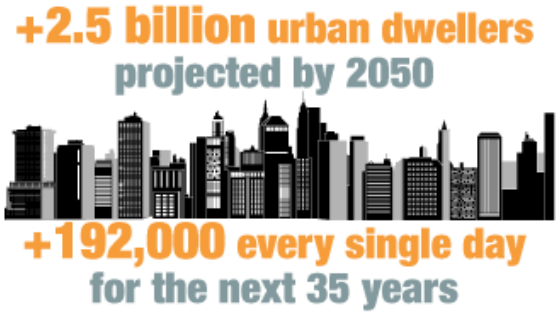
Source: UN-Habitat (2016).
Note: Data refer to developing regions only.

Figure 11.2. Proportion of urban population living in slums by region, 1990-2014
(Percentage of urban population)



Source: UN-Habitat (2016).
Notes: 2014 urban population figures include South Africa and Sudan as part of sub-Saharan Africa. UN-Habitat region definitions.

Most of this population and urban growth will occur in the cities of Africa and Asia (see special note on population). By 2050 it is estimated that more than 2 billion people will live in slums (Eaves, 2007).



The continuing demographic swing from rural to urban settings poses risks regarding an increase in slums. Rapid urbanization will pose significant infrastructural challenges, particularly in Africa and Asia, where projected population growth will be largest. Providing sufficient durable housing with basic services, such as clean water and good quality sanitation will be a major challenge.

Unfortunately, failures will disproportionately affect the world's poorest and most vulnerable cities (Weiss, 2013). Political instability and conflict also pose risks of a deterioration in provision of basic services and shelter in cities, resulting in an increased prevalence of slums. UN-Habitat identifies conflict-affected countries in sub-Saharan Africa, for example, the Central African Republic and Côte d'Ivoire, as high-risk areas for slum growth (UN-Habitat, 2008) (see Goal 16). The authors cite Zimbabwe as the most conspicuous case, where the proportion of slums increased from 3 to almost 18 per cent between 2000 and 2010.

Egypt, Mexico, Brazil and Indonesia have been the most successful countries in the developing world in reducing the proportion of people living in slums. For example, the proportion of inhabitants living in slums in Egypt fell from 28 per cent of the urban population in 2000 to 17 per cent in 2010. This represented improved living conditions for 5 million people (UN-Habitat, 2008). Mexico, too, has made great progress, reducing slum prevalence from around 20 per cent in 2000 to an estimated 11.1 per cent in 2007.

Between 2007 and 2014, a number of other countries have had notable success in reducing the proportion of their populations living in slums. In sub-Saharan Africa, Angola, Rwanda, United Republic of Tanzania and Niger were the most successful countries. During this period Angola reduced the proportion of its population living in slum conditions from 76 to an estimated 55.5 per cent, and Rwanda and United Republic of Tanzania reduced the percentage of their populations living in slums from 68 to 53 per cent, and from 65 to 51 per cent, respectively.

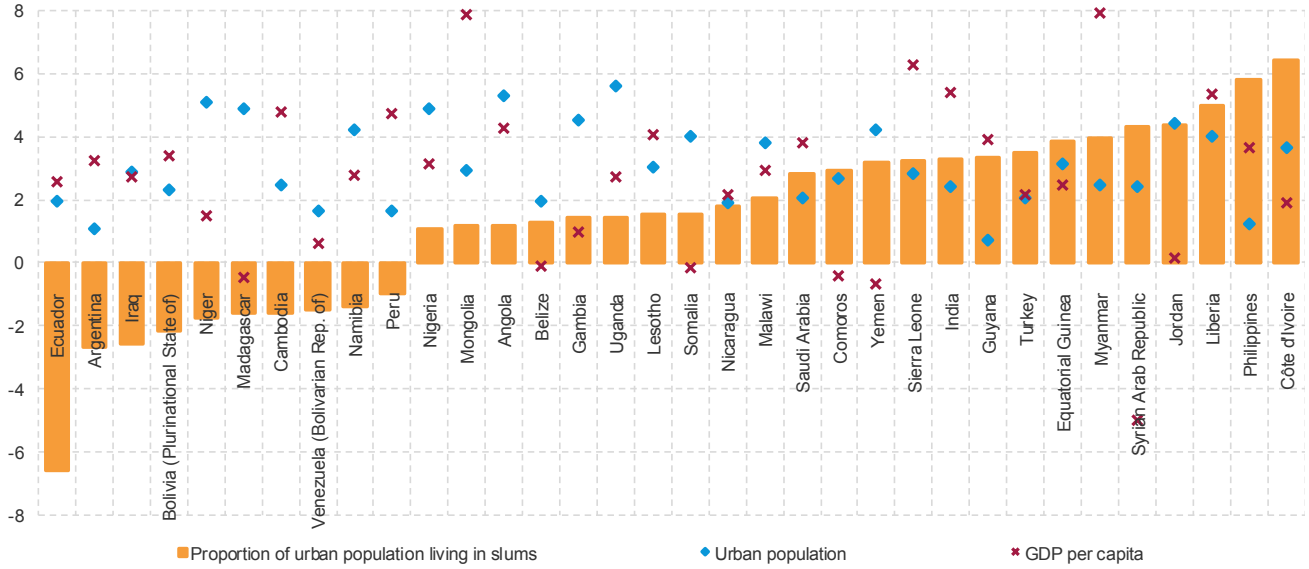
In Asia, Bangladesh managed to reduce the percentage of its population living in slum conditions from 66 to 55 per cent. Mongolia has also had some success, reducing slum prevalence from 58 to 43 per cent (Millennium Development Goals Indicators).

Figure 11.3 compares changes in the growth in the proportion of urban population living in slums, urban population and gross domestic product (GDP) per capita for a selection of developing countries. The data show that for most countries there appears to be a positive correlation between the growth in GDP per capita and a reduction in slums.

In most countries urban population growth exceeded slum growth. However, this relationship doesn't always hold, as is evident in Cote d'Ivoire, Philippines, Liberia and Jordan, where there is no consistent trend between urban population, slums and GDP per capita growth.

The rapid growth of urban and slum centres brings new health risks, in particular, the prevalence of noncommunicable diseases such as cancer, cardiovascular disease and diabetes. Strained health systems combined with poor air quality, less nutritious diets and lack of space to exercise are all contributing factors.

Figure 11.3. Changes in GDP per capita, slum and urban populations for selected countries, 2007–2014
(Annual percentage growth rate)



Sources: UNCTAD calculations based on UNCTADstat for GDP per capita and urban population; and UN-Habitat for population living in slums.
Note: Countries are ranked by the annual average growth rates of urban population living in slum during the period 2007 to 2014.

Notes and references

Notes

11.1 It is projected that 60 per cent of the world's population will live in urban settlements by 2030 and 66 per cent by 2050 (United Nations, 2014).

11.2 Millennium Development Goal target 7.C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.

11.3 Millennium Development Goal target 7.D: Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers.

11.4 The term "*turbo-urbanization*" is taken from Robert Muggah's paper on fragile cities (Muggah, 2016).

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PEACE

"We are determined to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development."

The Peace section of this report consists of a single sustainable development goal - 16.

Over the past decade more than 250 conflicts have affected all parts of the world, with about 55,000 people perishing annually as a direct consequence. The Global Peace Index suggests that the world as a whole in 2015 was less peaceful compared with 2014, due largely to deteriorating scores in societal safety and security, ongoing conflicts and global terrorism.

References

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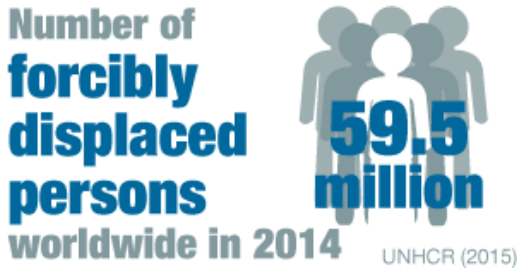
Goal 16: Peace, justice and strong institutions

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

For international peace and security, 2014 was not a good year. The year witnessed the highest number of refugees and displaced people since World War II. At the start of 2015, 59.5 million people were classified as forcibly displaced worldwide, either as a result of persecution, conflict, generalized violence or human rights violations. An estimated 13.9 million people were newly displaced by conflict in 2014, including 2.9 million new refugees. The continued fighting in the Syrian Arab Republic brought the number of displaced persons in that country to 7.6 million, the highest number anywhere in the world (Office of the United Nations High Commissioner for Refugees (UNHCR), 2015).

"Every gun that is made, every warship launched, every rocket fired signifies in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children."
- Dwight D. Eisenhower (1953)

The year 2014 also witnessed the highest number of "*battle-related deaths*" in 25 years. There were approximately 101,000 battle-related deaths that year compared with 72,000 the previous year and 80,000 in 1990. The increases compared with 2013 arose from notable rises in casualties in Afghanistan, Iraq, Israel, Pakistan, South Sudan, the Syrian Arab Republic, Ukraine and Yemen. Global terrorism continued to rise in 2014. The Institute for Economics and Peace (2015) estimates that the total number of terrorism deaths in 2014 was approximately 32,700, an 80 per cent increase on the previous year and the highest level ever recorded. The number of people who have died from terrorist activities has increased ninefold since the year 2000. Not surprisingly, the economic cost of terrorism also reached its highest ever level in 2014, estimated at US$53 billion.

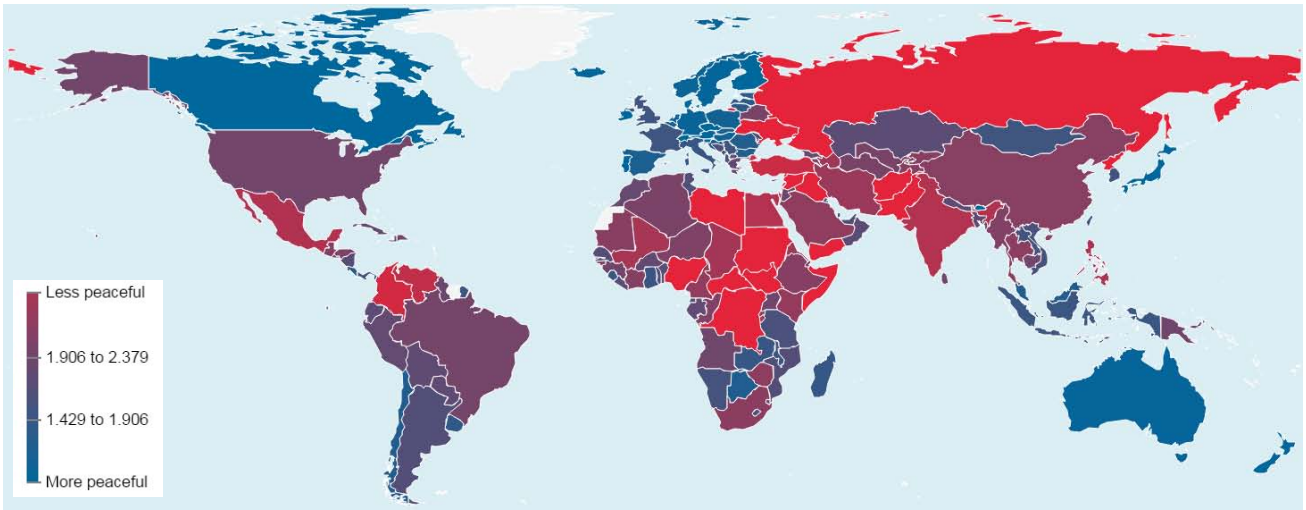


"Peace is the only battle worth waging."
- Albert Camus (1945)

The Institute for Economics and Peace also estimates that the cost of containing terrorism (approximately US$117 billion) was more than double the direct cost of terrorism. Schippa (2016) estimates that the combined economic impact of this violence was US$13.6 trillion, the equivalent of US$5 per day for every person on the planet[16.1] or more than 13 per cent of world gross domestic product.

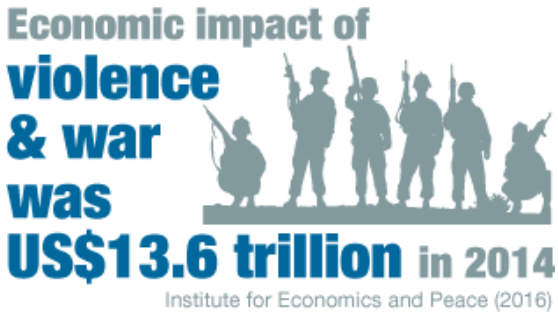
The Global Peace Index (Institute for Economics and Peace, 2016) provides a summary overview of the global state of peace see figure 16.1. The index suggests that the world as a whole in 2015 was less peaceful compared with 2014, due largely to deteriorating scores in societal safety and security, ongoing conflicts and global terrorism. But across countries, patterns were quite varied.

Figure 16.1. Global Peace Index, 2016



Source: Institute for Economics and Peace (2016).

Peace inequality increased as 81 countries registered improvements in peacefulness, while in 79 countries peacefulness deteriorated. That deterioration was most evident in the Middle East and North Africa, particularly in Afghanistan, Iraq, Libya, Pakistan, the Syrian Arab Republic and Yemen. Europe remained the most peaceful region in the world, where Iceland and Denmark were identified as the most peaceful countries. Other countries have also been identified as having weak or unstable peace conditions, notably the Democratic People's Republic of Korea, the Democratic Republic of the Congo, Nigeria, the Russian Federation, Somalia, South Sudan, Sudan and Ukraine.



Over the past decade more than 250 conflicts have affected all parts of the world, with about 55,000 people perishing annually as a direct consequence. The widespread availability of small arms and light weapons and their ammunition is a key enabler of these conflicts. Arms and ammunition, often originating in small-scale consignments and from varied sources (including government depots), have a destabilizing impact, enabling terrorists, pirates or other armed groups to operate (United Nations Security Council, 2015). Small arms are thought to be used in 44 per cent of all violent deaths (Geneva Declaration on Armed Violence and Development, 2015).

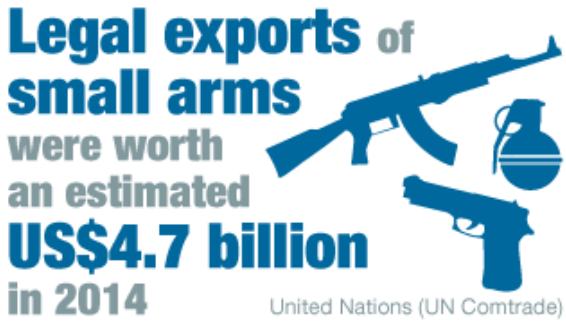
Approximately US$4.7 billion in small arms and light weapons were exported legally in 2014[16.2]. This compares with US$1.6 billion in 2000. The top 10 exporting countries in 2014 accounted for sales of US$3.6 billion or 76 per cent of all small arms and light weapons exports. Coincidently, the top 10 importing countries that year accounted for purchases of US$3.6 billion or 74 per cent of all small arms and light weapons legally imported (see table 16.1). The United Nations in 2006 estimated that about 25 per cent of the annual global trade in small arms is "*illicit*" or not recorded as required by law (United Nations, 2006). If this estimation is valid, then the global value of exports might be closer to US$5.9 billion.

Research suggests that close to 80 countries currently produce small arms ammunition, but only 60 have the capacity to produce complete light weapon systems or components. More than half of these countries are capable of producing human-portable air-defence systems or anti-tank guided weapons. The granting of licences and production rights and the spread of technology have enabled many countries to produce small arms and light weapons without undertaking expensive or time-consuming research and development programmes. The Graduate Institute of International and Development Studies, Small Arms Survey (2015) estimates that between 530,000 and 580,000 military small arms are produced annually either under licence or as unlicensed copies.

Table 16.1. Top 10 authorised small arms and light weapons exporting and importing countries, 2014
(US$ millions; percentage)

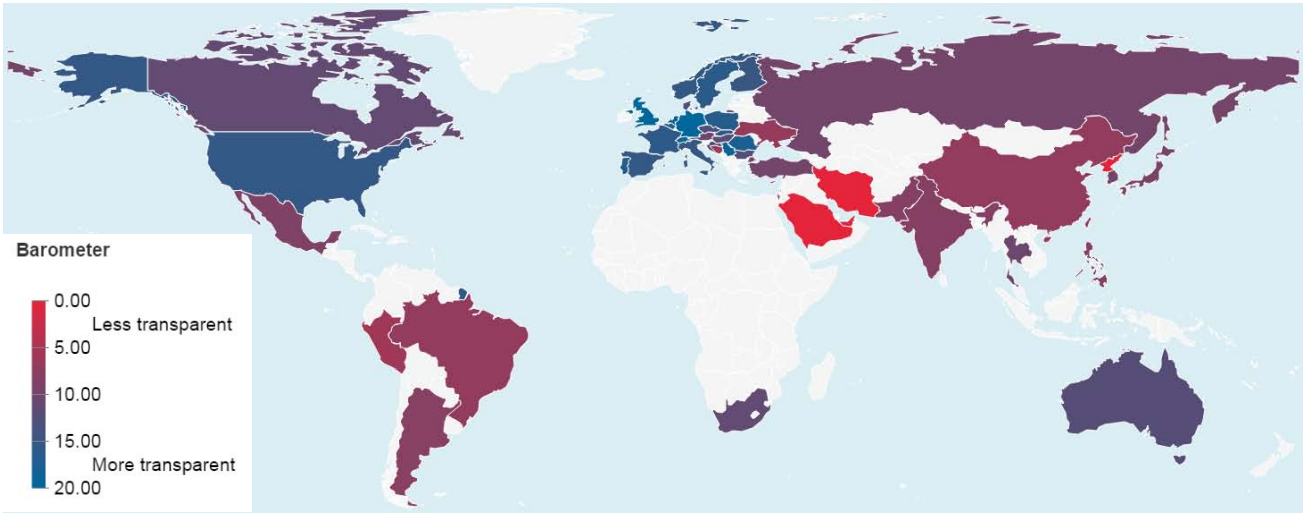
Exports			Imports		
	Value	Percentage		Value	Percentage
United States	1 165	25	United States	2 213	46
Italy	608	13	Canada	359	7
Germany	431	9	Indonesia	244	5
Korea,Republic of	341	7	Australia	163	3
Brazil	310	7	Germany	156	3
Turkey	197	4	Norway	110	2
Czech Republic	145	3	France	98	2
Croatia	141	3	United Kingdom	84	2
Switzerland	136	3	Korea,Republic of	76	2
Spain	97	2	Thailand	73	2
Top 10	**3 569**	**76**	**Top 10**	**3 577**	**74**
Total	**4 725**	**100**	**Total**	**4 857**	**100**

Source: UNCTAD calculations based on UN Comtrade.
Note: 2014 data have been used, as 2015 data are partially complete (90 economies have reported to UN Comtrade at the time of writing). It should be noted however that 2014 data are not fully complete either and that some important gaps exist. Notably, no data for Israel are available since 2011. That year this country was ranked the eighth most important exporter of small arms and light weapons in the world.



The Small Arms Survey Small Arms Trade Transparency Barometer assesses the transparency of the main exporters (see figure 16.2). The assessment is based on information gathered from national and regional arms export reports, the United Nations Register of Conventional Arms and the United Nations Comtrade. The scoring is based on the quality of the data regarding timeliness, access and consistency, clarity, comprehensiveness, deliveries, and licences granted and refused. The barometer identifies a wide range of country practices. The United States of America, the biggest exporter in the world, has an aggregate score of only 11.25 (out of a possible maximum of 25). Italy, the second largest exporter, is more transparent with an aggregate score of 15. Germany, the third largest exporter of small arms, has a transparency rating of 19.75. Other major exporters such as Brazil, the Republic of Korea and Turkey only have scores of 7.0, 9.75 and 9.75, respectively. Quite a few other countries have low transparency regarding their weapons exports: Argentina (8); China (7); the Russian Federation (9.75) and Ukraine (6.75). Other countries have no transparency at all - Iran (0) and Saudi Arabia (0), for example.

Figure 16.2. Small Arms Trade Transparency Barometer, 2016



Source: Pavesi (2016)

Notes and references

Notes

16.1 It should be remembered that the threshold for extreme poverty is US$1.90 per day and the total value of official development assistance was US$137 billion in 2014 (See Goal 17).

16.2 UNCTAD calculations based on United Nations Comtrade, using the following Harmonized System codes: 930100, 930120, 930190, 930200, 930320, 930330, 930510, 930520, 930521, 930529, 930621 and 930630.

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PARTNERSHIP

"We are determined to mobilize the means required to implement this Agenda through a revitalized Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people."

The Partnership section of this report consists of a single sustainable development goal - 17. It is the single biggest goal of Agenda 2030, containing 19 individual targets.

Goal 17 naturally lies at the heart of Agenda 2030. It is about getting things done. Consequently, it is a cross-cutting goal that straddles all of the other sixteen Goals. It emphasizes the partnerships that will be required between governments, the private sector and civil society to implement a successful sustainable development agenda - to promote partnership and highlight the interlinkages between people, planet, prosperity and peace at the global, regional, national and local levels.

References

United Nations (2015). Transforming our World: The 2030 Agenda for Sustainable Development. United Nations: A/RES/70/1. Available at https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf.

Goal 17: Partnerships for the goals

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Goal 17 naturally lies at the heart of Agenda 2030. It is about getting things done. Consequently, it is a cross-cutting Goal that straddles all of the other 16 Goals. It emphasizes the partnerships that will be required between governments, the private sector and civil society to implement a successful sustainable development agenda - to promote partnership and highlight the interlinkages between people, planet, prosperity and peace at the global, regional, national and local levels.

"This is the people's Agenda, a plan of action for ending poverty in all its dimensions, irreversibly, everywhere, and leaving no one behind. It seeks to ensure peace and prosperity, and forge partnerships with people and planet at the core. The integrated, interlinked and indivisible 17 Sustainable Development Goals are the people's goals and demonstrate the scale, universality and ambition of this new Agenda."

- Ban Ki-moon, Secretary-General of the United Nations (Ban Ki-moon, 2015)

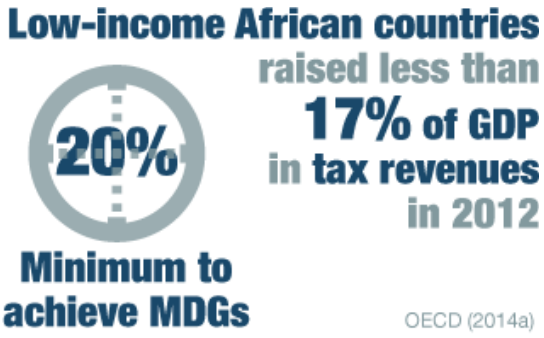
Goal 17 is the continuation of Millennium Development Goal 8: Develop a global partnership for development. As one might expect, many of the targets from Goal 8 are continued but also developed, such as non-discriminatory trading[17.1], debt[17.2], information and communications technology (ICT)[17.3] and aid delivery[17.4]. But Goal 17 takes a broader perspective, for example, where emphasis is placed not only on implementing official development assistance (ODA) commitments[17.5] but also on domestic resource mobilization[17.6] and raising finance from other sources[17.7]. Goal 17 also introduces new issues for the first time, such as investment[17.8] and enhanced North-South, South-South and triangular cooperation[17.9]. Goal 17 also echoes the call for a data revolution acknowledging the importance of data as a critical driver for development[17.10].

Strengthening the means of implementation will require resources and funding. Targets from 17.1 to 17.5 deal with the financing aspect of Agenda 2030. These targets identify the need for countries, in particular least developed countries (LDCs), to improve domestic, international and additional resource mobilization. The finance section also highlights the need for developed countries to fulfil their ODA commitments, the need to address debt sustainability and improve investment promotion regimes.

In order to monitor progress, data will be required and this need is enormous and will itself require significant resourcing and investment. At the 47th session of the United Nations Statistical Commission (UNSC), an indicator framework comprising 230 indicators was agreed (United Nations, 2016). In addition to their general supporting role, as noted above, official statistics and data will also play an explicit role in targets 17.18 and 17.19. But arguably, the most important contribution to the debate regarding data may be in relation to target 9.1[17.11] where the importance of developing quality, reliable and sustainable infrastructure is highlighted. It is not often appreciated, but organized data are a critical piece of nations' "*soft infrastructure*", every bit as important as roads, sewage or broadband (MacFeely and Dunne, 2014; Dunne and MacFeely, 2014). If data can be linked to other data then the power of all those data increases immeasurably.

17.1: Domestic resource mobilization

Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.



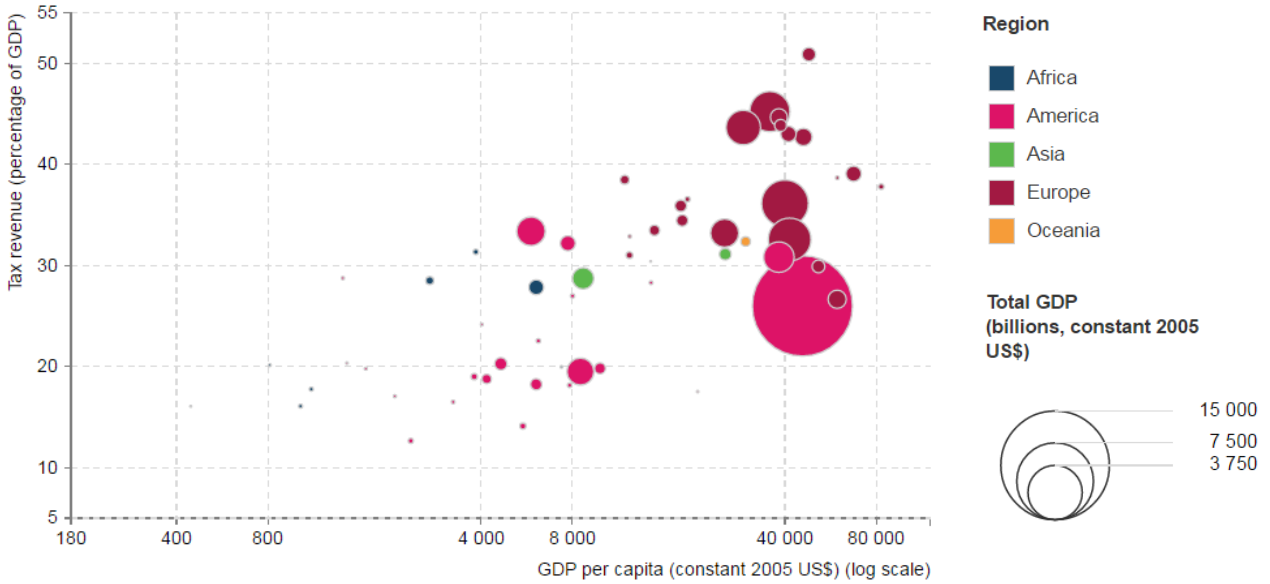
The ability of a State to mobilize its own resources and collect taxes to pay for essential services (education, health, social protection, security, and the like) is at the very heart of a properly functioning government. It is also essential for public investment in equitable and sustainable development and the reduction of dependence on aid. It has also been argued that domestic taxation also increases accountability and "*creates a platform for governments to engage with their citizens*" thus creating a social or "*fiscal contract*" between State and citizens (Organization for Economic Cooperation and Development (OECD), 2014a). The Monterrey Consensus (United Nations, 2003), the Doha Declaration on Financing for Development (United Nations, 2008) and most recently the Addis Ababa Action Agenda (United Nations, 2015) have all highlighted the important role of domestic financial resources for development and offsetting vulnerability.

As John Di (2010) points out, taxation is a useful and often neglected indicator, not just on resource mobilization but also for measuring State performance. Examining several tax indicators contributes to identifying State authority and legitimacy and the likelihood of State resilience. The ability of sovereign States to raise taxes and implement independent tax policies can be undermined by financial globalization as individuals and corporations evade domestic taxation by moving assets. Movements of speculative capital also pose problems in this regard, heightening risks of capital flight. This problem may be more pronounced for developing countries (Helleiner, 1999; UNCTAD, 2015a).

"Once you realize that trickle-down economics does not work, you will see the excessive tax cuts for the rich as what they are - a simple upward redistribution of income, rather than a way to make all of us richer, as we were told." - Chang H-J (2011)

Over the past decade, as developing countries have become wealthier, there has been a corresponding growth in domestic revenues available. Figure 17.1 shows the positive relationship between government revenues as a share of GDP and per capita GDP. Cross-country comparisons also show that OECD and other high-income countries tend to levy higher tax revenues as a percentage of GDP than developing or low/middle income countries.

Figure 17.1. Evolution of tax revenues and GDP per capita, 2014



Sources: OECD Tax database (Tax revenues) and UNCTADstat (GDP per capita).
Notes: Data on tax revenues refer to general government revenues. Data on per capita GDP are shown in logarithmic scale. The size of the bubbles refers to the total GDP.

But within developing countries a wide variety of tax policies and regimes are employed, yielding a wide range of tax per GDP levels. For example, the Bahamas enjoy a relatively high per capita GDP[17.12] but collect a proportionately low level of tax[17.13].

Meanwhile the Plurinational State of Bolivia, Morocco, Trinidad and Tobago, and Turkey have very varied per capita GDP[17.14] but all with tax revenues equating to about 28 per cent of GDP[17.15]. At the other extreme, Rwanda had a very low per capita GDP in 2012[17.16] but still generated the equivalent of 16 per cent of GDP through tax.

Within the high-income group of countries Canada, Ireland, New Zealand and the United Kingdom of Great Britain and Northern Ireland have quite high standards of per capita GDP but all have proportionately high tax revenues relative to the average[17.17]. Denmark collects the highest proportionate tax, 50.9 per cent in 2014, and interestingly is classified as the happiest country in the world (World Happiness Report). One of the challenges with such cross-country analyses is that the results can vary dramatically depending on the data source used. The analysis above is based on calculations using OECD data and UNCTADstat. Had World Bank data been used, a different picture would have emerged (World Development Indicators).

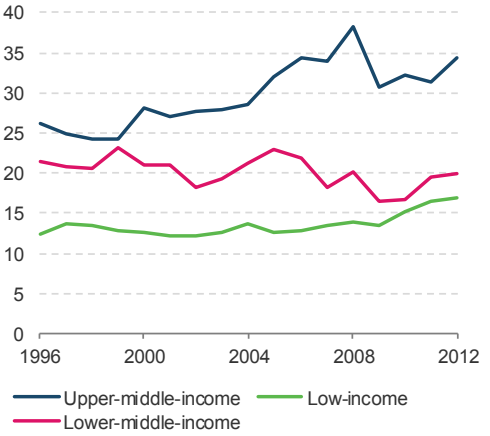
In order to achieve the ambitious Sustainable Development Goal Agenda, developing countries will need to raise more revenues. While external sources will play their part, most of those revenues will be domestic. To balance increased revenues with equitable development, taxation will need to be progressive and used efficiently and transparently.

The Center for Strategic and International Studies (CSIS) estimates that during 2012 developing and emerging economies mobilized US$7.7 trillion in domestic resources (CSIS, 2014). Even in sub-Saharan Africa, where the pace of development has been slower, CSIS estimates that domestic resources exceeded US$530 billion. Yet the report African Economic Outlook (African Development Bank Group (ADBG et al., 2014) notes that in 2012 low-income African countries only mobilized an average 16.8 per cent of their GDP in tax revenues, below the minimum level of 20 per cent considered by the United Nations as necessary to achieve the Millennium Development Goals (United Nations Development Programme (UNDP, 2010)).

Lower- and middle-income African countries fell just short of the minimum target, with an average share of tax revenues in GDP of almost 20 per cent. Upper- and middle-income countries came closer to the OECD average of 35 per cent, at 34.4 per cent. For Africa as a whole, the tax burden stood at 26 per cent of GDP in 2012.

Figure 17.2 shows that the total tax take (as a percentage of GDP) has been growing slowly but fairly steadily for low-income African countries (from 12 per cent in 1996 to 17 per cent in 2012). For lower-middle-income countries the path has been more erratic and hasn't led to any improvement but rather a worsening, from 21 per cent in 1996 to 20 per cent in 2012.

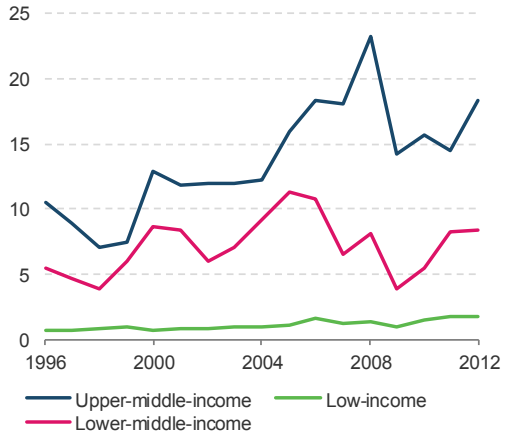
Figure 17.2. Average total tax burden in African States by income group, 1996-2012
(Percentage of GDP)



Source: UNCTAD calculations based on data from ADBG et al. (2014)
Note: World Bank lending group definitions.

For upper- and middle-income African countries the trend has also been quite volatile, but nevertheless an improving situation is evident with a tax burden in 2012 of 34 per cent (up from 26 per cent in 1996). While these improvements are welcome, some of the growth in domestic mobilization arose from the commodities boom or super-cycle, which now appears to have ended. These natural-resource-related tax revenues are reflected in other taxes (figure 17.3).

Figure 17.3. Average 'Other' taxes in African States, by income group, 1996-2012
(Percentage of GDP)



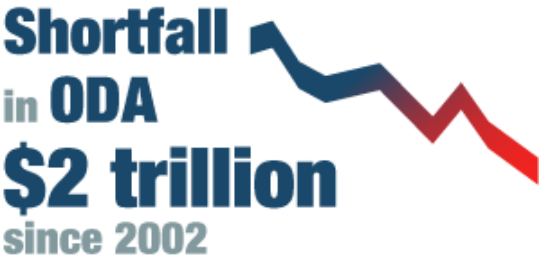
Source: ADBG et al. (2014)
Note: World Bank lending group definitions.

In 2012, other taxes represented US$242 billion, amounting to 46 per cent of total tax revenue in Africa (ADBG et al., 2014). Such resource taxes and the rapid growth in private capital flows represent increasing vulnerabilities for developing and transition countries (UNCTAD, 2015a). Other taxes accounted for more than half of the total tax burden for African upper- and middle-income countries in 2012.

Target 17.2: ODA commitments

Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent ODA/GNI to developing countries and 0.15 to 0.20 per cent to ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries.

The shortfall in the Official Development Assistance (ODA) is a subset of external official aid provided by developed to developing countries. The need to establish a stable flow of ODA was recognized as far back as the 1960s. In fact, a target of official flows equivalent to 0.75 per cent of each developed country's gross national product (GNP) was initially adopted at the second conference of UNCTAD in New Delhi in 1968. This proposal was accepted by most, but not all, developed countries; but after further negotiations, this initiative was approved by the United Nations General Assembly on October 1970, although the target was lowered to 0.7 per cent of GNP.

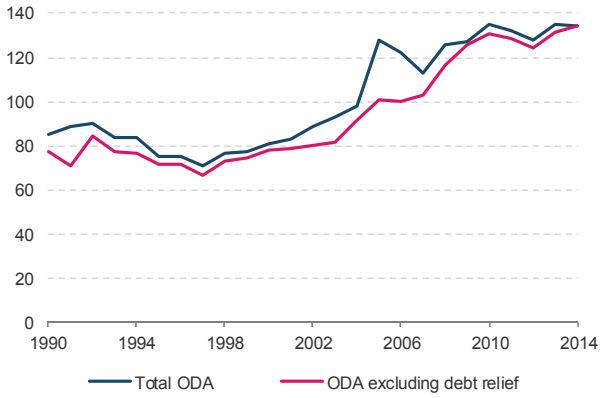


Following a period of decline and stagnation in the 1990s, despite a call for renewed efforts from the Monterrey Consensus on Financing for Development (United Nations, 2003), registered ODA flows to developing countries increased significantly in the 2000s (figure 17.4 and figure 17.5).

"ODA, estimated at US$135 billion a year, provides a fundamental source of financing, especially in the poorest and most fragile countries. But more is needed. Investment needs in infrastructure alone reach up to US$1.5 trillion a year in emerging and developing countries". - (World Bank, 2015)

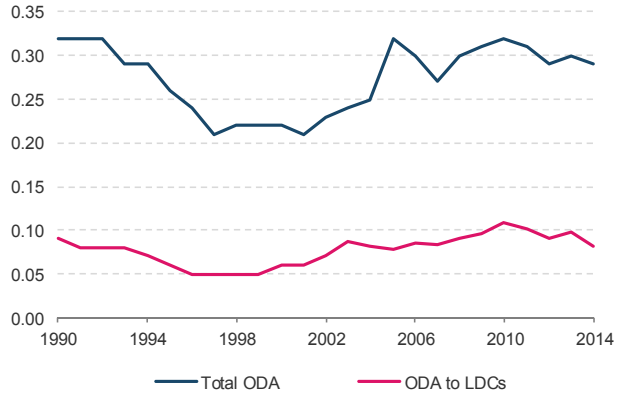
Net disbursements by members of the Development Assistance Committee (DAC) of OECD rose from US$89 billion in 2002 to US$134 billion in 2014 (in constant 2013 United States dollar terms) − a 51 per cent increase, though an amount slightly below the record levels in 2010 and 2013. However, this still represents only 0.29 per cent of members' GNI, which is far short of the committed target of 0.7 per cent of GNI and is lower than the shares in the early 1990s[17.18].

Figure 17.4. ODA provided by DAC countries, 1990-2014
(At constant prices; 2013 US$ billions)



Source: UNCTAD Trade and Development Report 2015 (UNCTAD, 2015a).

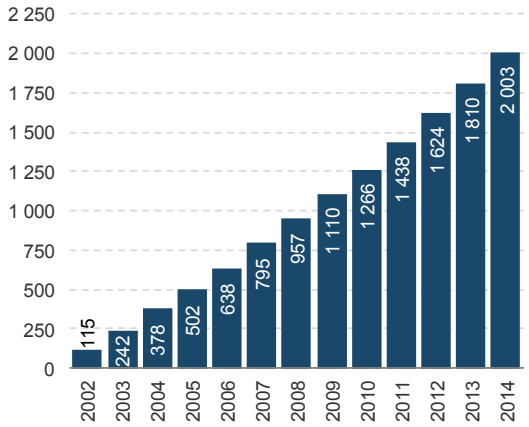
Figure 17.5. ODA provided by DAC countries, 1990-2014
(Percentage of DAC countries' GNI at current prices)



Source: UNCTAD Trade and Development Report 2015 (UNCTAD, 2015a).

Moreover, this percentage has been on a declining trend since 2010, both for total ODA and for ODA to the LDCs. Around one third of ODA has been directed towards these countries, where, on average, it accounts for over 70 per cent of external financing (United Nations, 2014). In constant dollar terms, it more than doubled between 2000 and 2010, but it has been falling in recent years. Indeed, bilateral aid to LDCs declined by 16 per cent in 2014 (OECD, 2015b).

Figure 17.6. Cumulative 0.7 per cent ODA gap, 2002-2014
(US$ billions at current prices)



Source: UNCTAD secretariat calculations based on OECD Development Finance Statistics.

Moreover, spending plans by major donors suggest that there is unlikely to be a significant growth of ODA flows in the medium term (OECD, 2014b). For a more detailed discussion on this topic, see UNCTAD Trade and Development Report 2015, 17.3 and 17.9.

Since the 2002 Monterrey Consensus, approximately US$1.4 trillion in ODA has been delivered, representing an average effort of 0.29 per cent of GNI (figure 17.6). During this period, the gap or shortfall between pledged and delivered ODA, between 0.29 per cent and 0.7 per cent of GNI, equates to just over US$2 trillion (in current prices). The ODA gap for 2014 alone was more than US$192 million[17.19].

In 2000, an important milestone was achieved with the adoption of the United Nations Millennium Declaration In this declaration, the international community formally committed itself to the pursuit of sustainable development and poverty eradication. As emphasized by DAC, "*Development was recognized not as charity from rich countries, but as a collective responsibility that addresses the interests of all the world's nations by upholding the principles of human dignity, equality, and global equity*" (DAC, 2011).

Target 17.3: Additional financial resources

Mobilize additional financial resources for developing countries from multiple sources.

What is currently known as Official Development Assistance (ODA) (See Target 17.2 on ODA commitments) is only a subset of the multilateral development aid and cooperation afforded to developing countries. Finance may also be made available through South-South cooperation, foreign direct investment (FDI) and philanthropic and private charities. These sources of funds are increasingly important, as beyond the emergence of the BRICS[17.20] countries, past decades have shown a broader trend whereby other international financial flows, such as FDI and remittances, have grown in size relative to ODA. This has led to a decline in the relative importance of aid flows to developing countries. It also implies that the role of aid and traditional aid donors in influencing the global environment for development will diminish over time (European Centre for Development Policy Management, 2012).

A potentially important new trend in global development assistance is the growing significance of developing country donors. The United Nations (United Nations, 2014), estimates that in 2011 the total value of South-South cooperation[17.21] was between US$16.1 billion and US$19 billion, and its share in total development cooperation was 10 per cent in 2011, up from 6.7 per cent in 2006. However, this may well be an underestimate, especially as definitions of development assistance vary and there are no systematic and comparable data across countries. For many developing countries, development cooperation is closely linked to trade and investment relationships, and it is often hard to distinguish between public and private components (Zhou, 2010).

One study has suggested that South-South financial cooperation represented around 15 per cent of DAC real aid in 2008, with the largest developing country donors that year being China, India, the Republic of Korea, Saudi Arabia, Turkey and the Bolivarian Republic of Venezuela, and in other years Brazil has also been a significant donor (Reality of Aid, 2010). Since then, the amount of financial assistance has grown substantially, led by China. It should be noted that not all of this financial assistance would qualify as ODA in the sense used by DAC members. Financial assistance from non-DAC countries has taken the form of grants, concessional loans, non-concessional loans and debt relief. The mix of financial assistance varies from country to country, but loans are the predominant form (UNCTAD, 2015a). The OECD estimates that 13 per cent of global concessional development finance in 2013 was provided by countries that are not members of DAC (OECD, 2015a).

A significant challenge regarding all of these forms of multilateral aid is to ensure coordination[17.22], policy coherence, transparency and accountability. A good example of this is the need for the heterogeneous partners involved in South-South cooperation to reach a consensus as to what it means and how best to quantify that cooperation. Furthermore, without common reference metadata and a central database, it is very difficult to appreciate the value and outcomes associated with this important source of cooperation. As multilateral aid and cooperation grows and becomes more diverse it will be important that the concepts underlying South-South cooperation are coordinated and transparent and that data are properly curated in a public database to enhance transparency and information exchange to ensure the extent of this cooperation is understood.

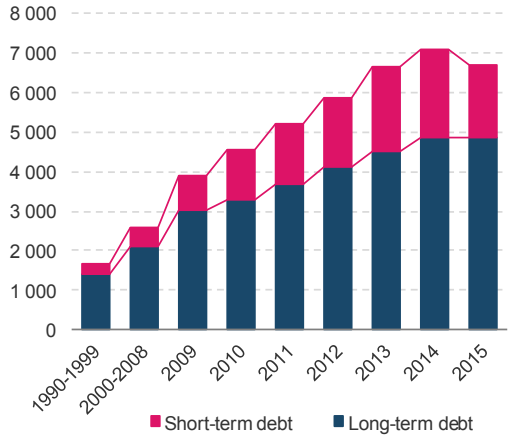
Target 17.4: Long-term debt sustainability

Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress.

Debt is an important part of any financing strategy by both governments and private firms. From the point of view of financing sustainable development, the most important criteria for the long-term sustainability of debt obligations by public and private sector entities alike is that borrowing serves the purpose of increasing productive investment. If this is the case, increases in domestic income and export earnings will usually cover the servicing of outstanding debt obligations, given the average interest rate and maturity of the debt stock. But entirely manageable debt burdens under normal circumstances can still become a problem when a debtor economy is hit by severe shocks that are not under its control, such as, for example, a sharp fall in the international price of commodities that are an important part of its export basket.

"A national debt, if it is not excessive, will be to us a national blessing." - Hamilton, (1781)

Figure 17.7. Total external debt stocks, developing and transition countries, 1990-2015
(US$ billions)



Source: UNCTAD secretariat calculations based on World Bank and International Monetary Fund (IMF) data.
Notes: 2015: estimates.

Total external debt stocks in developing countries have increased markedly in the wake of the global financial crisis of 2007/08, with the steepest increases occurring in small island developing States, East Asia and the Pacific, Eastern Europe and Central Asia, and Latin America and the Caribbean.

This partially reverses a more positive trend that had seen considerable improvements in debt sustainability across developing regions as a result of strong overall growth performances in the period 2000-2008, coupled with the impact of large debt relief initiatives in the 1990s and early 2000s.

Until recently, the Bretton Woods Institutions have largely equated debt with external sovereign debt for the purposes of assessing debt sustainability, defined in non-technical terms as the ability to service a debt without the need for adjustments to the fiscal balance (IMF, 2011). This focuses primarily on short-term debt sustainability from the perspective of the creditor's interest in the debtor's ability to fully repay the debt. In the case of sovereign debtors borrowing abroad, an important way of assessing their repayment ability is to link their debt obligations to their capacity to generate export earnings. This is measured statistically as the ratio of debt service over exports. A fall in this ratio can result from increased export earnings, a reduction in debt servicing costs or a combination of both. Figure 17.8 shows that this ratio fell, for all developing countries on average (blue dotted line), throughout the 1990s and 2000s, signalling an improvement in debt sustainability. However, it has started to increase again since 2012.

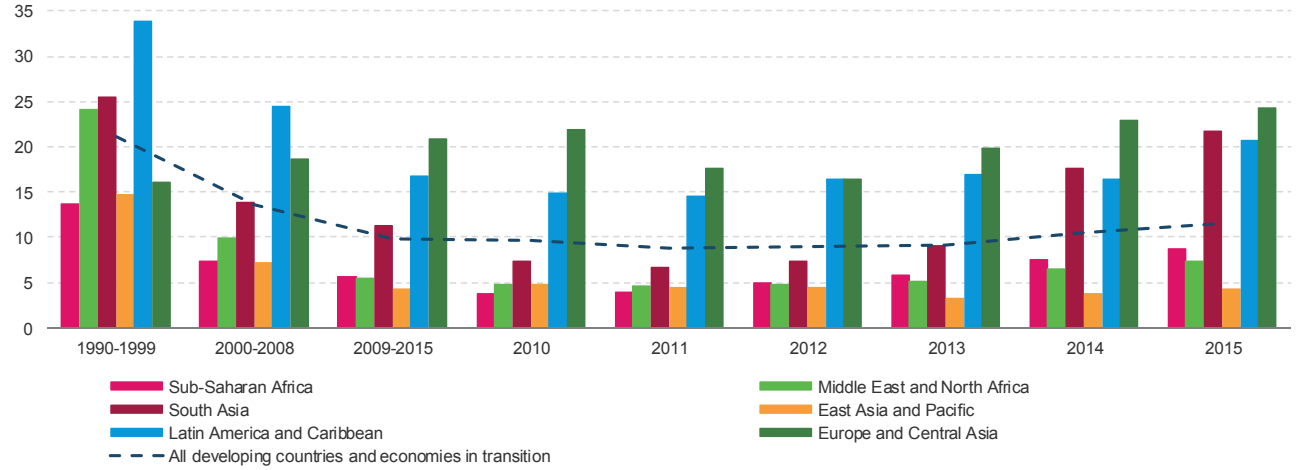
In recent years, there has been growing recognition that debt sustainability in developing economies is facing a range of new challenges and vulnerabilities (Akyüz, 2014). Thus, the composition of developing countries' debt has undergone substantial changes that affect its sustainability in different ways. As can be seen in figure 17.8, the share of short-term in total external debt of developing countries has increased since 2014, reaching 25 per cent in 2014. Short-term debt carries a higher roll-over risk than long-term debt, and increases an economy's exposure to global interest rate changes.

In emerging economies, the corporate external debt of non-financial companies has more than quadrupled, from US$4 trillion in 2004 to US$18 trillion in 2014 (IMF, 2015). Although bank syndicated loans are still the largest component of this debt, the share of (usually more risky) bonds has also risen. Higher leverage by large firms in emerging markets is also generally associated with rising risk exposure, including foreign currency and interest rate risk.

Many poorer developing economies have rapidly expanded their domestic bond markets. Public domestic debt does not carry a foreign exchange risk and can, in principle, be more directly managed by national authorities. However, in reality, domestic bond markets in poorer economies are often dominated by large foreign bondholders who easily liquidate large positions in local-currency denominated debt and repatriate earnings.

Vulnerabilities and challenges to developing countries' debt sustainability are growing fast and require efficient and equitable collective action by the international community.

Figure 17.8. Debt service, 1990-2015
(Percentage of exports of goods and services)



Source: UNCTAD secretariat calculations based on World Bank and International Monetary Fund (IMF) data.
Notes: 2015: estimates. World Bank region definitions.

The main reason for this overall worrying trend towards rising vulnerabilities of debt sustainability in developing countries is their fast integration into highly volatile international financial markets over recent years, and in particular after the global financial crisis. While increased access to private sector finance in international markets makes it easier for capital-scarce developing countries to raise finance, it also makes them vulnerable to rapid reversals in capital inflows and exposes them to a wide array of risks that they may be insufficiently equipped to manage appropriately. Importantly, the mere access to cheap international credit does not ensure that these additional resources are channelled into productive investment, thereby bolstering long-term debt sustainability. (UNCTAD, 2015a pp. 120-132).

Strengthening the capacity of public debt management offices in developing countries to improve data collection and to manage risk associated with new debt instruments and more complex forms of development financing, such as public-private partnerships (PPP), is important to monitor public sector debt. But even the best debt management practices cannot prevent debt burdens from becoming unsustainable under conditions of severe and/or frequent exogenous shocks to an economy. It is therefore equally, if not more, important that governments in such situations can count on access to efficient and fair sovereign debt restructuring mechanisms as well as debt relief. A core objective of such mechanisms must be to allow economies in debt distress to recover economic growth fast and equitably, not least to restore future debt sustainability (UNCTAD, 2015a, pp. 132-147).

Target 17.5: Investment promotion for LDCs

Adopt and implement investment promotion regimes for least developed countries.

The Sustainable Development Goals will have very significant resource implications across the developed and developing world. Global investment needs will be between $5 trillion to $7 trillion per year. Estimates for investment needs in developing countries alone range from $3.3 trillion to $4.5 trillion per year, mainly for 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.

At current levels of investment in Sustainable Development Goal-relevant sectors, developing countries alone face an annual gap of $2.5 trillion (UNCTAD, 2014a). In developing countries, especially in LDCs and other vulnerable economies, public finances are central to investment in the Sustainable Development Goals. However, they cannot meet all Sustainable Development Goal-implied resource demands. The role of private sector investment will be indispensable.

Today, the private sector's participation is relatively low. Only a fraction of the worldwide invested assets of banks, pension funds, insurers, foundations and endowments, as well as transnational corporations, is in Sustainable Development Goal sectors. Their input is even lower in developing countries, particularly in the poorest ones. Private investment can play an important role in the development of infrastructure, health, education and climate change mitigation activities.

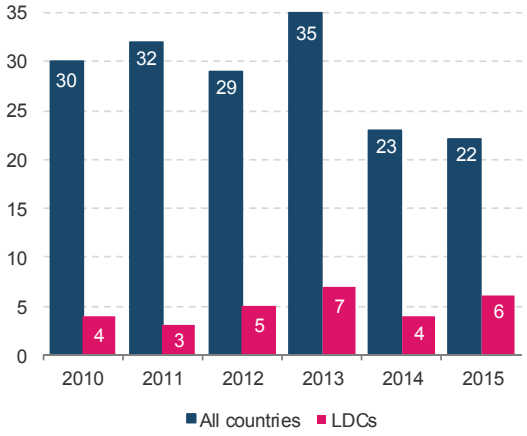
Unfortunately, countries do not appear to have paid much attention so far to the importance of channelling investment into sectors that are particularly important for sustainable development, and more proactive policy measures are needed to increase investment flows (UNCTAD, 2015b).

Most countries have set up promotion schemes to attract and facilitate foreign investment. Promotion and facilitation measures often include the granting of fiscal or financial incentives and the establishment of special economic zones or one-stop shops.

Many countries have also set up special investment promotion agencies (IPAs) to attract foreign investors through image-building, investor-targeting, investment facilitation, investor aftercare and policy advocacy. (UNCTAD, 2014b);(UNCTAD, 2014c). Some of these agencies are actively promoting investment in the Sustainable Development Goals, including low-carbon investment (UNCTAD, 2013a). Today, 39 (81 per cent) of the 48 LDCs have an IPA in place.

The Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected the "*Number of countries that adopt and implement investment promotion regimes for least developed countries*" as the indicator to measure progress towards this target. During the six years from 2010 and 2015, at least 171 new investment promotion and facilitation policies were introduced around the world, of which 29 were introduced by LDCs (figure 17.9).

Figure 17.9. Number of new national investment promotion and facilitation policies, 2010-2015
(Number of policies)



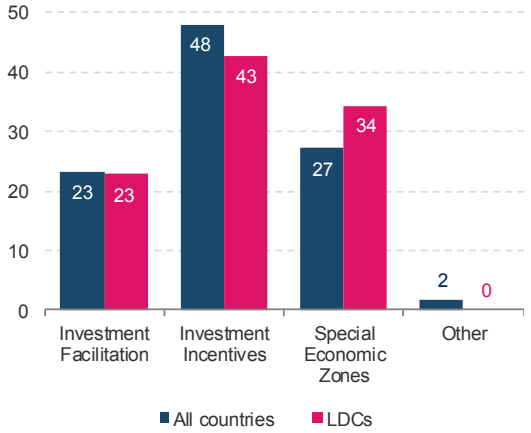
Source: UNCTAD Investment Policy Monitor.
Notes: Data coverage: positive and non-neutral/indeterminate measures (total of 79 countries). Between 2010 and 2015 no cancellation or termination of promotion measures was reported.

Africa and Asia accounted for the bulk of new promotion and facilitation policies introduced by all countries over the past six years, both accounting for 32 per cent each. Not surprisingly, Africa accounted for 90 per cent of all new promotion and facilitation policies introduced by LDCs during this period, with Asia accounting for the residual. Some LDCs have introduced several new promotion and facilitation policies recently.

For example, Angola introduced five separate promotion measures, Ethiopia introduced three, while Myanmar was the most active country in Asia introducing three separate policies.

Investment promotion and facilitation policies can be classified into four broad categories: investment facilitation; "*investment incentives*"; special economic zones (SEZ) and other. Figure 17.10 shows that out of all promotion policies introduced in recent years, investment incentives are the most common mechanism, accounting for almost half of all new policies. While the pattern was similar for LDCs, a greater balance of investment incentive measures and SEZs were adopted when compared with the global distribution.

Figure 17.10. Distribution of new national investment promotion and facilitation policies by category, 2010-2015
(Percentage of all promotion policies)

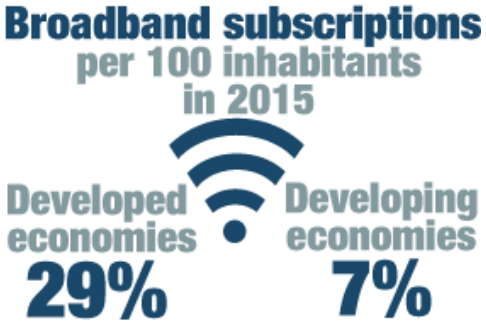


Source: UNCTAD Investment Policy Monitor.
Note: Aggregation of subcategory measures may not add up to total measures because some of the measures can be classified under more than one subcategory.

Target 17.6: Partnership and knowledge sharing

Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism.

The Internet has become an increasingly important tool for development, providing access to information to science, technology and innovation, fostering and enhancing regional and international cooperation and knowledge-sharing. High-speed access is important to ensure that Internet users can take advantage of the growing amount of its content - including user-generated content, services and information.



While the number of fixed broadband subscriptions has increased substantially over the last years and while service providers offer increasingly higher speeds, fixed Internet broadband can vary tremendously by speed, thus affecting the quality and functionality of Internet access.

"The rapid development of broadband networks is widely considered essential if developing countries are to leverage the benefits now available through ICTs and avoid the widening of development divides that could result from differential rates of growth in digital technology." - UNCTAD (2015c)

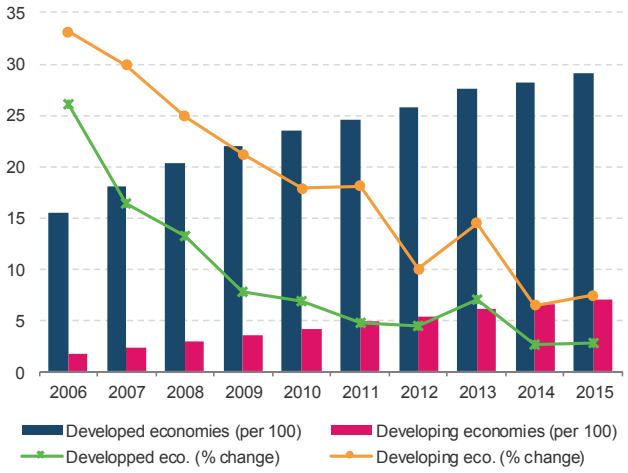
Many countries, especially in the developing world, have not only very limited fixed broadband subscriptions, but also these are at very low speeds. This limitation is a barrier to maximizing the potential of the Internet. Internet access can also be used as a measure of the digital divide, which, if not properly addressed, will aggravate inequalities in all development domains.

Hence, IAEG-SDG has selected "*Fixed Internet broadband subscriptions per 100 inhabitants, by speed*" as the appropriate indicator serving as a broad barometer on the divides noted above.

Figure 17.11 shows that while developed economies were at a much higher base in 2005, more than 15 subscriptions per 100 inhabitants in developed economies compared with less than 2 per 100 in developing economies, the growth in fixed broadband subscriptions have been much higher in developing economies over the past decade.

Today, developed economies have an average of 29 broadband subscriptions per 100 inhabitants compared with only 7 per 100 in developing economies.

Figure 17.11. Fixed broadband subscriptions by development status
(Per 100 inhabitants and percentage change)



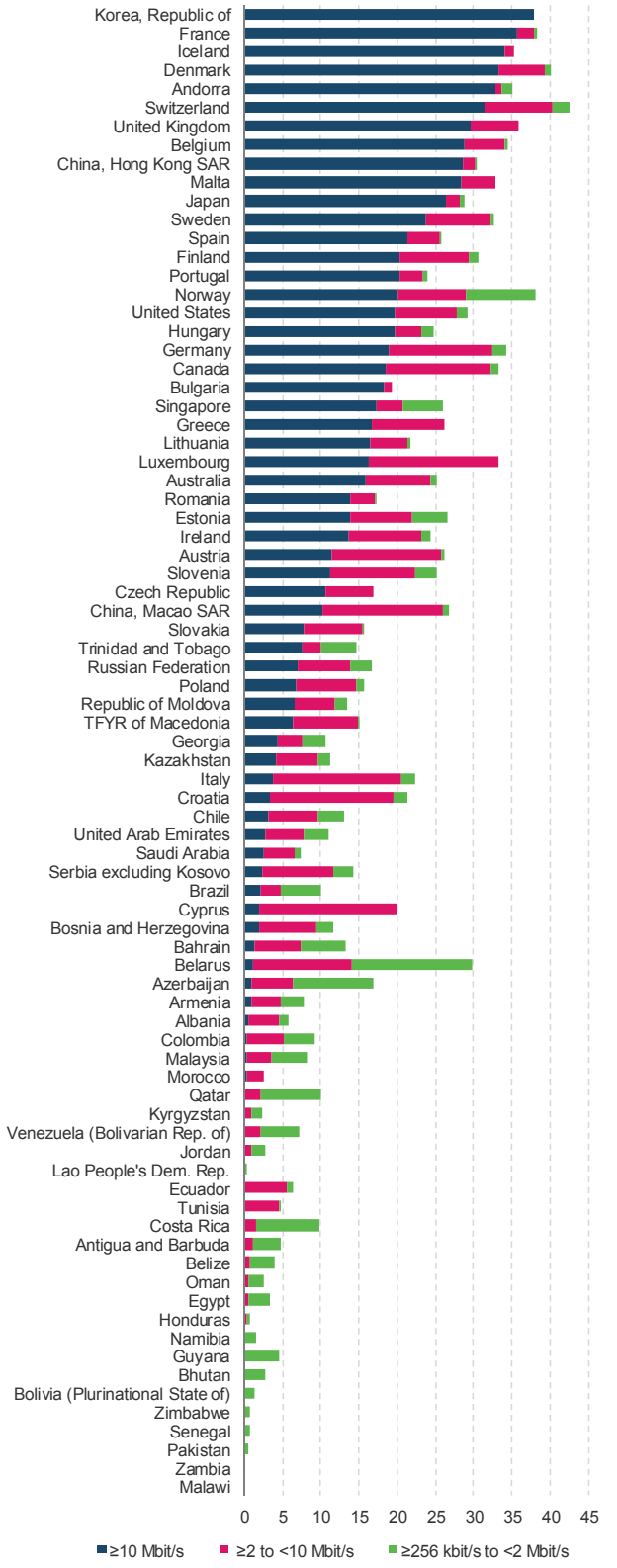
Source: International Telecommunication Union (ITU) statistics aggregate data.
Note: ITU region definitions.

The indicator also demands that fixed Internet broadband subscriptions are categorized by advertised broadband download speeds[17.23]. ITU collects data for this indicator broken down into three speeds: (1) 256 kbit/s and < 2 Mbit/s[17.24]; (2) 2 Mbit/s and < 10 Mbit/s[17.25]; (3) >= 10 Mbit/s[17.26]. Figure 17.12 shows the distribution of Internet broadband speeds for selected countries where data are available.

For example, all of the Republic of Korea's broadband is at least 10 Mbits per second, whereas in Germany broadband speeds are available at three different speeds, with more than half (56 per cent) of inhabitants using high speed (>= 10 Mbit/s), 39 per cent using medium speed broadband (2 Mbit/s and < 10 Mbit/s) and the remaining 5 per cent using low-speed broadband Internet access.

Several countries do not have high-speed broadband at all. For example, while Tunisia does have high-speed broadband, the vast majority (96 per cent) of Internet users subscribe to medium speed. In contrast, in Egypt only 15 per cent of inhabitants access the Internet via medium-speed broadband, with the great majority reliant on low-speed broadband. In countries such as the Plurinational State of Bolivia, Guyana, Pakistan, Senegal, Zambia and Zimbabwe, the small numbers that do have access to the Internet only have access to low-speed connections.

Figure 17.12. Fixed broadband subscriptions by speed, selected countries, 2014
(Per 100 inhabitants)



Source: ITU Statistics aggregate data.

UNCTAD has also drawn attention to the importance of the digital divide in broadband capacity and quality, noting that it creates other divisions between countries and regions in terms of the extent to which individuals, businesses, economies and societies are able to take advantage of new ICT innovations and applications (UNCTAD, 2013b).

The importance of broadband infrastructure for seizing the full opportunities from e-commerce, including leveraging cloud solutions and purchasing digital products that require high quality broadband service, has also been highlighted (UNCTAD, 2015d). The fundamental importance of affordable and reliable ICT infrastructure for e-commerce has also been stressed.

The UNCTAD report notes "*...there should be universal coverage of high-speed broadband, with regular upgrading of infrastructure, and reduced or eliminated artificial regulatory barriers to service providers wishing to access the network or other services. In addition, the international regulatory environment for ICT infrastructure and related services should be open, competitive and transparent*" (UNCTAD, 2016a).

Target 17.7: Environmentally sound technology

Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favorable terms, including on concessional and preferential terms, as mutually agreed.

The Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected as an indicator, the "*Total amount of approved funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies*". However, at the time of writing there were no data or metadata available for this indicator. Therefore, an alternate indicator, the "*average applied tariffs imposed on environmental goods*" is presented. For more information see UNCTAD (2016b).

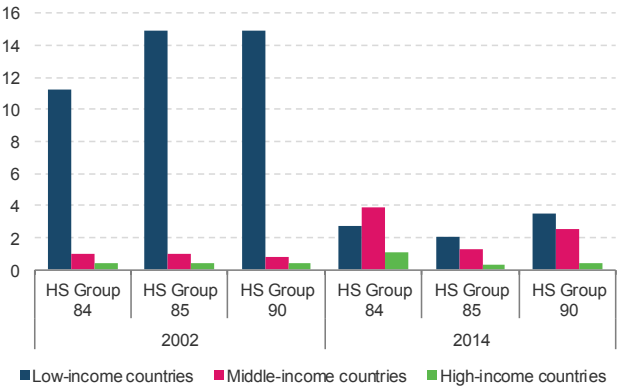
Trade liberalization on environmental goods has been discussed in a multilateral and regional setting. In 2001, World Trade Organization (WTO) members agreed at the Doha Ministerial Conference that they would negotiate on the reduction or elimination of tariff and non-tariff barriers on environmental goods and services. Despite the increasing awareness of the WTO members of the potential win-win-win situation for trade, trade liberalization of environmental goods (at the multilateral level) has stumbled over problems identifying which products were environmental goods contributing to environmental protection and climate change mitigation. In 2012, a ground-breaking move on trade of environmental goods was made outside WTO. The Asia-Pacific Economic Cooperation (APEC) member countries came up with a list of 54 environmental goods whose tariffs were to be reduced or eliminated among them. The Leaders' Declaration, adopted at the 24th annual gathering of APEC leaders, stated that the APEC "*members will reduce applied tariff rates to 5 per cent or less by the end of 2015*" for the 54 products listed as APEC's environmental goods, which "*would directly and positively contribute to green growth and sustainable development objectives*"[17.27].

To illustrate the current market access conditions for environmental goods, 44 products were selected from the APEC list[17.28] on the basis that they can be mapped to the World Customs Organization's Harmonized Commodity Description and Coding System, or Harmonized System (HS) at the two-digit level[17.29]. Note that the 44 products studied here do not take into account so-called "*ex outs*" of different APEC members that are specified in the APEC list[17.30]. Figures 17.13 and 17.14 provide weighted average tariffs applied to the imports (figure 17.13) and exports (figure 17.14) of the 44 environmental goods in markets for different income groups.

In 2014, the average tariffs on the imports of environmental goods were below 4 per cent across all income groups. Between 2002 and 2014, the average tariffs on imports of environmental goods in low-income countries declined by almost two thirds. The average applied tariff for the products in the HS-85 group, for instance, was 15 per cent in 2002; in 2014 it was 2 per cent.

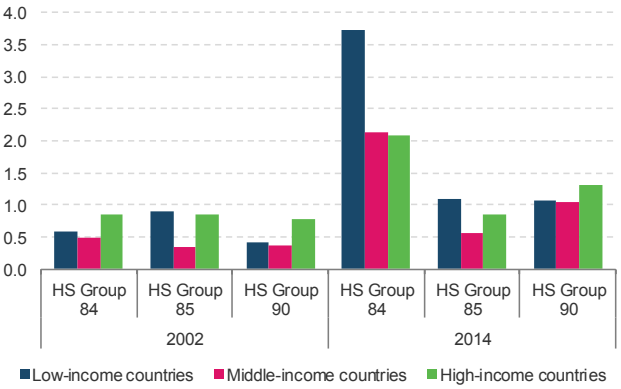
The picture is different for the middle-income countries, whose 2014 weighted average tariff on products under HS-84 was almost four times higher than the level in 2002. As discussed above, this change was not a result of tariff increase but arose from the change in the shift of imported environmental goods from lower-tariff to higher-tariff ones. Environmental tariffs in 2014 in high-income countries were around 1 per cent or less.

Figure 17.13. Weighted average tariffs on environmental goods, 2002 and 2014
(Percentage, by importer groups and HS two-digit level)



Sources: UNCTAD calculations based on United Nations Comtrade, the World Integrated Trade Solution (WITS) and Trade Analysis and Information System (TRAINS) database and UNCTAD data on non-tariff measures (NTMs).

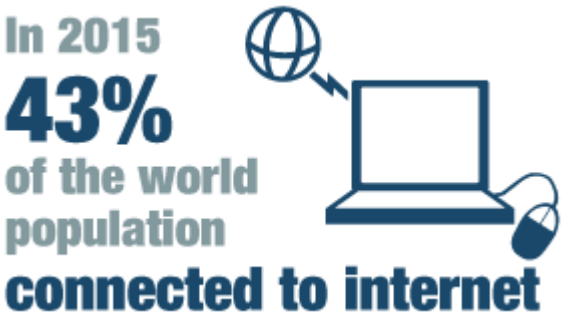
Figure 17.14. Weighted average tariffs on environmental goods, 2002 and 2014
(Percentage, by exporter groups and HS two-digit level)



Sources: UNCTAD calculations based on United Nations Comtrade, the World Integrated Trade Solution (WITS) and Trade Analysis and Information System (TRAINS) database and UNCTAD data on non-tariff measures (NTMs).

Target 17.8: STI for LDCs

Fully operationalise the technology bank and science, technology and innovation capacity-building mechanism for least developing countries by 2017 and enhance the use of enabling technology, in particular information and communications technology.

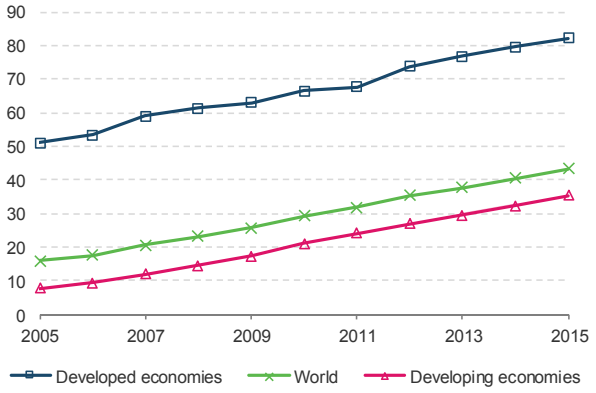


The ambition to fully operationalize enabling technology and in particular ICT is a continuation of the Millennium Development Goals, in particular Goal 8 target F[17.31]. But as we have seen in many cases already, the target adopted for Agenda 2030 is wider in scope than its predecessor, and now incorporates broader concepts of technology, science and innovation. It also complements Goal 5 which, among other things, aims to empower women through technology.

The Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has selected the proportion of individuals using the Internet as the indicator to measure progress towards this target. This indicator provides some continuity with the Millennium Development Goals, which used the proportion of the population with access to mobile networks and Internet penetration. The Millennium Development Goal indicators reported that in 2015, 3.2 billion people were linked to the Internet - 43 per cent of the world's population (compared with 6 per cent in 2000). In fact, only ten years ago (2005), just over 1 billion people or less than 16 per cent of the world's population were connected to the Internet (figure 17.15). In recent years, access has more than trebled. This growth has been particularly striking in developing countries, where connectivity has increased by a factor of four, so that now more than 35 per cent of people, or more than 2 billion people, in those countries are connected to the Internet.

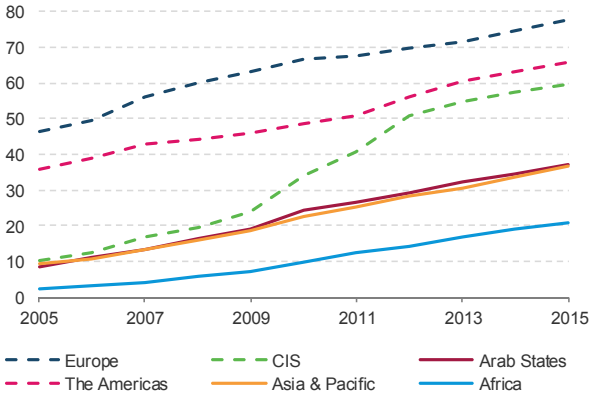
But as noted throughout this report, regional progress has been uneven. Penetration rates in Europe are today close to 78 per cent, with the Americas at 66 per cent and the Commonwealth of Independent States (CIS)[17.32] at 60 per cent. Today only 21 per cent of the population, equating to 193 million people, have access to the Internet in Africa. Although the lowest of the continental penetration rates, it should be noted that Africa has had the highest growth rate, growing by a factor of 10 over the past decade where only 2 per cent of the population had Internet access in 2005. As can be seen from figure 17.16, the Arab States and countries in the Asia-Pacific region have more or less the same penetration rates of about 37 per cent.

Figure 17.15. Internet penetration rates, 2005-2015
(Percentage)



Source: ITU statistics aggregate data.
Notes: 2015: estimates. ITU region definitions.

Figure 17.16. Internet penetration rates by region, 2005-2015
(Percentage)

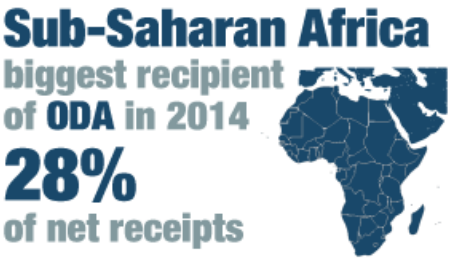


Source: ITU statistics aggregate data.
Notes: 2015: estimates. ITU region definitions.

Target 17.9: Capacity-building

Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation.

The "*dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries"* has been selected by the Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) as the indicator to measure progress towards this target. As noted in target 17.2, net disbursements of official development assistance (ODA) by the Development Assistance Committee (DAC) were valued at US$134 billion in 2014 (in constant 2013 dollar terms). But as also noted in target 17.3, ODA is only a subset of the multilateral development aid and cooperation afforded to developing countries. Finance may also be made available through a variety of other sources including South-South cooperation. Unfortunately, for a variety of reasons, robust valuations of South-South cooperation are not available, with estimates varying between US$16.1 billion and US$19 billion (United Nations, 2014). But owing to a variety of conceptual, definitional and measurement issues, many argue that even the higher end of this range is an underestimate (UNCTAD, 2015a).

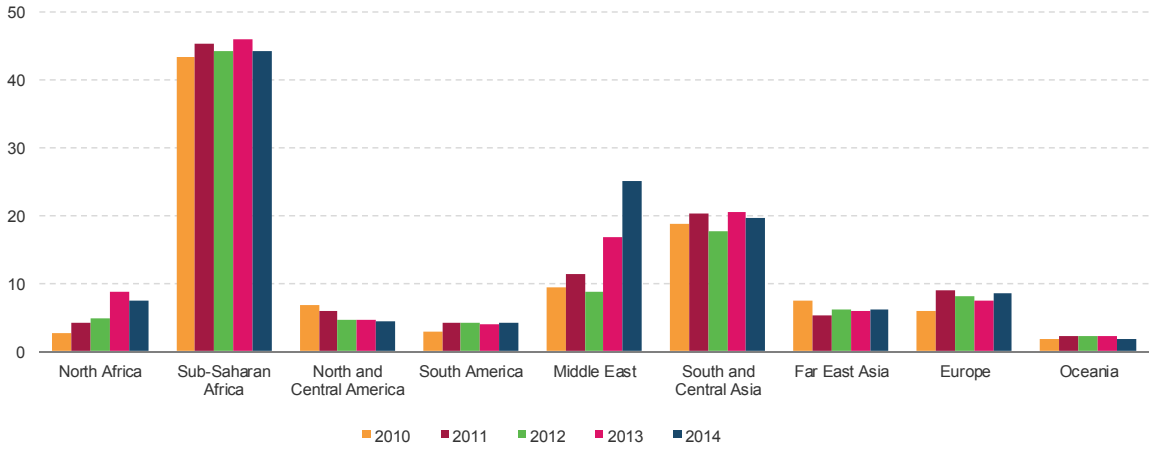


DAC publishes estimates of total net ODA by recipient region and country[17.33]. Approximately three quarters of all ODA can be broken down by individual country (figure 17.17). The residual quarter is either allocated to pan-regional projects or the recipient country is unspecified. Of the data where recipients are clearly denoted, it is clear that sub-Saharan Africa has been the biggest recipient over the past five years, accounting for more than one quarter (28 per cent) of net ODA receipts in 2014. South and Central Asia has also been a large net recipient during the 2010-2014 period, accounting for 12 per cent in 2014.

The growth in ODA to the Middle East is striking - accounting for only 7 per cent of net ODA receipts in 2010 compared with 16 per cent in 2014. The level of ODA to Europe is also noteworthy, averaging 5-6 per cent over the five year period and higher than that given to Oceania, Far East Asia, South America, North and Central America or North Africa.

DAC notes that just over one third (35 per cent) of what it describes as multilateral official development finance goes towards administrative infrastructure[17.34] and almost a half (44 per cent) to economic infrastructure[17.35], with the residual being spent on productive capacity (14 per cent)[17.36] and multisector programmes (4 per cent)[17.37] (OECD, 2015c).

Figure 17.17. Net ODA receipts, 2010-2014
(US$ billions)



Source: OECD, Development Finance Statistics.
Note: Region definitions used in this chart is available at http://www.oecd.org/dac/stats/documentupload/TAB25e.xls.

Target 17.10: Multilateral trading system

Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda.

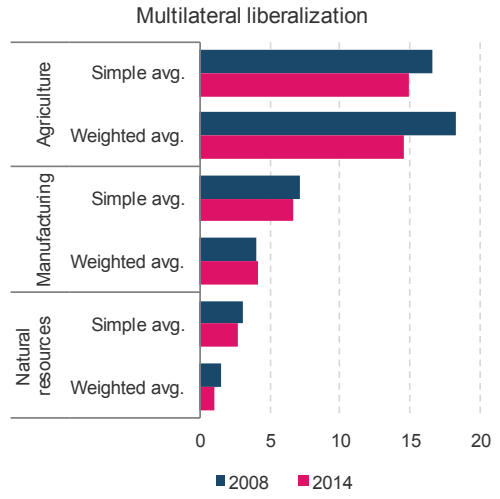
Trade growth enhances a country's income-generating capacity, which is one of the essential prerequisites for achieving sustainable development (UNCTAD, 2016b). An increase in imports at competitive prices can improve consumer surplus and the prospective competitiveness of domestic producers that use imported intermediates. An increase in exports enhances the country's income growth, at least at the aggregate level. Market access conditions, both foreign market access for a country's exports and domestic market access for imports, are thus an important determinant of the effectiveness of trade as a means of implementation.

Market access conditions in international trade have been determined largely by the height of tariffs. Tariffs, or customs duties on imports, are a tax levied on imported goods at the border. Revenues accrued from tariffs may constitute a significant portion of the government's public revenue, particularly in low-income countries.

A government determines tariff rates on different products according to product-specific or sector-specific policy objectives, or depending on the need for tariff revenues. For example, products that exhibit low demand elasticity may be selected for higher tariff rates with a view to ensuring steady tariff revenue. Tariff rates for certain goods may be reduced or eliminated to increase consumer surplus. Tariff rates for sensitive sectors[17.38] may be set high to protect the producers in those sectors from foreign competition. Tariff rates on intermediate goods may be set high or low, depending on the country's industrial development policy. A government with significant market power may also look for gains in the commodity terms of trade[17.39] to achieve the optimal tariff level at which a country's welfare is maximized (Humphrey, 1987). In most cases, tariff rates are set with a view to maximizing a weighted average of all the above-mentioned domestic interests and concerns (Amador and Bagwell, 2012). For this reason, the Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has selected a worldwide weighted tariff average as the appropriate indicator to measure progress towards this target (United Nations, 2016).

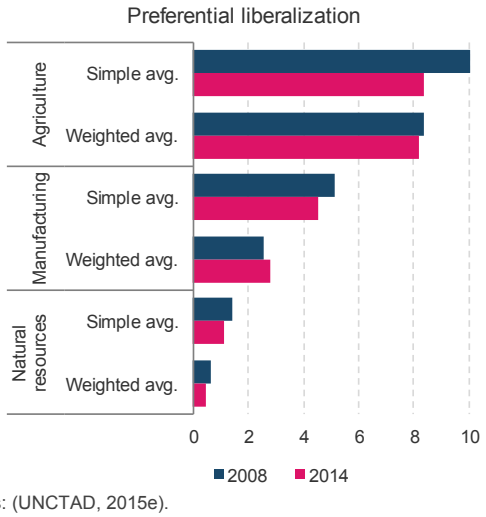
The situation in which each country unilaterally optimizes tariffs carries an inherent risk of "trade wars", where countries retaliate against tariff barriers in their trading partners by raising their own tariffs. In 1947, the major economies involved in international trade signed the General Agreement on Tariffs and Trade (GATT). With GATT, countries entered into reciprocal and mutually advantageous arrangements aimed at the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce (GATT, 1947). Article 1 of the Uruguay Round Agreement, known as GATT-94 (GATT, 1994), which incorporates the provisions of the original GATT, GATT-47, stipulates that members set their tariffs on a most-favoured-nation (MFN) basis in such a way that any advantage, favour, privilege or immunity granted to any product originated in and destined for other countries becomes immediately and unconditionally applicable to all parties. The conclusion of the GATT-94 multilateral trade Organization (WTO) with a clear mandate to develop an

Figure 17.18. Worldwide average MFN-applied tariffs by major sectors, 2008 and 2014
(Percentage)



Sources: (UNCTAD, 2015e).

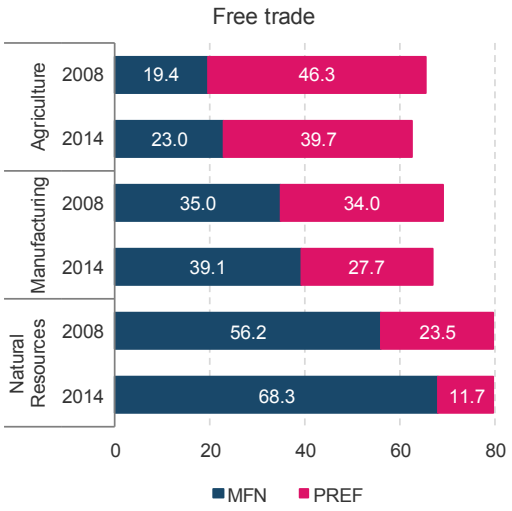
Figure 17.19. Worldwide average preferential tariffs by major sectors, 2008 and 2014
(Percentage)



Sources: (UNCTAD, 2015e).

integrated, more viable and durable multilateral trading system encompassing GATT, other Uruguay Round agreements and past trade liberalization efforts. Under the Uruguay Round agreements, the WTO members set a maximum limit for tariffs levied on all agricultural goods and the majority of non-agricultural goods[17.40].

Figure 17.20. Duty-free trade by major sectors, 2008 and 2014
(Percentage of total trade)



Sources: (UNCTAD, 2015e).

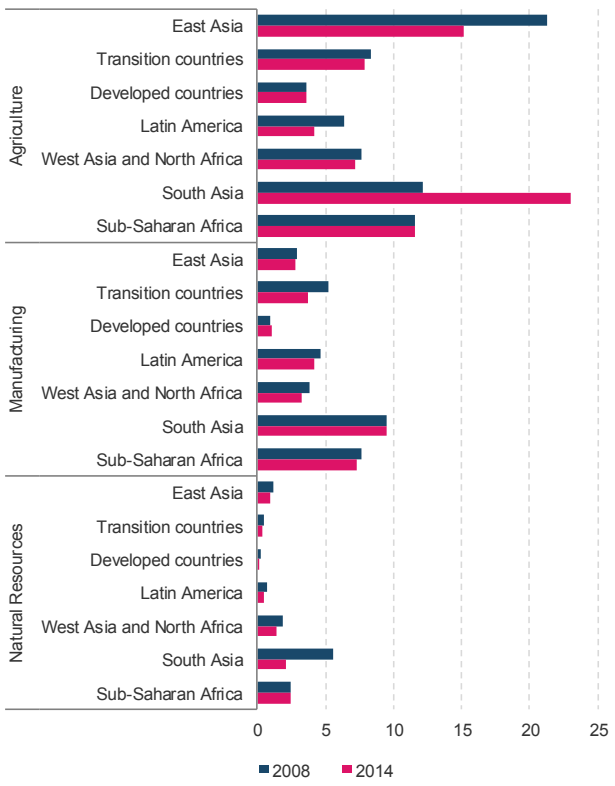
Since the establishment of GATT, the average applied tariffs in international trade, particularly on manufacturing goods, have been reduced via trade liberalization in the multilateral framework, as well as in a regional setting or unilaterally[17.41]. According to UNCTAD (UNCTAD, 2015e), the simple average of the world MFN-applied tariff in 2014 was around 6 per cent for manufacturing goods and just below 3 per cent for natural resources (figure 17.18). For agricultural products, the average tariff remained relatively high at around 15 per cent, although the rate had declined by two percentage points since 2008[17.42].

In practice, a significant portion of world imports receive preferential tariff rates that are lower than the MFN rates. The simple average agricultural tariff in preferential trade arrangements is approximately 8 per cent, which is almost half of the MFN counterpart. The trade-weighted average tariffs are generally lower than the corresponding simple average tariffs. In both cases, the average tariffs have declined since 2008 under both multilateral and preferential liberalization[17.43].

Only the weighted average preferential tariff on manufacturing imports have increased, albeit slightly. This has resulted from a shift in the composition of traded goods under preferential schemes from products facing low tariffs to those facing higher tariffs. Over 60 per cent of agricultural trade in 2014 was duty-free, with 20 per cent of this accounting for duty-free on the MFN basis and the rest under preferential tariffs (figure 17.20).

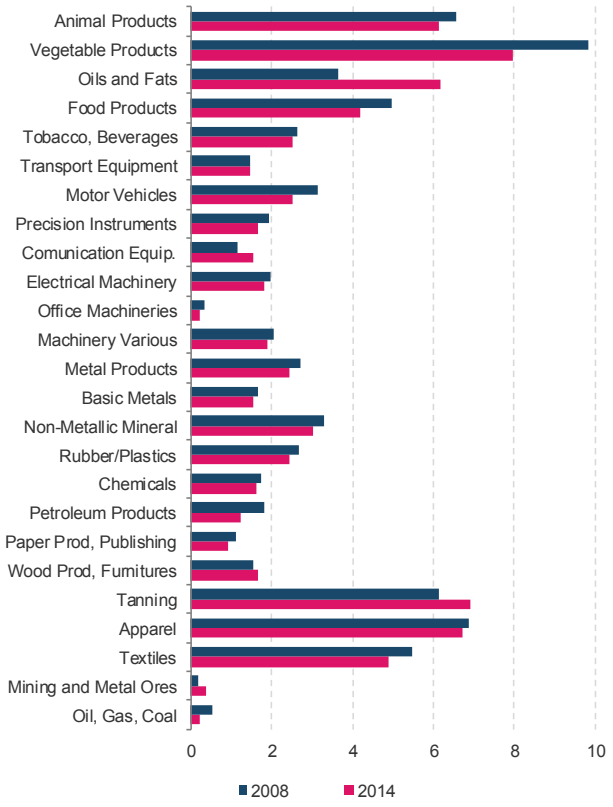
Figures 17.21 and 17.22 provide the trade-weighted average applied tariffs of seven country groups in 2008 and 2014 in three major sectors: - agriculture, manufacturing and natural resources. The country groups are developed countries, transition economies and developing countries in five different regions (East Asia, South Asia, Latin America, sub-Saharan Africa, and West Asia and North Africa). The weighted average is of applied tariffs and takes into account preferential tariff rates whenever they are applicable.

Figure 17.21. Trade-weighted average tariffs by major sectors, 2008 and 2014
(Percentage)



Sources: UNCTAD Key Statistics and Trends in Trade Policy 2015.

Figure 17.22. Trade-weighted average tariffs by sector, 2008 and 2014
(Percentage)



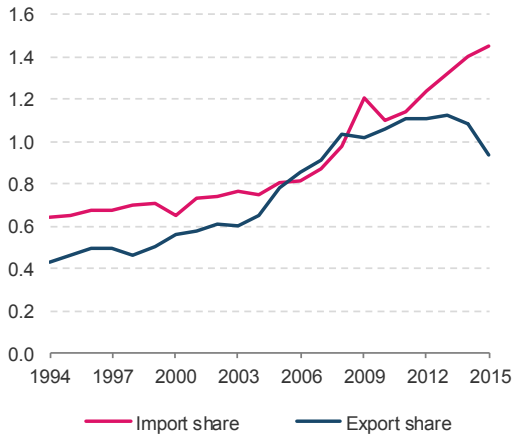
Sources: UNCTAD Key Statistics and Trends in Trade Policy 2015.

Target 17.11: Double exports from developing countries

Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020.

The indicator that the Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected is Developing countries' and least developed countries' share of global exports. Figure 17.23 and 17.24 present the changes in the share of exports and imports in merchandise and services for least developed countries (LDCs) since 1994 for merchandise and 2005 for services. The statistics presented for services exports are based on the definitions of services as prescribed in the sixth edition of the International Monetary Fund (IMF) *Balance of Payments and International Investment Position Manual* (IMF, 2009), the data of which are available only from 2005.

Figure 17.23. Shares of LDCs' merchandise exports and imports in global trade, 1994-2015
(Percentage)

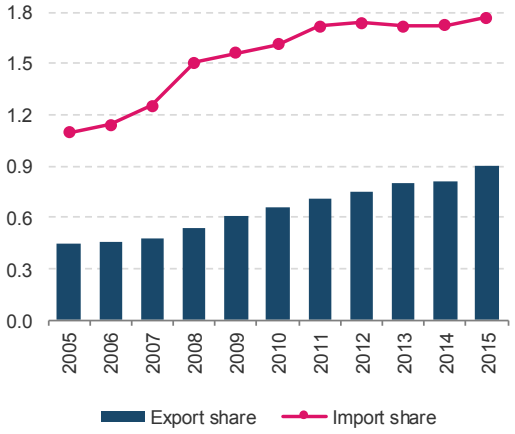


Sources: UNCTADstat.
Note: 2015: estimates.

In 2015, the value of merchandise exports from LDCs was US$154 billion. The LDC share of world exports almost doubled over 15 years, from 0.6 per cent in 2000 to 1 per cent in 2015 (see figure 17.23). The LDC share of world merchandise imports increased even more, from 0.7 per cent in 2000 to 1.5 per cent in 2015, to reach an estimated US$241 billion. The key driver of export growth over this period was the massive rise in the price of fuels, ores and metals, reflecting the high demand in developing countries, most notably China.

For services trade, in 2015 the LDC share of world services exports (US$4.7 trillion) was 0.9 per cent (US$42 billion), showing a significant increase from 0.5 per cent (US$12 billion) in 2005. As for services imports, the share in 2015 was 1.8 per cent (US$82 billion), up from 1.1 per cent (US$28 billion) in 2005 (see figure 17.24).

Figure 17.24. Changes in the share of LDC exports and imports of services in global trade, 2005-2015
(Percentage)



Sources: UNCTADstat.
Note: 2015: estimates.

UNCTAD investigates whether an improvement in market access conditions in terms of tariff preferences would be enough to double the export shares of LDCs (UNCTAD, 2016b). As noted in Goal 17 target 10, applied tariffs have been reduced, if not eliminated, in various settings, including via bilateral or regional free trade agreements. In April 2015, the number of regional trade agreements (RTA) notified to WTO was 612, of which 406 are currently in force. The number of RTAs in force in 1994 was approximately 100. Few RTAs involve LDCs. In this context, even if LDCs receive duty-free and quota-free market access treatment, the value of the relative preferential margin (RPM) also falls. Nicita and Rollo estimate that one unit fall in the preferential margin (in RPMs) reduces the exports of preference-receiving countries by on average 0.3 percentage points and that the proliferation of RTAs outside sub-Saharan Africa could limit new export opportunities via a reduction in RPMs (Nicita and Rollo, 2013). As tariff rates have fallen globally in the past decades, market access conditions for LDCs have been increasingly determined by non-tariff measures such as sanitary and phytosanitary measures and technical barriers to trade. UNCTAD estimates that more than 50 per cent of the exported products of developing countries face some type of non-tariff measure, the majority of which are sanitary and phytosanitary measures and technical barriers to trade (UNCTAD, 2013c). Non-tariff measures for key LDC exports, such as textiles and clothing, and footwear and agricultural products, are substantial, ranging at around 10-27 per cent of the tariff equivalent. Trade costs arising from non-tariff measures on exports are disproportionately larger for LDCs than for high income countries (Nicita and Murina, 2014).

An additional question regarding market access of LDC exports concerns their physical connectivity to international markets. Reducing tariffs or non-tariff measures faced by LDC exports will do little to increase their price competitiveness if LDCs cannot bring their goods to market at a reasonable cost. This point is well illustrated, for example, by the Liner Shipping Connectivity Matrix, many LDCs are at the bottom of rankings of direct maritime connectivity measured by the average number of trans-shipments. (For more information see UNCTAD Review of Maritime Transport series.) The absence of a direct connection may be associated with export losses of 42-55 per cent (Fugazza, 2015).

Target 17.12: Market access for LDCs

Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organisation decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access.

The objective of 17.12 is to improve market access conditions for LDC exports as an integral element of special and differential treatment for LDCs, in accordance with the World Trade Organization (WTO) agreements. It is very closely related to Goal 10.a[17.44]. The Inter-agency Expert Group (IAEG-SDG) has selected the "*Average tariffs faced by developing countries, least developed countries and small island developing States*" as the appropriate indicator.

Table 17.1 presents the average tariffs applied to LDCs as well as the relative preferential margin (RPMs) enjoyed by LDC exports. In general, a preferential margin is the difference between the preferential tariff rate applicable to exports from LDCs and the corresponding most favoured nation rate (MFN). The first two columns in table 17.1 compare the average tariff rates applicable to LDC exports in 2008 and 2013. Even after the financial crisis of 2008-2009, tariffs facing LDC exports showed a substantial reduction (with the exception of West Asia and North Africa). The last two columns provide the RPM enjoyed by LDCs. In the past two decades, a proliferation of bilateral and regional trade agreements may have reduced RPMs facing LDCs, particularly in developed country markets.

In the five years between 2008 and 2013 however, the RPM has improved in most cases. Only in Latin America was the average tariff facing LDC exports 0.5 per cent higher than those facing LDC competitors. The fall in RPMs in low-income countries and South Asia may have resulted from a compositional shift of LDC exports from low-tariff products (for example, fuels) to higher-tariff ones (for example, foodstuffs).

Table 17.1. Average tariffs and relative preferential margins faced by least developed country exports, 2008 and 2013
(Percentage)

	Average applied tariff (percentage)		Relative preferential margin (percentage)	
	2008	2013	2008	2013
Developed countries	1.1	0.7	0.8	1.7
East Asia	0.8	0.4	0.1	0.2
Latin America	3.1	1.8	-1.8	-0.5
South Asia	5.7	3.5	1.9	1.1
Sub-Saharan Africa	1.9	1.5	1.3	2.4
Transition countries	7.2	4.8	1.3	2.6
West Asia and North Africa	2.6	3	1	2.6
High-income countries	1.9	1.5	0.7	1.7
Middle-income countries	0.9	0.5	0	0.3
Low-income countries	5.2	3.3	2	1.8

Source: UNCTAD (2016b).

Target 17.13: Global macroeconomic stability

Enhance global macroeconomic stability, including through policy coordination and policy coherence.

Historically, market economies have exhibited an intrinsic propensity to fluctuate, sometimes with periods of more pronounced instability, including recurrent economic crises. It appears some degree of macroeconomic instability is inevitable. Some macroeconomic instability may even be desirable to the extent that development processes involve quantitative and qualitative changes in all economic and social variables, and advance at uneven paces. However, high macroeconomic instability is strongly detrimental to economic development and social welfare. Indeed, it inhibits or distorts long-term economic decisions related to productive investment, employment creation and innovation. In addition, large swings in economic activity, volatility in exchange rates and financial markets and boom-and-bust episodes entail large economic and social costs: excessive credit and misguided investment decisions during expansions generate unsustainable debt levels, leading to credit crunches, firm bankruptcies, fiscal constraints, job and income losses, and increasing poverty during recessions. The resulting losses in productive and human capacities may take a long time to be reversed, when they are not irreparable. Thus, policymakers should strive to provide a macroeconomic framework which is stable enough to encourage investment and entrepreneurship and help prevent crises; at the same time, it should be flexible enough to allow for macroeconomic adjustments and structural change.

"Never think that lack of variability is stability. Don't confuse lack of volatility with stability, ever."
- Nassim Nicholas Taleb

In recent decades, macroeconomic instability has significantly increased at the global level. This has been the result of the international expansion of underregulated financial market forces and the weakening of stabilizing factors, such as regulation, public investment and a sustained increase in labour incomes. The latter two factors ensured stable growth in aggregate demand in many major countries.

In developing countries

For developing countries, the main sources of macroeconomic instability stem from their external economic environment. These are large and volatile international capital flows and highly variable international commodity prices. The breakdown of the post-war international monetary system in the early 1970s and the open-door policy with respect to large-scale private international capital flows have meant that the provision of global liquidity is no longer determined by official sources. These have increasingly been supplemented by cross-border private operations channelled through private financial institutions. Privately created global liquidity does not respond to investment needs in developing countries, but rather depends on monetary policy decisions in developed countries (UNCTAD, 2015a). In addition, most loans are no longer used to finance trade and real investment as happened with those from official sources; instead, an increasing proportion of capital flows are of a short-term and speculative nature. Rather than supporting productivity growth, structural transformation and inclusive development, a large part of short-term capital inflows fuels consumption and asset bubbles, harms competitiveness by appreciating the currency and eventually increases volatility in domestic financial markets (UNCTAD, 2013d).

To the extent that governments also have easier access to external borrowing, openness to financial markets encourages the adoption of procyclical monetary and fiscal policies that increases macroeconomic instability and leads to the accumulation of risky balance sheets. When they eventually happen, sudden capital reversals trigger very costly financial, fiscal and balance-of-payments crises.

Financialization of commodity markets

The other main external factor affecting macroeconomic stability in developing countries is the volatility in commodity prices. Large cyclical variations in those prices are not new at all. In the case of hydrocarbons and mining products, low price elasticity on the demand side and delays in adjusting their production capacities on the supply side explain the succession of rather long periods of undersupply followed by periods of oversupply in these commodity markets (unless some producers manage to regulate supply, for example, the Organization of the Petroleum Exporting Countries). For agricultural products, prices are strongly influenced by unpredictable weather conditions. This historical tendency to price volatility has been exacerbated with the financialization of commodity markets, as commodities have been increasingly used as an alternative asset class to optimize the risk return profile of financial portfolios. This makes commodity prices vulnerable to changes in asset allocation decisions (UNCTAD, 2009; UNCTAD, 2011a).

Sustained and inclusive development requires policies to enhance macroeconomic stability and reduce vulnerability to external shocks. The global economy lacks the appropriate tools for taming these destabilizing forces and mitigating their negative impacts; on the contrary, international monetary and financial governance has significant procyclical and recessionary biases. These problems are patent in the lack of effective prudential regulation to limit instability and prevent crises, as well as the unbalanced and unfair mechanisms to deal with crises when they occur.

Prudential regulation

Regarding financial regulation, global mechanisms for discouraging or managing short-term capital movements, such as a Tobin tax (See Goal 10 target 10.5), are lacking. Most of the burden to deal with these flows is left to recipient countries, which usually have difficulties in enforcing capital controls. A better prudential regulation through supervision in countries where flows originate could help discourage such speculative flows. Rules to regulate international banks (adopted by the Bank for International Settlements) also introduce a procyclical bias as they establish risk-weighted capital requirements. As perceived risks are low during expansions, the rules allow for high leverage and increased loans, which boost growth and feed bubbles. Conversely, with soaring risks during recessions, rules push to stiff deleveraging, aggravating economic recession and leading to widespread bankruptcies. These rules should be reformed in a way that favours countercyclical credit policies and helps channel credit to productive uses, particularly long-term investment.

When unsustainable external imbalances push some countries to request financial assistance from multilateral institutions (such as the International Monetary Fund), conditions attached to the credits generate recessionary adjustments in deficit countries. However, surplus countries are never forced to follow more expansionary macroeconomic stances (UNCTAD, 2015f). Similarly, the lack of international mechanisms to facilitate sovereign debt restructuring tends to delay corrective actions by borrowers and recognize the debt problem when a crisis is already inevitable; at this point, private capital inflows stop, official credit is used to bail out private lenders instead of financing the necessary imports, and debtor countries enter into economic depression and deep financial and fiscal crises. These asymmetric, unfair and procyclical adjustments should be replaced by an approach that seeks to soften recessions in deficit countries, increase aggregate demand in surplus economies and restore debt sustainability through debt restructuring and growth (UNCTAD, 2015a).

Finally, commodity-exporting countries should be better protected against price volatility. In particular, the functioning of commodity markets should be improved by increasing transparency in physical and derivatives markets and putting in place an internationally coordinated tighter regulation of financial investors - for instance, by imposing position limits or a transaction tax. In addition, market surveillance authorities could be mandated to intervene directly in exchange trading on an occasional basis by buying or selling derivatives contracts with a view to averting price collapses or deflating price bubbles (UNCTAD, 2011a). In a longer-term perspective, the best strategy for commodity-exporting developing countries to reduce their vulnerability to external shocks is economic diversification.

Measuring global macroeconomic stability

How may the global macroeconomy be measured and assessed? Generally speaking, the type of indicators typically used to assess national macroeconomic stability are: price inflation; growth in real GDP; changes in employment/unemployment; current account volatility; health of government finances; interest rate volatility (and government bond yields); and exchange rate stability. The European Union defined macroeconomic stability in law (the Maastricht Treaty[17.45] as comprising of four criteria and five indicators: low and stable inflation; low long-term interest rates; low national debt relative to GDP; low deficits; and currency stability. Following the financial crisis, the European Union adopted a broader Macroeconomic Imbalance Procedure scoreboard to help identify macroeconomic imbalances. This scoreboard comprises of 14 headline indicators (with thresholds) and 25 supplementary indicators (without thresholds). Beyond the indicators specified by the treaty, the scoreboard includes indicators relating to export market share, private sector debt, house prices, unemployment (including youth and long term), participation rates and labour costs. The supplementary indicators include labour productivity, residential construction, poverty, deprivation and social exclusion, spending on research and development, foreign direct investment flows and stocks, gross fixed capital formation and GDP. The European approach illustrates the interconnectedness of the real and financial economies with society and the number of factors that may influence macroeconomic stability.

Given the complexity of global macroeconomic stability, the Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has selected, like the European Union, a macroeconomic dashboard rather than a single measure as the appropriate indicator. Although the actual components of that dashboard are not specified, one might imagine that it will include measures or indices of global liquidity, income inequality, public investment, sovereign and corporate debt and global commodity prices. New types of indices measuring the extent to which the global economy has been financialized or the existence of capital controls for prudential macroeconomic policy may also need to be developed.

Target 17.14: Policy coherence

Enhance policy coherence for sustainable development.

The concept of policy coherence for development (PCD) emerged in international discourse during the 1990s in the context of increasing global challenges and growing concerns regarding the effectiveness of development aid. It was increasingly recognized that improving policy coherence would expedite positive synergies and spillovers across public policies designed to foster development (OECD, 2012). While there is no single agreed definition of PCD, it is generally accepted that it means that while pursuing domestic policy objectives, governments should at a minimum avoid negative consequences and spillovers which would adversely affect the development prospects of poor countries. PCD also means that, when formulating domestic policies, governments should actively look for ways to exploit the potential for positive spillovers and build synergies between different policies to benefit developing countries (EuropeAid, 2013). OECD has formally defined PCD: Policy coherence means different policy communities working together in ways that result in more powerful tools and products for all concerned. It means looking for synergies and complementarities and filling gaps among different policy areas so as to meet common and shared objectives (OECD, 2002).

The 17 Goals and 169 targets of Agenda 2030 highlight not just the breath in scope of the development agenda but also its inseparable multidimensionality and complexity. Ensuring policy coherence between policy measures is not only complex to achieve but also difficult to measure. Although PCD was enshrined in the Millennium Development Goals process, in European Union treaties and in various OECD and international declarations, actual research investment on PCD has been minimal. Thus to date, with the exception of the Commitment to Development Index (CDI), there has been little progress made on developing an internationally agreed policy coherence index (European Centre for Development Policy Management, 2012).

Beyond political will and economic foresight, an effective government needs a coherent approach to international trade and development in order to turn the poetry of political campaigning into the prose of policy implementation.

- Mukhisa Kituyi, Secretary-General of UNCTAD

The European Centre for Development Policy Management discusses the challenges of building a PCD index to evaluate and compare donor policies beyond simple quantification of official development assistance (ODA) contributions. The authors of the cited study note that construction of such an index presents a number of technical challenges, such as, determining complex chains of causality[17.46] and trade-offs between development objectives[17.47]. The authors also draw attention to the challenges of ensuring the quality of the index, the problems of data gaps and the risk that poor data availability may drive such an index, leading to the neglect of important dimensions which cannot be quantitatively measured. Also discussed are the pros and cons of compiling a composite index, a portfolio of indicators, or taking a hybrid dashboard approach. The authors also note that a PCD index can only be successfully realized if there is sufficient political will and a genuine interest among countries to be compared and stated that, in 2012, there appeared to be insufficient political support for an internationally recognized and institutionalized approach. Roodman also discusses the difficulties of compiling a policy coherence index, noting in particular the absence of a conceptual framework (Roodman, 2013).

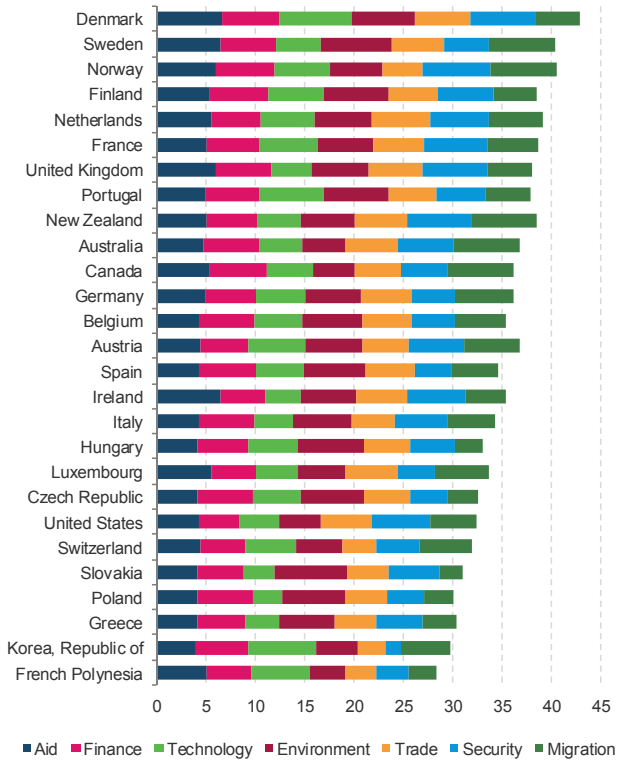
Measuring policy coherence

The indicator Number of countries with mechanisms in place to enhance policy coherence of sustainable development was selected by the Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) to measure progress for target 17.14. Unfortunately, at the time of writing no data are available to compile such an indicator. The indicator itself also requires further clarification before data collection or statistical derivation can begin, as it is not clear what policies are within scope. Furthermore, it is not clear whether policy coherence should relate only to aid and cooperation or should have a much broader range, including all policies that might impact on sustainable development[17.48]. As Martínez Osés notes, policy coherence still lacks a conceptual definition (Martínez Osés, 2015). For example, concept can be considered from the perspective of internal coherence, intragovernmental coherence, multilateral coherence and developing country coherence. Equally, coherence can be assessed in terms of outcome [17.49], policy output[17.50], policy input[17.51] and policy stance indicators[17.52]. An agreed definition of sustainable development will also need to be agreed upon.

For the purposes of this exercise, the CDI, developed by the Centre for Global Development in 2003, is used. Originally known as the “Ranking the Rich” index 17.53, it provides a country-by-country overview for most OECD aid donors with the aim of reminding the world that reducing poverty in developing countries is about far more than giving money (Krylová and Barder, 2015). The 2015 edition includes 27 of the world’s richest countries. The CDI is a composite index incorporating seven policy dimensions: aid[17.54]; trade[17.55]; investment[17.56]; migration[17.57]; environment[17.58]; security [17.59]; and technology [17.60] (for more details see Roodman, 2013). So for example, the index gives credit for generous and high-quality aid, policies that protect the environment or open and fair trade policies. Scores are reduced for policies such as barriers to imports from developing countries, selling arms to poor and undemocratic nations, barriers to sharing technology or policies that harm shared environmental resources. These components are then averaged to calculate a final country score. Scores are weighted for economic size to assess whether countries are living up to their potential to help.

The aim is to quantify the effect of these policies on developing countries.

Figure 17.25. Commitment to Development Index, 2015



Sources: Centre for Global Development.

In 2015, Denmark has the best overall score because of a consistent performance across all the components of the index, but in particular aid[17.61] and technology (figure 17.25). Of the 27 countries included in the index, Japan was ranked last overall owing to poor scores for environment, trade and security.

Trade provides poorer countries with opportunities to attract investment, create jobs and reduce poverty. Nevertheless some goods and services produced by developing countries still face trade barriers and less obvious non-tariff barriers in developed economies, making it difficult for developing countries to complete and reap the benefits of international trade. The CDI rewards developed countries that are open to goods from developing countries, with low tariffs, no or few subsidies, and streamlined importation processes. The 2015 index ranks the Netherlands, Denmark and the United Kingdom at the top of the trade sub-index, owing to their limited red-tape procedures and openness to trade in services. Japan and the Republic of Korea are ranked lowest owing to their high tariff rates on rice and the latter's tariffs on grains, seeds and nuts.

The debate and measures regarding policy coherence have to date largely focused on the narrow issue of aid effectiveness. But the profound impact of multiple and interrelated global crises (financial, economic, food and energy) on the world's poorest and the increased countries' interdependency, meaning that the impacts of policies put in place by any one country are felt far beyond that country's borders, demonstrate the need for the development community to go beyond aid (OECD, 2012). In this increasingly globalized world, achieving the Sustainable Development Goals universal agenda requires policy coherence at all (national, regional and global) levels (UNCTAD, 2016b). The scale of the Sustainable Development Goals means a broader concept of policy coherence and accompanying measurement tool than used to date is required[17.62].

Target 17.15: Policies for poverty eradication and sustainable development

Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development.

The Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected Extent of use of country-owned results frameworks and planning tools by providers of development cooperation as the appropriate indicator to benchmark progress. To provide a comprehensive measure on the extent of use of country-owned results frameworks and other government planning tools, the indicator should calculate the degree to which objectives, results indicators and monitoring frameworks associated with new development interventions are drawn from government sources (United Nations, Department of Economic and Social Affairs, Statistics Division, 2015). In other words, this indicator should assess the degree of alignment between donor support and a developing country's goals priorities. It should also measure the degree to which each country's policy space and development policies are respected. In so doing, it should also attempt to record the policy design, system of results-reporting and assessment mechanisms or country-led results frameworks that each country has put in place. Analyses of this indicator must recognize that accountability needs to be balanced with the need to learn and exchange knowledge and experiences as different stakeholders may approach common developmental challenges in quite different ways.

The Global Partnership for Effective Development Cooperation (GPEDC)[17.63] established at the Fourth High Level Forum on Aid Effectiveness in Busan, in 2011, with the aim of fostering engagement and sharing knowledge to agree on and implement the principles of effective development cooperation[17.64] (EDC). Arising from this, a monitoring framework, building on the experiences and lessons of international monitoring efforts since the 2005 Paris Declaration[17.65] was proposed in 2012 in order to better respond to developing countries' demand for a global accountability framework that could support their national implementation efforts. The monitoring framework incorporates five TRUST principles: (1) transparency; (2) risk-sharing; (3) use and strengthening of country systems; (4) strengthening of capacity; and (5) timely and predictable aid. The framework is coordinated jointly by UNDP and OECD and aims to provide evidence on progress and identify opportunities and obstacles in the implementation of EDC.

The EDC monitoring framework comprises 10 indicators: (1) development cooperation is focused on results that meet developing countries' priorities[17.66]; (2) civil society operates within an environment which maximizes its engagement in and contribution to development[17.67]; (3) engagement and contribution of the private sector to development[17.68]; (4) transparency: information on development cooperation is publicly available[17.69]; (5) development cooperation is more predictable[17.70]; (6) aid is on budgets which are subject to parliamentary scrutiny[17.71]; (7) mutual accountability among development cooperation actors is strengthened through inclusive reviews[17.72]; (8) gender equality and women's empowerment[17.73]; (9) effective institutions: developing countries' systems are strengthened and used[17.74]; (10) aid is untied[17.75]. These indicators attempt to measure progress towards making development cooperation more effective in specific areas related to EDC principles: ownership, focus on results, inclusive development partnerships, transparency and mutual accountability among partners.

Indicator 1 of the GPEDC monitoring framework is measured by the Proportion of providers of development cooperation using country results frameworks. These frameworks define a country's approach to monitoring and evaluating progress towards development. They include objectives, indicators, a baseline and targets to measure progress in implementing them and achieving outputs, outcomes and impacts, as stated in national development strategies, sector plans and other frameworks (for example, budget support performance matrices). Such frameworks should ideally have been developed through participatory processes involving relevant national stakeholders (OECD and UNDP, 2014). The indicator aims to capture the relationship between the proportion of funding that is allocated to support national priorities versus expenditure programmes, the way in which this funding is disbursed, and its links to the country's results framework. To account for some of these important aspects, the indicator has been designed to draw on a combination of quantitative and qualitative information.

At the time of writing no data are yet available. The indicator has been piloted by eight participating countries[17.76] in coordination with a number of providers of development cooperation[17.77]. Following this initial pilot stage, further discussions and consultations are needed before the methodology can be validated. OECD and UNDP report (OECD and UNDP, 2014) that preliminary results from the pilot study indicate considerable variation in the use of country results frameworks. They also note that the current construction of the indicator may lead to a large variation in behaviour among development cooperation providers being hidden. But they caution that owing to the limited sample size, the conclusions from the pilot study cannot be generalized. A second monitoring round is being conducted during 2015-2016 and results are expected to be available in the fourth quarter of 2016.

Target 17.16: Share knowledge, technology and finance

Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries.

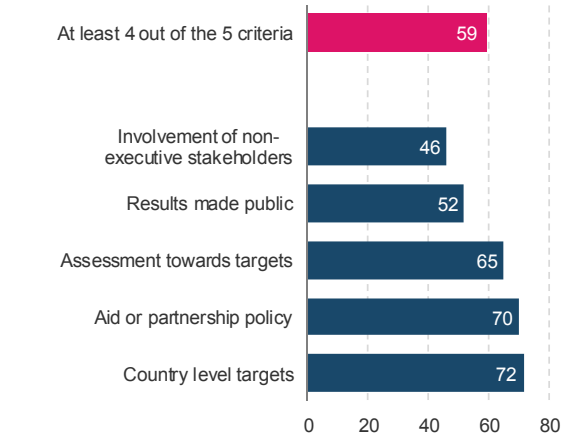
From a development perspective, accountability and transparency have been steadily growing in political importance. Development stakeholders, both providers and recipients, want improved transparency to ensure better trust, planning, predictability and evidence to assess progress towards targets. A number of initiatives have emerged in recent years to promote and support transparency, ranging from the International Aid Transparency Initiative (IATI)[17.78], the Open Government Partnership[17.79], to the G8 group of countries' Open Data Charter[17.80]. Target 17.16 builds on these developments and promotes both mutual partnerships and transparency between partner countries.

The Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) selected the "*Number of countries reporting progress in multi-stakeholder development effectiveness monitoring frameworks that support the achievement of the Sustainable Development Goals*" as the indicator for this target. Two global monitoring frameworks[17.81] have emerged over the past 10 or 15 years to try and measure, both from a quantitative and qualitative perspective, the extent to which developing countries are utilizing monitoring frameworks to support and improve development outcomes.

As part of the OECD/UNDP Global Partnership for Effective Development Cooperation (GPEDC) monitoring framework, indicator 7 - Mutual accountability among cooperation actors is strengthened through inclusive reviews is measured using the indicator Proportion of countries that undertake inclusive mutual assessments of progress[17.82] in implementing agreed commitments and meet at least four of the five proposed criteria. A country is considered to have a mutual assessment of progress in place when at least four out of the five criteria are met[17.83].

GPEDC (2015) report that of the 46 countries reporting in 2013, only 27 (or 59 per cent) reported having a mutual assessment review in place. The proportion of countries reporting having aid/partnership policies[17.84] and country level targets[17.85] was higher at 70 per cent and 72 per cent, respectively. A joint assessment of these targets was undertaken in 30 countries (or 65 per cent). Involving non-executive stakeholders and publishing results in a timely manner proved more challenging, with only around half of the countries delivering (figure 17.26). Regarding transparency, the report notes that while transparency is improving, high-level political commitment needs to trickle down through cooperation providers' systems and procedures to allow truly transparent and predictable cooperation, where information is geared towards supporting developing countries' own planning needs and activities.

Figure 17.26. Proportion of countries meeting the criteria for mutual assessment reviews, 2013
(Percentage)



Source: (OECD and UNDP, 2014).

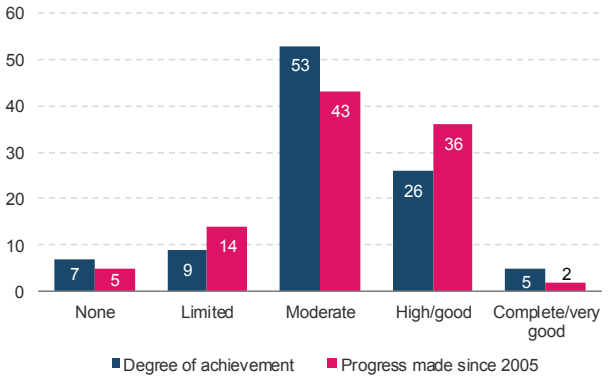
In addition to the GPEDC monitoring framework, United Nations Department of Economic and Social Affairs (UN-DESA) and United Nations Development Program (UNDP) jointly conducts a complementary biennial global survey on national mutual accountability (MA) on behalf of the United Nations Economic and Social Council (ECOSOC) - mutual accountability survey. The third Global Accountability Survey[17.86] was conducted during 2013-2014 and exploits a number of synergies with the measurement of indicator 7 of the GPEDC monitoring framework. The survey covers six broad areas of accountability[17.87]. A total of 43 countries responded to the survey at the time of preparing the report.

ECOSOC's overall assessment is that mutual accountability is still a work in progress but is evolving in a positive direction (ECOSOC, 2012). More than half of the recipient countries (53 per cent) assessed their strength of MA at national level to be moderate, with a further 31 per

cent assessing MA as high or completely achieved (figure 17.27). The majority of recipient countries believed that they have seen progress in mutual accountability since 2005. Thirty-eight per cent rated the progress as good or very good, while 43 per cent rated progress as moderate. Around a fifth of countries (19 per cent) believed that there was little or no progress in mutual accountability in their countries.

While these monitoring frameworks are useful in showing how the indicator may be measured, for the moment they focus on a too narrow range of development partners and stakeholders. To address the universal scope of the Sustainable Development Goals, the increasing role and contribution of South-South cooperation must be incorporated into these measures. Southern partners potentially have a significant impact on development cooperation at national level, yet in many instances they do not participate in formal mutual accountability structures at national level. While it is understood that the nature of South-South cooperation is different to traditional donor aid, it is nevertheless important that southern partners cooperate with national coordination and measurement mechanisms. Private philanthropic and private sector forms of development cooperation must also be integrated. The OECD/UNDP report also highlights the need for more investment in strengthening national monitoring, reporting and evaluation capacity (OECD and UNDP, 2014).

Figure 17.27. 2013/2014 assessment of achievement of mutual accountability and extent of progress by recipient countries, since 2005
(Percentage)

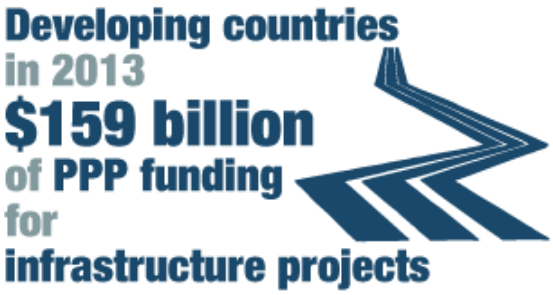


Source: ECOSOC (2014).

Target 17.17: Public, private and civil partnerships

Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.

A public - private partnership or PPP is a contract between a government and a private company under which the private company finances, builds and operates some element of a service that was traditionally considered a government domain. Definitions of PPPs vary considerably, reflecting different institutional arrangements and conceptual understandings[17.88]. PPPs have been used widely over the past 20 years, and are currently seeing a revival of interest in the context of financing the 2030 Development Agenda. For more details refer to chapter 6 of the Trade and Development Report 2015 (UNCTAD, 2015a).



PPPs are typically employed to implement infrastructural projects when public budgets are constrained. Properly managed, they may also improve public service efficiency through technical expertise provided by the private sector (ECLAC, 2015). But there can be downsides and hidden or unexpected fiscal and other costs. Benchmarking PPP performance compared with alternatives, such as traditional public procurement, has not always been done properly. Thus the role of public sector finance should not be underestimated (UNCTAD, 2015a). A cautious approach is needed if PPPs are to deliver the expected development benefits and to avoid or minimize the potential costs such partnerships can generate (Independent Evaluation Group, 2014).

In 2013, PPP funding for infrastructure projects in developing countries amounted to approximately US$159 billion, having recovered after the economic and financial crisis of 2008/2009 but falling sharply from a peak in 2012 (UNCTAD, 2015a). Despite the recent downturn, the use of PPPs has increased markedly since their introduction in the 1980s (figure 17.12), recovering from setbacks following the Latin American and Asian crises, as well as Enron and other corporate scandals that affected even those countries that had previously been successful in attracting capital (World Bank, 2009). Their use in developed countries has also shown a broad overall increase, and again reflects sensitivity to external shocks and the broader economic cycle. However, in Europe the value of PPPs was around €13 billion in 2012, the lowest in at least 10 years. These recent trends point to the challenges that lie ahead. Never has the cost of debt been lower and yet it is increasingly difficult to finance new infrastructure investment, especially when equity commitment is a requirement (Helm, 2010).

Water and sanitation are among the most needed infrastructure services to relieve human suffering but least likely to be financed by PPPs.

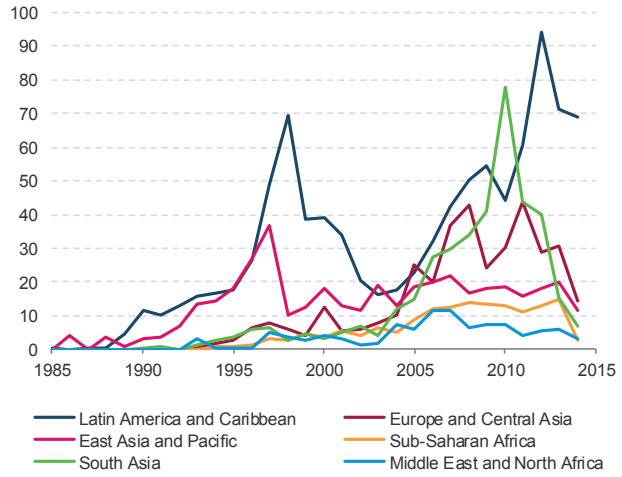
PPP investment has been concentrated in relatively few countries and sectors. Almost 60 per cent of the total private participation in projects recorded in developing countries was in (by order of magnitude) China, Brazil, the Russian Federation, India, Mexico and Turkey. This is an indication that PPP investors are not dissimilar from other institutional investors, preferring large and dynamic markets to the more vulnerable economies where financing needs are greatest. Among developing regions, Latin America has traditionally hosted the largest share of PPPs and still accounted for 45 per cent of the total in 2013. Only 10 per cent of the total went to Africa, although in sub-Saharan Africa investments have been steadily rising (primarily because of investments in telecoms) (UNCTAD, 2015a).

PPP investments have been concentrated in relatively few sectors, with telecoms accounting for 37 per cent of the total, or US$58 billion, in 2013, and energy for 37 per cent of the total, or US$59 billion (see figure 17.29). Water and sanitation are among the most needed infrastructure services to relieve human suffering (See Goal 6), and yet they are the least likely to be financed through this method, having received a mere US$3.5 billion in 2013 (UNCTAD, 2013c). Indeed, most commercial interest has been directed to ICT and energy-related activities, while socially challenging sectors attracted almost no private activity (Africa Infrastructure Country Diagnostic, 2010). PPPs also appear more likely to emerge in brownfield projects[17.89] than in completely new greenfield projects or risky transformative activities such as those related to climate change (World Economic Forum, 2014).

Thus, despite the growth in the use of PPPs, State investment in infrastructure development remains important, especially at times of uncertainty. Estimates of the share of public investment in infrastructure vary from anywhere between 75 per cent and 90 per cent (Estache, 2010; Briceño-Garmendia et al., 2008; Hall, 2015). Even in

the European Union, PPPs on average contribute a very small share to total infrastructure investment. In developing countries, governments financed around 70 per cent of infrastructure investment during the period 2000−2005, rising to 90 per cent for the lowest income countries[17.90]. To a large extent, this reflects the very nature of infrastructure. As the World Bank has noted (World Bank, 2009, p.78), many governments see the private sector as a solution. However, private financing, while offering additional resources, does not change the fundamentals of infrastructure provision: customers or taxpayers (domestic or foreign) must ultimately pay for the investments, and cost-covering tariffs (and well-targeted subsidies) remain the centrepiece of all sustainable infrastructure provision, public or private.

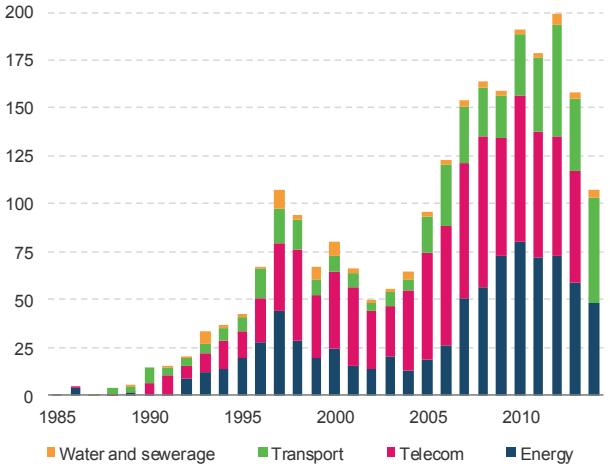
Figure 17.28. Private sector participation in infrastructure by region, 1985-2014
(US$ billions)



Source: UNCTAD secretariat calculations based on the World Bank Private Participation in Infrastructure Project Database.
Notes: World Bank region definitions. Investments refer to the year of implementation.

As a result, even with PPPs, public finance remains critical. Of the total investment in developing countries broadly described by the World Bank as PPPs, public debt and equity accounted for 67 per cent and private debt and equity accounted for the remaining (Mandri-Perrott, 2014). Moreover, these data relate only to the phase before projects are operational, after which contingent liabilities and other charges generally add considerably to the total public costs.

Figure 17.29. Private sector participation in infrastructure by sector, 1985-2014
(US$ billions)



Source: UNCTAD secretariat calculations based on the World Bank Private Participation in Infrastructure Project Database.
Notes: World Bank region definitions. Investments refer to the year of implementation.

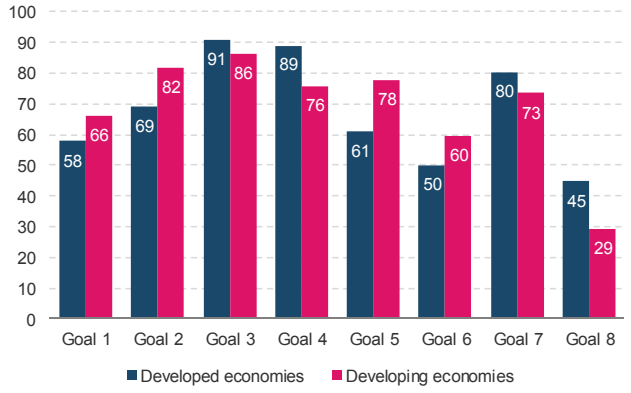
Target 17.18: Capacity-building for reliable data availability

By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts.

The Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) has selected the "*Proportion of sustainable development indicators produced at the national level with full disaggregation when relevant to the target, in accordance with the Fundamental Principles of Official Statistics*"[17.91] as the best indicator to measure progress towards this target. Unfortunately, this indicator cannot be compiled until all of the other Sustainable Development Goal indicators are formally populated.

As the Millennium Development Goal programme was completed at the end of 2015, the availability of data can be assessed. The Millennium Development Goals were comprised of 8 Goals, 19 targets and 61 indicators.

Figure 17.30. Average data availability rates for Millennium Development Goal indicators in 2015 by development status
(Percentage of total)



Source: UNCTAD secretariat calculations based on UNSD MDG Indicators database.
Note: Data availability is defined as having at least one data point.

Figure 17.30 shows that even after 15 years, sizeable data gaps exist across all Goals, particularly for Goal 8[17.92] where average data availability for developing regions was only 29 per cent in 2015. Across all the Goals, in 2015, the average data availability was only 68 per cent.

The Sustainable Development Goals are a much more ambitious and complex proposition comprising 17 Goals, 169 targets and 230 indicators. This represents an almost three-fold increase in the number of indicators required by the new monitoring framework.

But such a simple volume measure underestimates the real data challenge ahead, as the widening of scope and complexity of the Sustainable Development Goals compared with the Millennium Development Goals has greatly added to the task. For example, UNSD estimates that just less than half (47 per cent) of the indicators agreed by the United Nations Statistical Commission in March 2016 are categorized as tier 1 indicators meaning concepts, methodologies, standards and data exist for compiling the indicator (United Nations, Department of Economic and Social Affairs, Statistics Division, 2016).

A further quarter of all indicators (24 per cent) are categorized as tier 2 with the residual indicators (28 per cent) categorized as tier 3. While UNSD notes that this estimate is very preliminary in nature, it nevertheless gives an indication of the magnitude of the task that awaits the global statistical community.

The gaps in data availability to measure progress towards the Millennium Development Goals suggest that populating the Sustainable Development Goal monitoring framework will be very challenging. In turn this suggests that a very significant investment in both national and international statistics, data infrastructures[17.93] and capacity-building, including statistical literacy, will be necessary to fulfil the requirements of the Sustainable Development Goal monitoring framework.

Target 17.19: Measure progress

By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement Gross Domestic Product (GDP), and support statistical capacity-building in developing countries.

Following the Great Depression of the 1930s and the onset of World War II, GDP emerged from these crises and the Bretton Woods conference in 1944[17.94] as the pre-eminent economic indicator (Dickinson, 2011; Fioramonti, 2013) and the ultimate measure of a country's economic progress. GDP has been described by Samuelson and Nordhaus as one of the greatest inventions of the twentieth century (Landefeld, 2000). As Philipsen notes, GDP is not just a measure of the economy. It defines the economy (Philipsen, 2015). Although a purely economic measure, GDP has often been used as a proxy measure for welfare. Palmer described GDP as the chief criterion for national welfare or progress (Palmer, 1966). Landefeld notes similarly the singular focus on GDP alone as a measure of society's welfare (Landefeld, 2010). But from the outset, Simon Kuznets, the economist most commonly associated with the creation of GDP, cautioned that GDP could unwittingly act as a statistical laundry concealing inequality and would be an unreliable or inappropriate measure of well-being, noting the welfare of a nation can scarcely be inferred from a measure of national income (Kuznets, 1962, p. 29). More recently Stiglitz has gone further, reflecting concerns with the limitations of GDP, saying that not only is GDP not a good measure of welfare but GDP is not a good measure of how well an economy is performing and that too much has already been sacrificed on the altar of GDP fetishism (Stiglitz, 2014)

"We need to move beyond gross domestic product as our main measure of progress, and fashion a sustainable development index that puts people first." - Ban Ki-moon, Secretary-General of the United Nations (Ban Ki-moon, 2012)

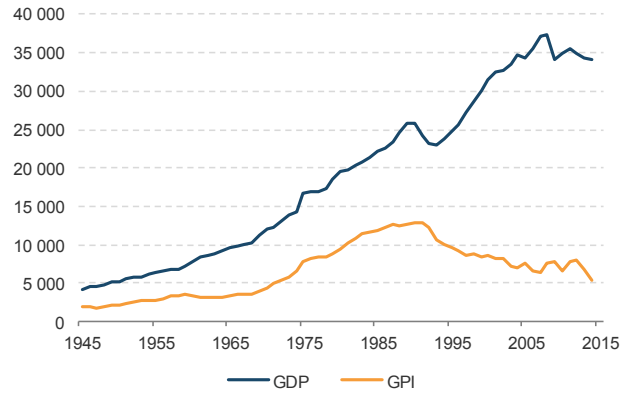
There have been many attempts since the 1970s to move beyond GDP, such as: the Measure of Economic Welfare[17.95]; the Total Incomes System of Accounts[17.96]; the Index of Sustainable Economic Welfare that was later renamed the Genuine Progress Indicator (GPI); and perhaps most famously, the Index of Gross National Happiness proposed by the King of Bhutan. The essence or spirit of these alternatives was perhaps best encapsulated by Robert F. Kennedy referring to GDP during a 1968 campaign speech in the University of Kansas - it measures everything in short, except that which makes life worthwhile. But it was the financial crash of 2008 and the subsequent recession that triggered a determined attempt to develop a more wide ranging measure of progress. The Commission on the Measurement of Economic Performance and Social Progress (better known as the Stiglitz-Sen-Fitoussi Commission) was established by the then president of France, President Sarkozy, in 2008 to determine if a better or more comprehensive measure of economic and social progress could be established. This commission reported in 2010 (Stiglitz et al, 2010). In 2009, the European Commission published their initiative Beyond GDP, which is an amalgam of enlarged GDP, social and environmental indicators and other measures of well-being. The Obama administration formally established the Key National Indicators Commission in 2010 to develop a comprehensive indicator system for the United States, which comprises over 300 key and 12 composite indicators. The following year OECD launched its Better Life Index to try and address similar questions. Ban Ki-Moon, the Secretary-General of the United Nations, noted the importance of establishing a Sustainable Development Index, or a set of indicators to measure progress towards sustainable development (United Nations, 2012). Separately, the United Nations University International Human Dimensions Programme on Global Environmental Change in collaboration with the United Nations Environment Programme has also developed an Inclusive

A challenge for statisticians is how to interpret progress on sustainable development, as several disparate issues are potentially bundled under the broad progress umbrella, including resource depletion, environmental degradation and sustainability, well-being, social inequality, societal satisfaction and economic performance, stability and sustainability. Furthermore, each of these is individually complex and multidimensional. As noted above, several indicators have been developed, and, reflecting this complexity, some have adopted a dashboard approach rather than trying to develop a single aggregate index. Whether to use a dashboard or a composite index is not a straightforward decision. Dashboards are perhaps more transparent but often pose communications challenges, whereas single composite indices appear simpler but often involve technical weighting decisions that may have significant impact on the result. The timeliness of these more complex indices (whether dashboard or composite) poses another challenge as they are dependent on so much more data, many of which may be significantly lagged after the reference period.

For the purposes of illustration, the GPI for Finland is compared with the GDP in figure 17.31. The GPI begins with the same data used to compile GDP but is then adjusted for income distribution, housework, volunteering and higher education, crime, resource depletion, pollution and long-term environmental damage, changes to leisure time, defence expenditure, lifespan of consumer durables, public infrastructure and dependence on foreign assets. As both GDP and the GPI are measured in monetary terms, they can both be compared on the same scale.

Figure 17.31 shows the widening gap between GDP and GPI as the GPI has followed a more subdued trajectory than that of GDP, highlighting the impact of accounting for hidden costs. There is a pronounced growth in the gap from the early 1990s. The gap between the two measures peaked in 2007 at almost €31,000 per capita before falling back slightly. But the steady separation of the two measures resumed in 2012 with the gap estimated at almost €29,000 in 2014.

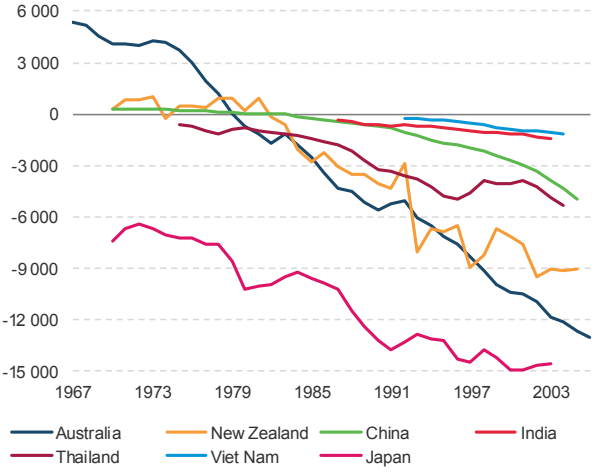
Figure 17.31. Trends of GPI and GDP for Finland, 1945-2014
(€ per capita, real prices (2010 prices))



Source: Hoffrén (2011).

The trend illustrated for Finland is not unique. Figure 17.32 presents the gap between GPI and GDP (GPI minus GDP) for Australia, China, India, Japan, New Zealand, Thailand and Viet Nam. For all of these countries, a growing distance between the two measures is evident. For Australia, China and New Zealand, where long time series are available, the gap was initially positive (during the late 1960s and 1970s). But the gap for all three countries became negative between 1980 and 1982. In Japan the GPI GDP gap has been negative from inception. The declining trend (growing gap) is evident for all selected countries but is particularly striking for Australia. The trend for Japan and New Zealand is quite similar, although the scale of the gap is significantly more pronounced for the former. The steepening curve for China is also noteworthy.

Figure 17.32. GPI - GDP gap for selected Asia-Pacific countries, 1967-2006
(US$ per capita, 2004 prices)



Source: UNCTAD calculations derived from Lawn and Clarke (2010).

As noted above, there are several measures that can be used to complement, or even replace, GDP as the best collective measure of progress or well-being. But for the moment GDP remains the prominent measure as there is little consensus on which of these alternatives is the most suitable replacement. As has been observed, this is because there is little consensus on how well-being should be measured and whether quantitative measurements can be made at all. Talberth et al. (2006), using GPI as an example, illustrate how different key indicators might look and how changed our perceptions of progress might be using such an approach.

Notes and references

Notes

17.1 Millennium Development Goal target 8.A - Develop further an open, rule-based, predictable, non-discriminatory trading and financial system. Sustainable Development Goal targets 17.10 - Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda; 17.11 - Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020; 17.12 - Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access.

17.2 Millennium Development Goal target 8.D - Deal comprehensively with the debt problems of developing countries. SDG Target 17.4 - long-term debt sustainability.

17.3 Millennium Development Goal target 8.F - In cooperation with the private sector, make available benefits of new technologies, especially information and communications. Sustainable Development Goal target 17.7 - Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.

17.4 Monitoring aid delivery.

17.5 Target 17.2 - Developed countries to implement fully their ODA commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to LDCs; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to LDCs.

17.6 Target 17.1 - Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.

17.7 Target 17.3 - Mobilize additional financial resources for developing countries from multiple sources.

17.8 Target 17.5 - Adopt and implement investment promotion regimes for least developed countries.

17.9 Target 17.6 - Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism.

17.10 Targets 17.18 - By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts; 17.19 - By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries.

17.11 Target 9.1 - Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

17.12 Bahamas US$20,977 (2014).

17.13 Bahamas 17.5 per cent (2014).

17.14 The Plurinational State of Bolivia (2014): per capita GDP US$1,373; Morocco (2014): per capita GDP US$2,600; Turkey (2014): per capita GDP US$8,868; Trinidad and Tobago (2014): per capita GDP US$14,417.

17.15 The Plurinational State of Bolivia (2014): tax revenue as a percentage of GDP 28.7 per cent; Morocco (2014): tax revenue as a percentage of GDP 28.5 per cent; Turkey (2014): tax revenue as a percentage of GDP 28.7 per cent; Trinidad and Tobago (2014): tax revenue as a percentage of GDP 28.3 per cent.

17.16 Rwanda (2014): per capita GDP US$398 and tax revenue as a percentage of GDP 16.1 per cent.

17.17 Canada (2014): per capita GDP US$47,592 and tax revenue as a percentage of GDP 33.4 per cent; Ireland (2014): per capita GDP US$48,681 and tax revenue as a percentage of GDP 29.9 per cent; New Zealand (2014): per capita GDP US$29,709 and tax revenue as a percentage of GDP 32.4 per cent; United Kingdom (2014): per capita GDP US$41,598 and tax revenue as a percentage of GDP 32.6 per cent.

17.18 Only five members reached or exceeded the target of 0.7 per cent of GNI: Denmark, Luxembourg, Norway, Sweden and the United Kingdom (OECD, 2015a)

17.19 UNCTAD secretariat estimates based on DAC figures. OECD DAC data.

17.20 BRICS is the acronym used for the economic group Brazil, the Russian Federation, India, China and South Africa.

17.21 South-South cooperation is guided by principals of respect for national sovereignty, non-interference in domestic affairs, solidarity and equality among partners, alignment with national priorities, and mutual benefits.

17.22 Mazover highlights some of the challenges in coordinating the activities of “philanthrocapitalists” or “super-philanthropists” with the wider development effort (Mazower, 2012).

17.23 The indicator "Fixed Internet broadband subscriptions, by speed", in other words the number of fixed broadband subscriptions to the public Internet, is based on an internationally agreed definition. It is also a core indicator of the Partnership on Measuring ICT for Development’s core list of indicators, which has been endorsed by the United Nations Statistical Commission.

17.24 All fixed broadband Internet subscriptions with advertised download speeds equal to or greater than 256 kbit/s and less than 2 Mbit/s. Mbits/s is the data transfer rate, that is, the average number of bits per second passing between equipment in a data transmission system. Data transfer rates for modern high-speed Internet connections are most commonly expressed in multiples of bits per second, such as megabits per second (Mbit/s). A megabit per second, Mbit/s or Mb/s, is 1,000,000 or 106 bits per second.

17.25 All fixed broadband Internet subscriptions with advertised download speeds equal to or greater than 2 Mbit/s and less than 10 Mbit/s.

17.26 All fixed broadband Internet subscriptions with advertised download speeds equal to, or greater than, 10 Mbit/s.

17.27 The APEC countries themselves have, in their 2012 Vladivostok Declaration, committed to reduce tariffs on these 54 goods to 5 per cent or less by 2015. See ANNEX C - APEC List of Environmental Goods.

17.28 Of the 54 APEC products, 44 were selected, based on: those identified in the HS Nomenclature 2002 Edition; and those that had a corresponding code in the HS Nomenclature 2012 Edition. This approach facilitated a comparison of tariff rates and trade flows between 2002 and 2014.

17.29 Of the 44 products, 20 fall under HS-84 group (boilers, machinery and mechanical appliances, and the like); 9 under HS-85 group (electrical machinery and equipment and parts thereof); and 15 under HS-90 group (measuring, checking, precision instruments and apparatus and parts and accessories thereof).

17.30 National tariff lines are more detailed than the HS six-digit level. Once “ex outs” are taken into account, the actual coverage of products for tariff reduction can be quite restricted (Sugathan and Brewer, 2012).

17.31 In cooperation with the private sector, make available benefits of new technologies, especially information and communications. See http://www.un.org/millenniumgoals/global.shtml.

17.32 Also referred to as transition countries.

17.33 These estimates may also include aid provided by non-DAC countries.

17.34 Health, education, water supply and sanitation, government and other social infrastructure.

17.35 Transport and communications, energy and other.

17.36 Agriculture, industry, mining, construction, trade and tourism.

17.37 Debt relief and debt forgiveness, humanitarian aid, and the like.

17.38 Sectors whose economic viability is considered important for the socioeconomic conditions of the country.

17.39 Quantity of imports that can be bought by a unit of exports.

17.40 According to WTO, for non-agricultural products the product coverage of tariff binding by developed country members was 100 per cent, while that of developing country members was around 73 per cent. See https://www.wto.org/english/tratop_e/markacc_e/markacc_e.htm

17.41 In contrast to MFN-bound tariffs, MFN-applied tariffs are those that are in effect at the customs border. At times an applied tariff rate can be significantly lower than its corresponding MFN-bound tariff rate.

17.42 A recent study estimates that, at the time of the establishment of GATT in 1947, the simple (non-trade-weighted) average tariff rate of the then GATT members was at around 22 per cent, which then fell to around 15 per cent by the time of the second Geneva Round in 1956.

17.43 When a weighted average is less than the simple average it may suggest that products with high tariffs are not traded extensively.

17.44 Target 10.a - Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements.

17.45 The Treaty of the European Union (1992), also known as the Maastricht Treaty, created the European Union and led to the creation of the single European currency, the euro. The treaty defined a set of convergence criteria - the criteria for European Union member States to enter the Economic and Monetary Union and adopt the euro. The four criteria are defined in article 121 of the treaty establishing the European Community. They impose control over inflation, public debt and the public deficit, exchange rate stability and the convergence of interest rates.

17.46 For example, determining the precise role played by developed countries and ODA in the determination of outcomes in developing countries.

17.47 For example, a trade-off between industrialization and climate protection.

17.48 For example, in one study UNCTAD has argued that greater macroeconomic and financial policy coherence is required (UNCTAD, 2015a) whereas in the report of 2016 articulates how policy coherence with regard to trade tariffs and non-tariff measures has impacts for health and the environment (UNCTAD, 2016b).

17.49 Outcome indicators are typically indicators such as income per capita or child malnutrition rates. They measure real outcomes that result from both policy and societal changes and may only be partly influenced by policy instruments. Consequently, they may not always accurately measure policy efforts.

17.50 Policy output indicators capture concrete changes in efforts designed to make policy more development friendly. They are attractive measures because they are directly under the influence of policymakers; for example, the level of tuition fees for students from developing countries or a tariff rate for beef imports.

17.51 Policy input indicators usually monitor donor expenditure on a particular policy area. The extent of financial contributions can be considered a proxy for commitment to a policy area; for example, financial contributions to Aid for Trade or biodiversity. Input indicators are easily measurable and comparable across countries. However, because the effectiveness of expenditure in meeting development goals may differ across countries, rankings using policy input indicators must be interpreted cautiously.

17.52 Policy stance indicators arise because of the nature of decision-making within multilateral agencies such as the United Nations where a member State may not agree with the final outcome. To capture the negotiating position of countries in such negotiations rather than the agreed outcome, the transparent publication of pre-negotiation positions is required.

17.53 The CDI has attracted its fair share of criticism, in particular because it is not based on any theoretical model. Nevertheless, the Dutch and Finnish governments have adopted the CDI as an official performance metric.

17.54 Aid is assessed both in terms of quantity and quality. Aid quality is measured by the dimensions of efficiency, use in fostering institutions, reduction of burden on recipients, and transparency and learning.

17.55 Trade is assessed by the following indicators: market protection; impediments to imports; and restrictions in services.

17.56 Investment is assessed by the following indicators: political risk insurance; prevention of bribery and corrupt practices; identification of investment opportunities; and facilitation of portfolio investment.

17.57 Migration is comprised of three parts: (1) participation in international conventions; (2) implementation of policies domestically; (3) contribution to burden-sharing. Contribution to burden-sharing includes: share of students from developing countries; immigrant inflow; asylum-seekers burden-sharing; and refugee burden-sharing.

17.58 Environment is comprised of three parts: (1) global climate; (2) sustainable fisheries; (3) biodiversity and global ecosystems. Global climate includes: greenhouse gas emissions; fossil fuel production; change in greenhouse gas emissions; gasoline taxes; consumption of ozone-depleting substances; and Kyoto Protocol ratification. Sustainable fisheries includes: fishing subsidies; and ratification of United Nations fisheries agreements. Biodiversity includes: biodiversity treaties participation and tropical wood imports.

17.59 Security is assessed by the following indicators: peacekeeping and humanitarian interventions; sea lanes protection; arms exports; and participation in security regimes.

17.60 Technology comprises of two parts: (1) government support to research and development; (2) intellectual property rights. Government support for research and development includes: government research and development share of GDP; and tax incentives. Intellectual property rights includes: patent coverage; TRIPS+, anti-circumvention rules, database protection; and rights-loss provisions.

17.61 Denmark gives 0.85 per cent of Gross National Income to aid but is also assessed to have a very effective aid programme (quality of aid).

17.62 UNCTAD has long promoted an integrated policy approach to trade and development and the interrelated issues of finance, debt, technology, investment and sustainable development. UNCTAD has implemented an executive cabinet briefing programme to further promote integrated policy support.

17.63 GPEDC is an inclusive political forum bringing together governments, bilateral and multilateral organizations, civil society and representatives from parliaments, local governments, foundations and the private sector that are committed to strengthening the effectiveness of development cooperation to produce maximum impact for development.

17.64 These principles are: (1) ownership by developing countries; (2) focus on results; (3) partnerships for inclusive development; (4) transparency and accountability.

17.65 Paris 2005 was the second OECD High Level Forum on Aid Effectiveness. The first was in Rome in 2003, a third forum was held in Accra in 2008 and a fourth in Busan in 2011.

17.66 The extent of use of country results frameworks by cooperation providers (quantitative and qualitative data: country sourced).

17.67 A preliminary assessment of civil society organization enabling environment building on qualitative, multi-stakeholder information (qualitative data: country sourced).

17.68 A three-dimensional index providing a measure of the quality of public-private dialogue (quantitative and qualitative data: country sourced).

17.69 A measure of the state of implementation of the common standard by cooperation providers (quantitative data: globally sourced).

17.70 This comprises two sub-indicators, one annual and the other medium term. The annual target is the proportion of development cooperation funding disbursed within the fiscal year within which it was scheduled by cooperation providers; the medium-term indicator is the proportion of development cooperation funding covered by indicative forward spending plans provided at country level (quantitative and qualitative data: country sourced).

17.71 The percentage of development cooperation funding scheduled for disbursement that is recorded in the annual budgets approved by the legislatures of developing countries (quantitative data: country sourced).

17.72 The percentage of countries that undertake inclusive mutual assessments of progress in implementing agreed commitments (qualitative data: country sourced).

17.73 The percentage of countries with systems that track and make public allocations for gender equality and women's empowerment (qualitative data: country sourced).

17.74 This comprises two sub-indicators. The first is the quality of developing country public financial management systems; the second is the use of country public financial management and procurement systems (quantitative data: globally and country sourced).

17.75 Percentage of aid that is fully untied (quantitative data: globally sourced).

17.76 Bangladesh, Benin, Burkina Faso, the Democratic Republic of the Congo, Madagascar, Peru, the Republic of Moldova and Zambia.

17.77 The African Development Bank, Australia, Belgium, Canada, Denmark, the European Union, France, the Inter-American Development Bank, Japan, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom, the United Nations, the United States and the World Bank.

17.78 The International Aid Transparency Initiative is a voluntary, multi-stakeholder initiative that seeks to improve the transparency of aid, development, and humanitarian resources in order to increase their effectiveness in tackling poverty. The Initiative brings together donor and recipient countries, civil society organizations, and other experts in aid information who are committed to working together to increase the transparency and openness of aid.

17.79 A multilateral initiative that aims to secure concrete commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance.

17.80 Governments of the G8 signed the Open Data Charter on 18 June 2013. The charter is based on five principles: (1) open data by default; (2) quality and quantity; (3) usable by all; (4) releasing data for improved governance; (5) releasing data for innovation.

17.81 The first is the OECD/UNDP Global Partnership for Effective Development Cooperation (GPEDC) monitoring framework. The second is the United Nations Department of Economic and Social Affairs national mutual accountability survey compiled on behalf of the ECOSOC Development Cooperation Forum.

17.82 Mutual assessment reviews are defined as national exercises that engage both developing country authorities and providers of development cooperation at senior level in a mutual performance review (OECD and UNDP, 2014).

17.83 The five criteria are: (1) An aid/partnership policy defines the country's development cooperation priorities; (2) national targets for effective development co-operation exist for both the developing country government and providers of development cooperation; (3) progress has been assessed regularly and jointly by government and providers at senior level in the past two years; (4) local governments and non-executive stakeholders have been actively involved in these reviews; (5) results of the review have been made public in a timely manner.

17.84 Aid or partnership policy that defines development cooperation priorities.

17.85 Countries have specific national targets for effective development cooperation for both government and providers of the development cooperation.

17.86 The first global accountability survey was conducted during 2010 and the second during 2011.

17.87 (1) National aid/partnership policies; (2) mutual accountability coordination forums in recipient countries; (3) quality/transparency of information on development cooperation flows; (4) support for capacity development at country level; (5) impact of national mutual accountability processes; (6) a country's overall evaluation of mutual accountability.

17.88 In their simplest form, PPPs refer to arrangements where the private sector supplies infrastructure assets and services that traditionally have been provided by the government (IMF, 2006).

17.89 Changing ownership of assets that already exist.

17.90 Notable exceptions were middle-income countries, and the ICT and telecoms sector, where private sector finance was more forthcoming.

17.91 The United Nations Fundamental Principles of Official Statistics were endorsed by the General Assembly in 2014 (Resolution 68/261 of 29 January 2014) and updated with a revised preamble in 2013 (E/RES/2013/21). The text sets out 10 key principles deemed necessary to support good quality, independent official statistics. See http://unstats.un.org/unsd/dnss/gp/FP-Rev2013-E.pdf.

17.92 Develop a global partnership for development.

17.93 A data infrastructure is a whole-of-system approach to organizing data whereby different datasets can be linked at unit record level through the use of unique identifiers (MacFeely and Dunne, 2014; Dunne and MacFeely, 2014).

17.94 Officially known as the United Nations Monetary and Financial Conference, this was a gathering of delegates from 44 nations that met from 1 to 22 July 1944 in Bretton Woods, New Hampshire, to agree upon a series of new rules for the post-World War II international monetary system.

17.95 The Measure of Economic Welfare took national output as a starting point and adjusted it to include an assessment of the value of leisure time and the amount of unpaid work in an economy, hence increasing the welfare value of GDP. It also included the value of the environmental damage caused by industrial production and consumption, which reduced the welfare value of GDP.

17.96 The index aimed at improving inter-temporal and, potentially, international comparability of measures of aggregate input and economic well-being. The extensions and adjustments focused primarily on non-market household production, final and intermediate product and capital formation.

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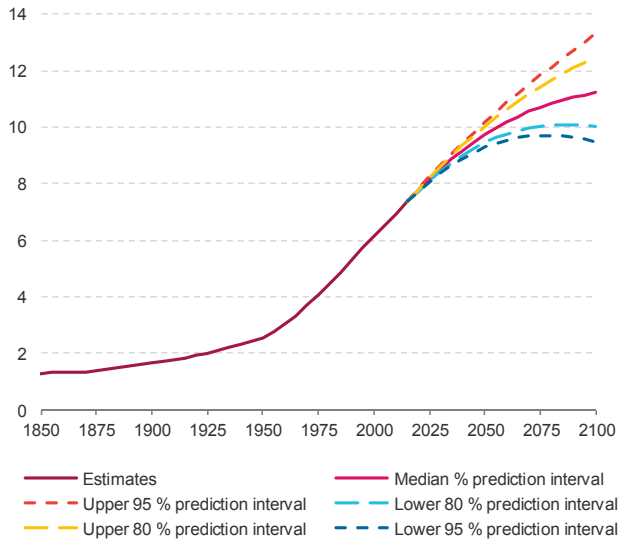
ANNEXES

Special note on population

Note on world population, population projections and demographic changes.

Over the next 85 years the population of the world is projected to increase by approximately 3.9 billion persons to reach 11.2 billion (United Nations Department of Economic and Social Affairs, 2015) (see figure 1). That is the equivalent of almost an additional 46 million people on the planet each year for the next 85 years, or 125,500 people every day. In population terms, it is the equivalent of another country the size of Kenya or Ukraine being added every year. These projections are based on fertility, mortality and migration patterns now, and on assumptions about what those patterns might look like in the future. As these assumptions project further into the future they become increasingly uncertain and hence the growing divergence between the upper and lower bounds. For the purposes of this note, the medium-variant projection will be used[1].

Figure 1. Global population and population projections, 1850–2100
(Billions)



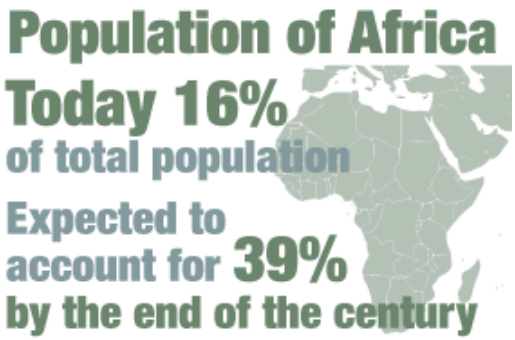
Sources: United Nations, Department of Economic and Social Affairs (2015); Ortiz-Ospina E and Roser M (2016), and UNCTAD secretariat estimates.
Notes: Decennial estimates for 1850 - 1940 are taken from Ortiz-Ospina E and Roser M (2016). Inter-decennial data are UNCTAD estimates. Estimates for 1950 - 2010: United Nations, Department of Economic and Social Affairs, Population Division (2015). Population projection (2015 - 2100) is based on the 4th Revision of Probabilistic Population Projections, prepared for the 2015 revision of the World Population Prospects.

These changes in population and demographic structure may impact on the health and well-being of millions of people in the years to come. In turn this will impact on the implementation of the Sustainable Development Goals, as populations in different regions contract and expand, and as gender and age profiles evolve. The purpose of this note is to outline some of the key population and demographic changes expected over the next 35 years to provide some context for Agenda 2030. Understanding these changes is important. Agenda 2030 will not be implemented during a static period, but rather one of quite dramatic population and demographic changes. Appreciating these changes helps in understanding the paradoxical situation where, despite significant reductions in the proportion of populations gaining access to basic services, such as clean water or sanitation facilities or those enduring extreme poverty, the absolute numbers can remain static or even increase. As the Agenda spans 15 years, the focus of this note is to examine the projected population patterns for the world and its principal geographic regions up to 2030, but the period beyond to 2050 is also considered.

Between 1850 and 1950, the population of the world increased from 1.3 billion to 2.5 billion people (United Nations Department of Economic and Social Affairs, 1999). Thereafter, the growth in population accelerated and today (2015) stands at approximately 7.3 billion. On its current trajectory, the world's population is expected to reach 8.5 billion in 2030 and 9.7 billion in 2050.

Regional profile

The growth in population is not projected to be geographically evenly distributed, but rather it will be concentrated in developing countries in Africa and Asia. In fact, population growth in developing countries will account for the bulk (96 per cent) of this anticipated growth (table 1).



The population of Africa is projected to more than double between now and 2050, from 1.2 billion people to almost 2.5 billion[2]. The impact of this growth on Africa's population share is quite dramatic, increasing from 16 per cent in 2015, to 20 per cent in 2030, 25 per cent in 2050 and 39 per cent in 2100.

Table 1. Actual and projected population of the world by region, 2015, 2030, 2050 and 2100
(Millions; percentage)

	2015		2030		2050		2100	
	Population	Percentage of the world population	Population	Percentage of the world population	Population	Percentage of the world population	Population	Percentage of the world population
World	**7 349**	**100**	**8 501**	**100**	**9 725**	**100**	**11 213**	**100**
Africa	1 186	16	1 679	20	2 478	25	4 387	39
Asia	4 393	60	4 923	58	5 267	54	4 889	44
Europe	738	10	734	9	707	7	646	6
Latin America and the Caribbean	634	9	721	8	784	8	721	6
Northern America	358	5	396	5	433	4	500	4
Oceania	39	1	47	1	57	1	71	1

Sources: United Nations, Department of Economic and Social Affairs (2015).
Notes: Population based on medium-variant projection. UNSD region definitions.

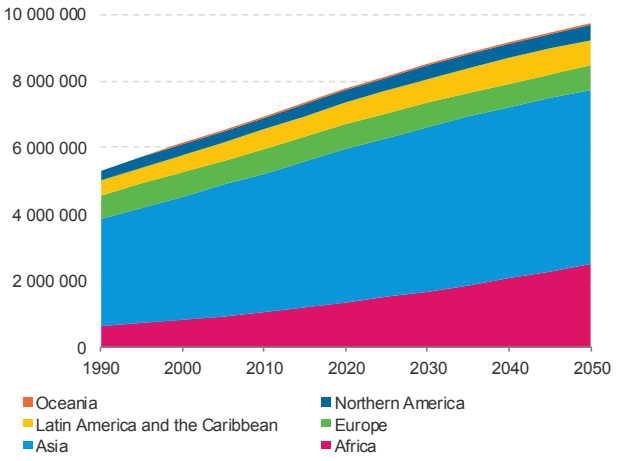
Between now and 2050, the number of persons per square kilometre in Africa will increase from 40 to 84, and to 148 by the end of the century. Populations in Asia will grow by 20 per cent during the same period to reach 5.3 million people[3]. As a consequence, Asia's share of the global population is projected to fall from 60 per cent today to 54 per cent in 2050.

Population density is already very high in Asia, with 142 people for every square kilometre – this will increase to 170 by 2050. Of course, future projections for Asia have some added uncertainty owing to recent changes in the Chinese "*one-child*" rule[4], which until 2015 placed an artificial cap on fertility; it is not clear what the impact of this will be for future populations and gender balance[5]. The population of Europe is expected to decline, falling from 738 million to 707 million between now and 2050, and further to 646 million in 2100 (see table 1 and figure 2).

Asia will remain the single most populous region of the world. In 2015, five Asian developing economies – Bangladesh, China, India, Indonesia and Pakistan – were among some of the most populated economies of the world, with their combined populations accounting for 45 per cent of the global total[6]. The United Nations Department of Economic and Social Affairs (2015) anticipates that China's population will peak around 2022 at around 1.4 billion, at which point it is expected to stabilize for a decade or so before beginning to decline slightly. India's population is also expected to reach 1.4 billion around 2022, but will continue to grow to 1.5 billion in 2030 and 1.7 billion by 2050 to become the most populous country in the world (table 2).

The combined populations of China and India accounted for 37 per cent of the global population in 2015. This is projected to fall to 32 per cent by 2050. But as noted above, the likely trajectory of China's population has additional uncertainty arising from the removal of the one-child policy in 2015.

Figure 2. Population and population projection by region, 1990–2050
(Thousands)



Source: United Nations Department of Economic and Social Affairs (2015).
Notes: Population based on medium-variant projection. UNSD region definitions.

Table 2. Top 10 actual and projected most populous countries in the world, 2015, 2030 and 2050
(Millions; percentage of total population)

2015			2030			2050		
	Population	Percentage of the world population		Population	Percentage of the world population		Population	Percentage of the world population
World	**7 349**		**World**	**8 501**		**World**	**9 725**	
China	1 376	19	India	1 528	18	India	1 705	18
India	1 311	18	China	1 416	17	China	1 348	14
United States	322	4	United States	356	4	Nigeria	399	4
Indonesia	258	4	Indonesia	295	3	United States	389	4
Brazil	208	3	Nigeria	263	3	Indonesia	322	3
Pakistan	189	3	Pakistan	245	3	Pakistan	310	3
Nigeria	182	2	Brazil	229	3	Brazil	238	2
Bangladesh	161	2	Bangladesh	186	2	Bangladesh	202	2
Russian Federation	143	2	Mexico	148	2	Dem. Rep. of the Congo	195	2
Mexico	127	2	Russian Federation	139	2	Ethiopia	188	2
	4 277	**58**		**4 804**	**57**		**5 297**	**54**

Source: United Nations, Department of Economic and Social Affairs, Population Division (2015).
Note: Population based on medium-variant projection.

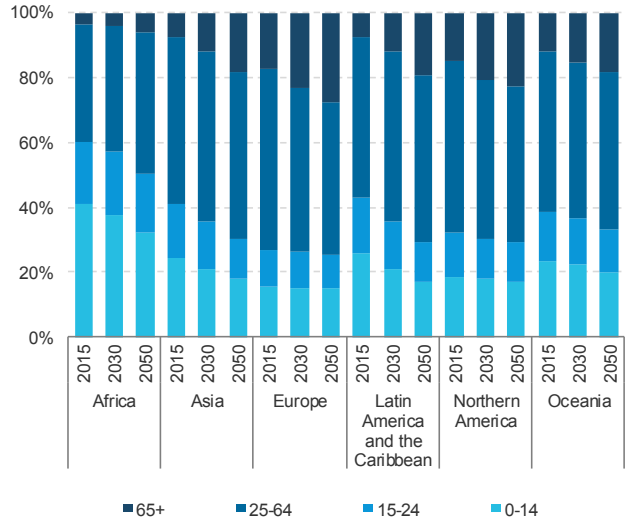
Age profile

A new global distribution of population will not be the only outcome of uneven population growth; regional age profiles will also change as a consequence. There are already quite clear differences in the age profiles in the different regions around the world. In Africa today, 41 per cent of the population are children aged less than 15 and very few are aged over 65 (only 4 per cent).

In Europe, the age dividend has been spent – only 16 per cent of the population are aged less than 15 but 18 per cent are 65 years old or more. By 2050, the age profiles will have evolved so that in Asia, America and in particular Europe, the proportion of those aged 65 and more will have increased to 8, 15 and 28 per cent respectively.

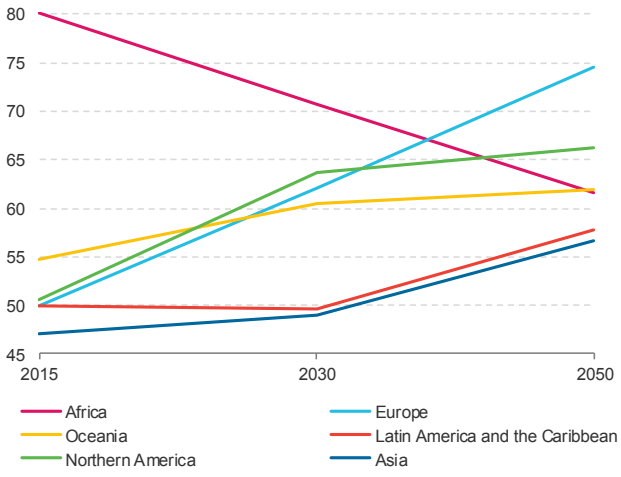
The consequent dependency ratios (see figure 4) show the ratio of net consumers (those aged 0–14 years old or 65 years or over) to net producers (the group most likely to be economically active are those aged between 15–64 years old) is expected to fall in Africa over the coming 35 years or so. In other words, the burden on the working population to support the non-working population is eased.

Figure 3. Population by region and broad age group, 2015, 2030 and 2050
(Percentage of total population)

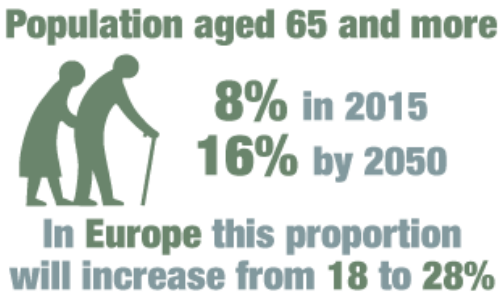


Source: United Nations, Department of Economic and Social Affairs (2015).
Notes: Population based on medium-variant projection. UNSD region definitions.

Figure 4. Actual and projected regional dependency ratios, 2015, 2030 and 2050
(Percentage)



Source: UNCTAD secretariat calculations based on United Nations, Department of Economic and Social Affairs, Population Division (2015).
Notes: Population based on medium-variant projection. UNSD region definitions.



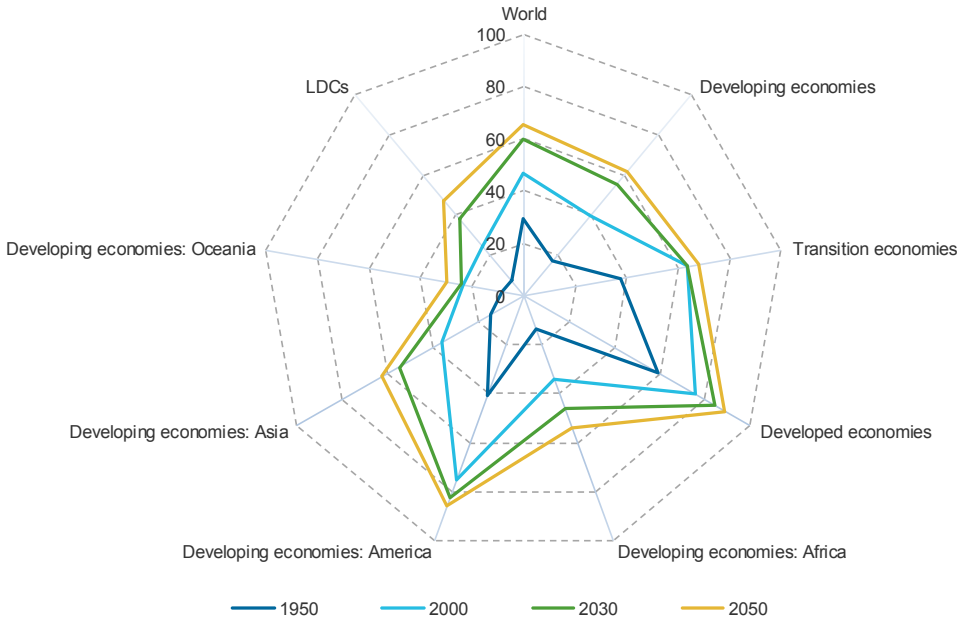
This reduction in burden is sometimes referred to as the age dividend. By contrast, the dependency ratio in all the other regions is expected to increase. The most dramatic increases are expected in Europe, where the ratio will increase from 50 in 2016 to 75 in 2050. Such a high dependency ratio, particularly driven by a large population of older people, indicates that the economically active population and the economy as a whole will face a significant burden in providing the social services and health care required by older persons, who are often economically dependent. This raises questions regarding the sustainability of existing welfare and pensions models in Europe (Laqueur, 2011). It also has implications for economic growth and migration policy (European Union, 2015).

Urban - Rural

During the lifetime of Agenda 2030 and in the following two decades, the world will continue to urbanize. In 2016, 54 per cent of the population lives in urban centres. By 2030, this proportion will have increased to 60 per cent and to 66 per cent by 2050. Developed countries are already highly urbanized (81 per cent) and by 2050 that will have risen to 89 per cent. Developing economies, on average, are a good deal less urbanized but are also urbanizing rapidly (from the present 49 to 62 per cent projected for 2050).

Urbanization rates in developing Latin America are comparable to the developed world average - 79 per cent. Developing Oceania and Africa are the least urbanized at 23 and 40 per cent respectively. By 2050, urbanization will have risen significantly in all developing regions: Africa 54 per cent, America 86 per cent, Asia 62 per cent and Oceania 30 per cent. Least developed countries are currently predominantly rural, with only 31 per cent of populations living in urban centres, but by 2050 this proportion is projected to rise to 47 per cent (see figure 5).

Figure 5. Proportion of actual and projected global population living in urban centres, 1950–2050
(Percentage)



Source: UNCTAD, UNCTADstat.

Notes and references

Notes

1 For example, a scenario in which all countries had a fertility rate that was consistently half a child higher than in the medium variant would produce a population of 16.6 billion in 2100, more than 5 billion higher than the medium-variant projection.

2 And increase again to 4.4 billion by 2100 (United Nations, Department of Economic and Social Affairs, Population Division, 2015).

3 But shrink back to 2030 levels of 4.9 billion by 2100 (United Nations, Department of Economic and Social Affairs, Population Division, 2015).

4 China's one-child policy was introduced in 1979 to slow the population growth rate. It is estimated to have prevented about 400 million births. However, concerns over China's ageing population (currently about 30 per cent of China's 1.4 billion population are aged 50 or more) led to pressure for change (BBC, 2015).

5 Demographers estimate that China will have 24 million "leftover men" or surplus men by 2020 due to a gender imbalance arising from the one-child policy (BBC, 2013).

6 The share of the five economies will decrease to around 40 per cent by 2050.

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Explanatory notes

Units

The term “billion” signifies 1,000 million. The term “dollar” (US$) refers to United States of America dollars, and data in dollars, unless otherwise specified, are expressed in current United States dollars of the year to which they refer.

Economies, countries and country groupings

The classifications of countries and economies in this publication have been adopted solely for the purposes of analytical or statistical convenience and do not necessarily imply any judgement concerning the stage of development of a particular country or area.

There is no established convention for the designation of "developed" and “developing” countries/economies or regions in the United Nations system. In common practice, Israel and Japan in Asia; Bermuda, Canada, Greenland, Saint Pierre and Miquelon, and the United States in northern America; Australia and New Zealand in Oceania; and Europe are considered “developed”. “Transition economies” refer to South-East Europe, Georgia and the Commonwealth of Independent States. Developing countries include all countries/economies not specified above. Furthermore, several naming and compositional conventions are employed to describe regions. Given the wide variety of data sources used in this report, it is inevitable that discrepancies across the classifications will arise. For example, several different regional classifications are employed in this report.

In as far as is possible, UNCTAD regional groupings or compositions and their respective labels have been used throughout the report. In cases where it was not possible to employ standardized UNCTAD classifications or country groupings, a link has been provided to the original source report. Links to original sources are also clearly identified in tables and figures where appropriate. Readers will note the term countries and economies are sometimes used interchangeably in a single chapter, reflecting the variable use of these terms by different organizations.

Other classifications

This report utilizes a wide variety of data from numerous sources. While every effort has been made to use standard United Nations and UNCTAD classifications, it has not always been possible. Where practicable, links to the original classification descriptions and annexes are provided so that readers can access the original source metadata.

Source data

All of the tables, figures and maps presented in this report have been constructed specially for this report, even if they are reproductions of tables, figures or maps sourced from other reports. Where possible the actual source data cited in these reports has been used to reconstruct the tables, figures and maps presented. In some cases, bespoke data have been received directly from report authors, in others indicators have been derived. In all cases the source is clearly marked and explained in the sources and notes accompanying tables, figures and maps.

Glossary

Absolute poverty

Absolute poverty is experienced when people lack the basic necessities for survival: proper shelter, clean water, adequate food, medicines and clothing. From a measurement perspective, absolute poverty is usually defined as having an income below a fixed threshold. That threshold will typically represent the cost of a basket of very basic goods and services or some caloric equivalent. For example, target 1.1 of the 2030 Agenda uses the PPP equivalent of US$1.25 per day (US$1.90 in 2015 prices) as the threshold.

Access to finance

Access to finance is measured using four indicators: (a) building credit histories; (b) women's access to finance programmes; (c) delivering financial services; (d) private sector credit as a percentage of gross domestic product.

Administrative data

Administrative or public-sector data are defined as information that is collected as a matter of routine in the day-to-day management or supervision of a scheme, service or revenue-collecting system (MacFeely and Dunne, 2014 - referenced in Goal 9).

Agricultural holding

FAO and Food Policy Research Institute (2005) define "*an agricultural holding as an economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form, or size. Single management may be exercised by an individual or household, jointly by two or more individuals or households, by a clan or tribe, or by a juridical person such as a corporation, cooperative or government agency. The holding's land may consist of one or more parcels, located in one or more separate areas or in one or more territorial or administrative divisions, providing the parcels share the same production means, such as labour, farm buildings, machinery or draught animals*".

Agricultural landowner

An agricultural landowner is defined as the legal owner of the agricultural land; however, definitions of ownership may vary across countries and surveys. The indicator may not necessarily reflect documented ownership certified by a legal document. Especially in places where much of the land is not formally titled or documented, surveys often simply ask whether someone in the household owns the land, and if so, who owns it. In addition to officially titled ownership, it may also include proxies, such as the right to use, sell or bequeath the land, or the right to use it as collateral. This enables the indicator to capture different aspects of the "*bundle of rights"* related to land, rather than land ownership in the strictest sense of the term. An individual is defined as a landowner whether they own land solely (they are the only owner of a plot of land) or jointly with someone inside or outside the household. Thus, households may have multiple landowners. In addition, households may own multiple plots of land with different owners identified for each plot. This contrasts with the data on agricultural holdings, where all of the household plots comprise one holding and typically identify a single holder with management responsibility.

Agricultural landowners by sex

The distribution of agricultural landowners by sex measures the share of female and male agricultural landowners in the total population of landowners.

Agriculture Orientation Index (AOI)

The Agriculture Orientation Index (AOI) for government expenditures as defined by FAO is the agriculture share of government expenditures divided by the agriculture share of gross domestic product (GDP), where agriculture refers to the agriculture, forestry, fishing and hunting sector:
AOI=(Agriculture share of government expenditures)/(Agriculture share of GDP)
An AOI of greater than 1 reflects a higher orientation towards the agriculture sector, which receives a higher share of government spending relative to its contribution to economic value added. An AOI of less than 1 reflects a lower orientation to agriculture, while an AOI equal to 1 reflects neutrality in a government's orientation to the agriculture sector.

Aichi Biodiversity Targets

The Aichi Biodiversity Targets are comprised of 5 goals and 20 targets. The five goals are: (a) "*Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society"*; (b) "*Reduce the direct pressures on biodiversity and promote sustainable use"*; (c) "*Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity"*; (d) "*Enhance the benefits to all from biodiversity and ecosystem services"*; (e) "*Enhance implementation through participatory planning, knowledge management and capacity-building"*. See https://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf.

Battle-related deaths

The World Bank defines "*battle-related deaths*" as deaths in battle-related conflicts between warring parties in the conflict dyad (two conflict units that are parties to a conflict). Typically, battle-related deaths occur in warfare involving the armed forces of the warring parties. This includes traditional battlefield fighting, guerrilla activities, and all kinds of bombardments of military units, cities, villages, and the like. The targets are usually the military itself and its installations or institutions and representatives of the State, but there is often substantial collateral damage in the form of civilians being killed in crossfire, in indiscriminate bombings, and the like. All deaths - military as well as civilian - incurred in such situations are counted as battle-related deaths. See http://data.worldbank.org/indicator/VC.BTL.DETH.

Beta-convergence

Beta-convergence applies if a poor economy tends to grow faster than a rich one (Barro and Sala-i-Martin, 1995, p. 383 - referenced in Goal 8).

Biodiversity

Variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biofuel

A biofuel is any fuel derived from biomass. There is still no strict definition of biomass but, in the UNCTAD report *The State of the Biofuels Market: Regulatory, Trade and Development Perspectives*, it is defined as organic matter available on a renewable basis, such as forest and mill residues, agricultural crops and residues, wood and wood residues, animal wastes, livestock operation residues, aquatic plants, and the organic portion of urban wastes.

Biome

A biome is a large naturally occurring community of flora and fauna occupying a major habitat.

Biotrade

Biotrade includes activities related to the collection or production, transformation, and commercialization of goods and services derived from native biodiversity (genetic resources, species and ecosystems) according to criteria of environmental, social and economic sustainability. See http://unctad.org/en/Pages/DITC/Trade-and-Environment/BioTrade.aspx.

Bretton Woods Institutions

The Bretton Woods Institutions are the World Bank and IMF. They were set up at a meeting of 43 countries in Bretton Woods, New Hampshire, in July 1944. Their aims were to help rebuild the shattered post-war economy and to promote international economic cooperation.

Cartagena Protocol

The Cartagena Protocol on Biosafety to the Convention on Biological Diversity (CBD) is an international treaty governing the movements of living modified organisms resulting from modern biotechnology from one country to another. It was adopted on 29 January 2000 as a supplementary agreement to the CBD and entered into force on 11 September 2003. See https://bch.cbd.int/protocol/background/.

Child mortality

The mortality rate of children under the age of five (partially reflecting the fatal synergy of inadequate nutrition and unhealthy environments).

Child stunting

The proportion of children under the age of five who suffer from stunting, that is, low height for their age, reflecting chronic undernutrition.

Child wasting

The proportion of children under the age of five who suffer from wasting, that is, low weight for their height, reflecting acute undernutrition.

Chlorofluorocarbons

Chlorofluorocarbons are generally considered to be non-toxic, non-flammable chemicals containing atoms of carbon, chlorine, and fluorine. They are used in the manufacture of aerosol sprays, blowing agents for foams and packing materials, as solvents, and as refrigerants (Alexander and Fairbridge, 1999 - referenced in Goal 13).

Chronic hunger

A weakened disordered condition brought about by prolonged lack of food (Anderson, 1990 - referenced in Goal 2).

Climatological events

Extreme temperatures, droughts, forest fires.

Composite index

A composite indicator is formed when individual indicators are compiled into a single index, on the basis of an underlying model of the multi-dimensional concept that is being measured. See https://stats.oecd.org/glossary/detail.asp?ID=6278.

Consistent poverty

Consistent poverty is experienced when people are considered to be "*at risk of poverty*" and experience enforced material deprivation. Households are thought to be at risk of poverty when their income (usually calculated on an equalized household basis) is below a given relative monetary poverty threshold; that is, less than a certain percentage of national median income. So if the threshold is 60 per cent, then households with a combined equalized income of less than 60 per cent of the median are considered at risk of poverty "*at a 60 per cent level*". The measure of income may or may not include social transfers. Sometimes the proportion of a population at risk of poverty is defined as the share of population combining the above indicator with either severe material deprivation and/or the fact of living in a household with low work intensity. Material deprivation is experienced when individuals or households cannot afford consumption goods and services that are considered typical for other people in that country or society. This is typically measured by identifying basic goods and services that are considered normal or reasonable – then typically if a household cannot afford two or more commodities/services in the reference period they are considered to be experiencing material deprivation. Sometimes this may also be referred to as enforced or severe material deprivation. The identification or selection of "*typical*" goods and services often proves controversial.

Convention on Biological Diversity (CBD)

The Convention on Biological Diversity is a multilateral treaty intended to further the development of national strategies for the conservation and sustainable use of biological diversity. The Convention represents a dramatic step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. The Convention was adopted at a conference in Nairobi in May 1992 and entered into force on 29 December 1993 with 168 country signatories. See https://www.cbd.int/convention/.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The Convention was agreed at a meeting of representatives of 80 countries in Washington, D.C., on 3 March 1973, and on 1 July 1975 CITES entered into force.
See https://www.cites.org/eng/disc/what.php.

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, aims to conserve terrestrial, aquatic and avian migratory species throughout their range. CMS brings together the States through which migratory animals pass, the range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range. See http://www.cms.int/.

Convention on Wetlands

The Convention on Wetlands, also known as the Ramsar Convention, is an intergovernmental treaty providing a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The treaty was negotiated through the 1960s and adopted in the Iranian city of Ramsar in 1971. The Ramsar Convention came into force in 1975. See http://www.ramsar.org/.

Copyright

Copyright is a legal term used to describe the rights that creators have over their literary and artistic works. Works covered by copyright range from books, music, paintings, sculpture and films, to computer programs, databases, advertisements, maps and technical drawings.

Cost-benefit analysis

Cost-benefit analysis is a systematic approach to estimating the strengths and weaknesses of alternatives that satisfy transactions, activities or functional requirements for a business.

Cost-of-basic-needs

The cost-of-basic-needs method is usually defined using a "basic-needs" approach; that is, the cost of a bundle of basic needs. Models that ignore consumer preferences have proven less useful for policy. Most models today attempt to anchor the choice of basic needs to existing demand behaviour.

Day-to-day hunger

The desire, craving or need for food (Anderson, 1990 - referenced in Goal 2).

Demand elasticity

This shows how sensitive the demand for a good is to changes in other economic variables. Demand elasticity is important because it helps firms model the potential change in demand due to changes in price of the good, the effect of changes in prices of other goods and many other important market factors. Understanding demand elasticity helps to guide firms towards more optimal competitive behaviour. Elasticities greater than 1 are called "*elastic*"; elasticities less than 1 are "*inelastic*" and elasticities equal to 1 are "*unit elastic*".

Dependency ratio

Dependency ratio (sometimes known as total dependency ratio or age dependency ratio) is defined as the ratio of the number of children (0–14 years old) and older persons (65 years or over) to the working-age population (15–64 years old). In other words, it is the ratio of dependents to the working or productive cohort of the population. This is relevant for policy, as it highlights the likely impact of changing population age structures for social support and transfers. See http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/demographics/dependency_ratio.pdf.

Developing country coherence

Consistency between developing countries' policies and the wider international climate.

Discount rate

A discount rate is used to inform on how it is worth investing today in environmental conservation considering future benefits. The discount rate reflects the responsibility of the present generation to the future one. High discount rates typically lead to long-term degradation of biodiversity and ecosystems.

Discriminatory family code

Discrimination institutionalized in "*family code*" is measured using four indicators: (a) legal age of marriage; (b) early marriage; (c) parental authority; (d) inheritance.

Distribution of agricultural holders by sex

The distribution of agricultural holders by sex measures the percentage of female agricultural holders out of total agricultural holders and the percentage of male agricultural holders out of total agricultural holders. It is an indicator of management of agricultural holdings. FAO and Food Policy Research Institute (2005) define an agricultural holder as "*the civil or juridical person who makes the major decisions regarding resource use and exercises management control over the agricultural holding operation. The agricultural holder has technical and economic responsibility for the holding and may undertake all responsibilities directly, or delegate responsibilities related to day-to-day work management to a hired manager*".

Dry cargo

Cargo which is of solid, dry material. It is not liquid or gas, and generally the term excludes cargo requiring special temperature controls.

Economic assets

Buildings, transport infrastructure, utility infrastructure, physical assets within built infrastructure, vehicles and other assets.

Economic infrastructure

Economic infrastructure or "*basic economic infrastructure*" is physical forms of capital investments in land used for production and habitation. These include large-scale systems of water management, including desalination, water purification generally, dams, canals, irrigation, and so on. The most prominently featured categories of physical infrastructure improvements are water management, transportation, energy and power production and distribution, sanitation, and communications systems. Improvements in economic infrastructure are traditionally the economic responsibility of government.

Ecotourism

Environmentally responsible travel and visitation to natural areas in order to enjoy and appreciate nature (and any accompanying cultural features, both past and present) that promote conservation, have a low visitor impact and provide for beneficially active socioeconomic involvement of local people (Ceballos-Lascuráin, 1996 - referenced in Goal 12).

Education and training

Education and training is measured using four indicators: (a) women's school life expectancy (primary and secondary); (b) women's school life expectancy (tertiary); (c) women's adult literacy rate; (d) the existence of government or non-government programmes offering small and medium-sized enterprise support and development training.

Embodied and disembodied technical change

Embodied technical change refers to improvements in the design or quality of new capital goods or intermediate inputs. Disembodied technical change is the shift in the production function (production frontier) over time. Disembodied technical change is not incorporated in a specific factor of production (OECD, 2001 - referenced in Goal 9).

Employment

A work performed for pay or profit. Manufacturing employment is obtained by summing up the number of employed in all manufacturing activities. The manufacturing employment indicator is presented in absolute terms as well as relative to total employment.

Environmental goods and services

Eurostat define environmental products as "*goods and services that are produced for the purpose of preventing, reducing and eliminating pollution and any other degradation of the environment and preserving and maintaining the stock of natural resources and hence safeguarding against depletion*".
See http://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_goods_and_services_sector

Ex outs

Exclusion of certain products out of the products covered under the HS six-digit level of classification according to their national tariff lines.

Extinction

Extinction is an absolute term, meaning that no individual of a species remains alive.

Fixed broadband

Connections with a download speed equal to or greater than 256 Kbit/s, in one or both directions, using technologies such as Digital Subscriber Line, cable modem, high-speed leased lines, fibre-to-the-home, powerline, satellite, fixed wireless, Wireless Local Area Network and WiMAX (UNCTAD, 2009 - referenced in Goal 8).

Fixed Internet broadband subscriptions

Subscriptions to high-speed access to the public Internet (a transmission control protocol/Internet protocol (TCP/IP) connection), at downstream speeds equal to or greater than 256 kbit/s. This includes cable modem, DSL, fibre-to-the-home/building, other fixed (wired) broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications, including the Internet, via mobile cellular networks. It should include fixed WiMAX and any other fixed wireless technologies. It includes both residential subscriptions and subscriptions for organizations.

Food loss

Decrease in edible food mass available for human consumption throughout the different segments of the supply chain. In addition to quantitative loss, food products can also face a deterioration of quality, leading to a loss of economic and nutritional value (Segre et al., 2014 - referenced in Goal 12).

Food-energy-intake

The food-energy-intake method uses the consumption expenditure or income level to meet some predetermined food-energy requirement. Determining what an appropriate food-energy requirement should be is complex, as requirements will vary across individuals, geographic location and life cycle. Assumptions must also be made about activity levels that determine energy requirements beyond those needed to maintain the human body's metabolic rate at rest.

Food security

Food security exists when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life (The World Food Summit, 1996).

Food waste

Food losses resulting from decisions to discard food that still has value. Food waste is most often associated with the behaviour of the retailers of the food service sector and of the consumers, but food waste and loss take place all along food supply chains (Segre et al., 2014 - referenced in Goal 12).

Fragile states

Fragile States are low-income countries that face particularly severe development challenges, such as weak governance, limited administrative capacity, violence, or the legacy of conflict. In defining policies and approaches towards fragile States, different organizations have used differing criteria and terms. Countries that score less than 3.2 on the World Bank's Country Policy and Institutional Performance Assessment belong to this group. Some 14 countries of Africa are in this category. Examples include Côte d'Ivoire, the Democratic Republic of the Congo and the Sudan (Foster and Briceño-Garmendia, 2010 - referenced in Goal 9).

Free trade agreements

These are treaties (such as the Free Trade Area of the Americas or the North American Free Trade Agreement) between two or more countries that establish free trade agreements under which commerce in goods and services can be conducted across the countries' common borders, without tariffs or hindrances but (in contrast to a common market) capital or labour may not move freely. Member countries usually impose a uniform tariff (called a common external tariff) on trade with non-member countries.

Gender equality

UN Women (the United Nations entity for gender equality and the empowerment of women) defines equality between women and men (gender equality) as: the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men. Gender equality is not a women's issue but should concern and fully engage men as well as women. Equality between women and men is seen both as a human rights issue and as a precondition for, and indicator of, sustainable people-centered development. See http://www.un.org/womenwatch/osagi/conceptsandefinitions.htm. The International Labour Organization defines gender equality to mean that women and men have equal conditions for realizing their full human rights and for contributing to, and benefiting from, economic, social, cultural and political development. Gender equality is therefore the equal valuing by society of the similarities and the differences of men and women, and the roles they play. It is based on women and men being full partners in their home, their community and their society. Gender equality starts with equal valuing. See http://www.fao-ilo.org/fileadmin/user_upload/fao_ilo/pdf/FAQs/Definitions__2_.pdf.

Gender Gap Index

The GGI was developed in 2006 by World Economic Forum to address the need for a consistent and comprehensive measure for gender equality that can track a country's progress over time.

Gender inequality in economic participation

Gender inequality in economic participation and opportunity is measured using three concepts: (a) the participation gap – the difference between women and men in labour force participation rates; (b) the remuneration gap – measured using a combination of two indicators – ratio of estimated female-to-male earned income and wage equality for similar work; (c) the advancement gap – measured using a combination of two indicators – the ratio of women to men among legislators, senior officials and managers, and the ratio of women to men among technical and professional workers.

Gender inequality in educational attainment

Gender inequality in educational attainment is measured by the gap between women's and men's access to education; that is, the ratios of women to men in primary, secondary and tertiary education. A longer-term view of the country's ability to educate women and men in equal numbers is captured by the ratio of male and female literacy rates.

Gender inequality in health

Gender inequality in health and survival is measured by using two indicators: (a) sex ratio at birth, which aims specifically to capture the phenomenon of "*missing women*" prevalent in many countries with a strong preference for sons; (b) the gap between women's and men's healthy life expectancy. This measure provides an estimate of the number of years that women and men can expect to live in good health by taking into account the years lost to violence, disease, malnutrition or other relevant factors.

Gender inequality in political empowerment

Gender inequality in political empowerment is measured using the ratio of women to men in minister-level positions and the ratio of women to men in parliamentary positions. In addition, the ratio of women to men in terms of years in executive office (prime minister or president) for the last 50 years is also incorporated. Unfortunately, there are insufficient data to measure male and female participation in local government.

General business environment

General business environment is measured using four indicators: (a) regulatory quality; (b) procedures, duration, cost and paid-in minimum capital for starting a business (a composite measure for starting a business); (c) infrastructure risk; (d) mobile cellular phone subscribers per 100 inhabitants.

Geographical indications

Geographical indications and appellations of origin are signs used on goods that have a specific geographical origin and possess qualities, a reputation or characteristics that are essentially attributable to that place of origin. Most commonly, a geographical indication includes the name of the place of origin of the goods.

Geophysical events

Earthquakes, tsunamis, volcanic activity.

Gini Index

Named after Italian statistician Corrado Gini, the Gini index (or coefficient) is a measure of statistical dispersion used to measure inequality among values of a frequency distribution. It can be used to measure the inequality of any distribution, but is most commonly used to measure income or wealth inequality. A Gini index of 1 indicates perfect inequality, and 0 (zero) indicates perfect equality. OECD defines the Gini index as a measure of the extent to which the distribution of income among individuals or households within an economy deviates from a perfectly equal distribution. It measures the area between the Lorenz curve and the hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. There can be issues interpreting a Gini index as the same value may result from several different distribution curves. See https://stats.oecd.org/glossary/detail.asp?ID=4842.

Global Peace Index

The Global Peace Index covers 163 countries and is a composite index of 23 quantitative and qualitative indicators which can be classified into two broad categories: (1) internal peace; (2) external peace. Internal peace consists of 14 indicators: perceptions of criminality; security officers and police rate; homicide rate; incarceration rate; access to small arms; intensity of internal conflict; violent demonstrations; violent crime; political instability; political terror; weapons imports; terrorism impact; deaths from internal conflict; and internal conflicts fought. External peace consists of nine indicators: military expenditure (percentage of gross domestic product); armed services personnel rate; United Nations peacekeeping funding; nuclear and heavy weapons capability; weapons exports; refugees and displaced persons; neighbouring countries relations; number, duration and role in external conflicts; and deaths from external conflict.

Global value chains

The full range of activities undertaken to bring a product or service from its conception to its end use and how these activities are distributed over geographic space and across international borders. Banga (2013) (referenced in Goal 8) explains a global value chain as the sequence of all functional activities required in the process of value creation involving more than one country.

Green employment

There is no clear, internationally agreed definition of a green job. Martinez-Fernandez et al. (2010) (referenced in Goal 12) note that in current policy literature there is a tendency to use the concept of green jobs as a one-size-fits-all encompassing notion that covers any job that contributes to improving environmental quality. However, if looked at more closely, it becomes evident that the term is loosely defined which can eventually lead to misconceptions and overly optimistic calculations of the economic and employment growth opportunities created by climate change regulation. For the moment green job is a fuzzy term. The Bureau of Labour Statistics in the United States of America defines green jobs as either: (a) Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources; or (b) Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources See http://www.bls.gov/green/

Green goods and services

National definitions vary. At the international level only the OECD group of developed countries have adopted the following definition: "*The environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimize pollution and resource use*" (OECD, 1999).

Green product space

Product space is a term used to describe the network of relatedness between products and identify products for which a country is competitive in production and export. The concept was initially proposed by Hidalgo et al. (2007) (referenced in Goal 9) and later adapted by Hamwey et al. (2013) (referenced in Goal 9) to focus on green goods.

Gross national income

Gross National Income is Gross Domestic Product (GDP) less net taxes on production and imports, less compensation of employees and property income payable to the rest of the world, plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units, plus primary incomes receivable from non-resident units). An alternative approach to measuring GNI at market prices is as the aggregate value of the balances of gross primary incomes for all sectors. Note that GNI is identical to GNP as previously used in national accounts (see http://unstats.un.org/unsd/snaama/glossresults.asp?gID=8).

Gross national product

Gross National Product (GNP) is identical to Gross National Income (GNI). It is defined by the United Nations System of National Accounts 1993 as: GDP less net taxes on production and imports, less compensation of employees and property income payable to the rest of the world, plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units, plus primary incomes receivable from non-resident units). An alternative approach to measuring GNI at market prices is as the aggregate value of the balances of gross primary incomes for all sectors.

Headcount ratio

The national poverty headcount ratio is defined as the proportion of people living below national poverty lines.

Health and medical tourism

Health and medical tourism is undertaken when people cross international borders for the exclusive purpose of obtaining medical or health services. This includes, for example, purchasing services from hospitals, clinics, convalescent homes and, more generally, health and social institutions. It includes visiting thalassotherapy and health and spa resorts, and other specialized places to receive medical treatments when they are based on medical advice, including cosmetic surgeries using medical facilities and services. This category includes only short-term treatments (United Nations Department of Economic and Social Affairs, 2010 - referenced in Goal 3).

Hepatitis C

Hepatitis C is a liver disease caused by HCV: the virus can cause both acute and chronic hepatitis infection, ranging in severity from a mild illness lasting a few weeks to a serious, lifelong condition. See http://www.who.int/mediacentre/factsheets/fs164/en/.

Human Development Index

The United Nations Development Programme Human Development Index is a composite index measuring average achievement in three basic dimensions of human development: a long and healthy life; knowledge; and a decent standard of living. See http://hdr.undp.org/en/content/human-development-index-hdi-table.

Hydrological events

Floods and mass movements of water.

Improved drinking water sources

One that, by the nature of its construction and when properly used, adequately protects the source from outside contamination, particularly faecal matter. Unimproved drinking water sources: Unprotected spring, unprotected dug well, cart with small tank/drum, tanker-truck, surface water and bottled water.

Improved sanitation facilities

Access to sanitation facilities refers to the percentage of the population with at least adequate access to excreta-disposal facilities that can effectively prevent human, animal and insect contact with excreta. Improved facilities range from simple but protected pit latrines to flush toilets with a sewerage connection. To be effective, facilities must be correctly constructed and properly maintained.

Inclusive Wealth Index

The United Nations University International Human Dimensions Programme and United Nations Environment Programme Inclusive Wealth Index is a composite index covering 140 countries providing a metric on global wealth, sustainability and well-being. It combines natural, produced and human capital to offer a comprehensive set of capital accounts. Natural capital consists of fossil fuels, minerals, forest resources and agricultural land. Human capital consists of health and education. Produced capital consists of equipment, machinery, roads and other elements. Specific adjustments are also made to take account of carbon damage, oil capital gains and total factor productivity. The United Nations University International Human Dimensions Programme and United Nations Environment Programme Inclusive Wealth Report 2014 notes that human capital accounts for 54 per cent of total wealth, natural capital 28 per cent and produced capital 18 per cent. See http://inclusivewealthindex.org/.

Industrial design

An industrial design constitutes the ornamental or aesthetic aspect of an article. A design may consist of three-dimensional features, such as the shape or surface of an article, or of two-dimensional features, such as patterns, lines or colours.

Informal employment

Informal employment "*includes all remunerative work (that is, both self-employment and wage employment) that is not registered, regulated or protected by existing legal or regulatory frameworks, as well as non-remunerative work undertaken in an income-producing enterprise. Informal workers do not have secure employment contracts, workers' benefits, social protection or workers' representation*" (ILO, 2016b - referenced in Goal 8).

Infrastructure

The system of public works in a country, State or region, including roads, utility lines and public buildings (OECD, 2000 - referenced in Goal 9).

Internal coherence

Coherence and consistency between the goals and objectives, modalities and protocols of the development policy itself.

International Seed Treaty

The International Treaty on Plant Genetic Resources for Food and Agriculture, also known as the International Seed Treaty, is a comprehensive international agreement consistent with the Convention on Biological Diversity that aims at safeguarding food security through the conservation, exchange and sustainable use of the world's plant genetic resources for food and agriculture. The treaty was approved during the thirty-first session of the FAO Conference in November 2001 and entered into force on 29 June 2004. See http://www.planttreaty.org/.

Intragovernmental coherence

Consistency of policies and actions across countries in terms of their contributions to development, to prevent one from unnecessarily interfering with, or failing to reinforce, the others.

Investment facilitation

Investment facilitation is a set of mechanisms to expedite or accelerate investment. Common mechanisms are the reduction of "red tape" or the establishment of "one-stop shops" designed to help investors through all necessary administrative, regulatory and legal steps to start or expand a business and accelerate granting of permits and licences. This allows investors to save both time and money.

Investment incentives

There is no uniform definition. Investment incentives are typically the form of financial incentives, such as outright grants and loans at concessionary rates, fiscal incentives such as tax holidays and reduced tax rates or other incentives, including subsidized infrastructure or services, market preferences and regulatory concessions, including exemptions from labour or environmental standards (UNCTAD, 2004 - referenced in Goal 17).

IPPC

International Plant Protection Convention (IPPC) is an international agreement on plant health aimed at protecting cultivated and wild plants by preventing the introduction and spread of pests. The Convention was signed in 1951 by FAO and came into force in April 1952. It was recognized by the 1989 Uruguay Round of the General Agreement on Tariffs and Trade as a standard-setting organization for the Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement). See https://www.ippc.int/en/.

Kaya identity

The Kaya identity was developed by Yoichi Kaya of Tokyo University. It is defined by U.S. Energy Information Administration (EIA) as "*an equation stating that total energy-related carbon dioxide emissions can be expressed as the product of four inputs: (1) population; (2) GDP (output) per capita; (3) energy use per unit of GDP; and (4) carbon emissions per unit of energy consumed*". The change in the four inputs can approximate the change in energy-related CO_2 emissions. In other words, the Kaya Identity attempts to determine the impact of anthropogenic activity on climate, expressed as emissions of the GHG CO_2.
The Kaya identity is expressed in the form: F = P*(G/P)*(E/G)*(F/E)
Where:

- F is global CO_2 emissions from human sources
- P is global population
- G is world GDP
- E is global energy consumption.

Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the UNFCCC that commits its Parties by setting internationally binding emission-reduction targets. Recognizing that developed countries are principally responsible for the current high levels of greenhouse gas emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "*common but differentiated responsibilities*". The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. The detailed rules for the implementation of the Protocol were adopted at the seventh session of the Conference of the Parties in Marrakesh, Morocco, in 2001, and are referred to as the "*Marrakesh Accords"*.

Labour policy

Labour policy is measured using five indicators: (a) equal pay for equal work; (b) non-discrimination; (c) maternity and paternity leave and provision (benefits); (d) legal restrictions on job types for women; (e) difference between the statutory (pensionable) retirement age between men and women.

Labour practice

Labour practice is measured using four indicators: (a) equal pay for equal work; (b) non-discrimination; (c) degree of de facto discrimination against women in the workplace; (d) availability, affordability and quality of childcare services, as well as the role of the extended family in providing childcare.

Landlocked developing countries

Landlocked countries have no territorial access to the seas, limited border crossings and transit dependence. To consult the list of LLDCs, see http://unohrlls.org/about-lldcs/country-profiles/.

Least developed countries

The category of Least Developed Countries (LDCs) was officially established in 1971 by the UN General Assembly with a view to attracting special international support for the most vulnerable and disadvantaged members of the UN family. Their low level of socio-economic development is characterized by weak human and institutional capacities, low and unequally distributed income and scarcity of domestic financial resources. They often suffer from governance crisis, political instability and, in some cases, internal and external conflicts. Their largely agrarian economies are affected by a vicious cycle of low productivity and low investment. They rely on the export of few primary commodities as major source of export and fiscal earnings, which makes them highly vulnerable to external terms-of-trade shocks. (http://unohrlls.org/about-ldcs/).

Lorenz curve

Developed by American economist Max Lorenz, the Lorenz curve is a graphical representation of the distribution of income or wealth. It shows the proportion of overall income or wealth held by the bottom x per cent of households. Many economists consider it to be a good measure of social inequality.

Manufacturing value added

Manufacturing value added (MVA) is the total value of goods and services net of intermediate consumption. It is generally compiled as the sum of the value added of all manufacturing activity units in operation in the reference period. It can be presented as a percentage of GDP as well as per capita for any reference year. MVA growth rates are given in constant prices (UNIDO).

Median income

Median: The value of the variate which divides the total frequency into two halves.
Median income rather than mean income is a better measure of relative income inequality. While average household income is influenced by the highest values of extremely rich households, median household income is less affected by the presence of extreme outliers (typically, the presence of very rich households).

Meteorological events

Tropical, extratropical, convective and local storms.

Mobile broadband

Connections with a download speed equal to or greater than 256 Kbit/s, in one or both directions, using technologies such as Universal Mobile Telecommunications System, high-speed Downlink Packet Access and Uplink Packet Access (UNCTAD, 2009 - referenced in Goal 9).

Most favoured nation

Countries cannot normally discriminate between their trading partners. Granting one country a special favour (such as a lower customs duty rate for one of its products) will oblige the granting country to do the same for all other World Trade Organization members (World Trade Organization, 1994 - referenced in Goal 2).

Multilateral coherence

Consistency across policies and actions of bilateral donors and multilateral organizations to ensure that policies adopted in multilateral forums contribute to development objectives.

Narrowband

Connections with a download speed of less than 256 Kbit/s, in one or both directions (UNCTAD, 2009b - referenced in Goal 9).

National data infrastructure

Logical organization of public or administrative data to maximize its potential value.

Non-tariff barriers

A non-tariff barrier is a form of restrictive trade where barriers to trade are set up and take a form other than a tariff. Non-tariff barriers include quotas, levies, embargoes, sanctions and other restrictions.

Non-tariff measures

Non-tariffs measures may include any policy measures other than tariffs that can impact trade flows. At a broad level, such measures can usefully be divided into three categories: (1) those imposed on imports import quotas, import prohibitions, import licensing and customs procedures and administration fees; (2) those imposed on exports (export taxes, export subsidies, export quotas, export prohibitions, and voluntary export restraints); (3) those imposed internally in the domestic economy (domestic legislation covering health/technical/product/labour/environmental standards, internal taxes or charges and domestic subsidies) (Staiger, 2012 - referenced in Goal 17).

Official development assistance

The flows to countries and territories on the DAC list of ODA recipients and to multilateral institutions which are: (a) provided by official agencies, including State and local governments, or by their executive agencies; and (b) each transaction of which: (i) is administered with the promotion of the economic development and welfare of developing countries as its main objective; and (ii) is concessional in character and conveys a grant element of at least 25 per cent (calculated at a rate of discount of 10 per cent).

Other investment promotion and facilitation policies

Other investment promotion and facilitation policies include, for instance, public-private partnerships (PPPs) for specific investment projects.

Palma index

The Palma index is the ratio of household incomes of the two tails of an income distribution and it compares the income inequality between the two groups. This index is defined as the ratio of average income per capita of the richest 10 per cent of households to that of the poorest 40 per cent: Palma index (per capita) = [(Income share held by the highest 10 per cent)/10] / [(Income share held by lowest 40 per cent)/40]. It therefore differs from the poverty headcount ratio, which indicates the proportion of poorest in the population. The Palma index also has its critics, who argue that an increase in the bottom share and an even greater increase at the top would raise the index, despite the poor being better off (Murawski, 2013 - referenced in Goal 10).

Pan-region

A pan-region is a geographic region or State's sphere of economic, political and cultural influence extending beyond that State's borders.

Patent

An exclusive right granted for an invention. Generally speaking, a patent provides the patent owner with the right to decide how - or whether - the invention can be used by others. In exchange for this right, the patent owner makes technical information about the invention publicly available in the published patent document.

Pearson correlation

The Pearson correlation (or Pearson product moment correlation) is the most common measure of correlation used in statistics. It shows the linear relationship between two sets of data.

Physiological hunger

An un-easy sensation caused by a lack of food (Anderson, 1990 - referenced in Goal 2).

Price elasticity

Price elasticity of demand is a measure of the relationship between a change in the quantity demanded of a particular good and a change in its price.

Primary education

Primary education provides learning and educational activities typically designed to provide students with fundamental skills in reading, writing and mathematics (that is, literacy and numeracy), and to establish a sound foundation for learning and solid understanding of core areas of knowledge and personal development, preparing for lower secondary education. It aims at learning at a basic level of complexity with little if any specialization. See http://www.uis.unesco.org/Pages/Glossary.aspx.

Principal Component Analysis

Principal Component Analysis (PCA) is a mathematical procedure (dimension-reduction tool) that can be used to reduce a large set of correlated variables to a small set of uncorrelated variables that still contains most of the information in the large set.

Protection of the Ozone Layer

The Vienna Convention for the Protection of the Ozone Layer is a framework convention designed to coordinate efforts to protect the planet's ozone layer. The Vienna Convention was adopted in 1985 and entered into force on 22 September 1988. In 2009, the Vienna Convention became the first convention of any kind to achieve universal ratification. The objectives of the Convention were for Parties to promote cooperation by means of systematic observations, research and information exchange on the effects of human activities on the ozone layer and to adopt legislative or administrative measures against activities likely to have adverse effects on the ozone layer.
See http://ozone.unep.org/en/treaties-and-decisions/vienna-convention-protection-ozone-layer.

Refugees and forcibly displaced persons

Refugees and forcibly displaced persons comprise: refugees (a refugee is someone who has fled his or her home and country owing to "*a well-founded fear of persecution because of his/her race, religion, nationality, membership in a particular social group, or political opinion*", according to the United Nations 1951 Refugee Convention http://www.unhcr.org/en-us/1951-refugee-convention.html); asylum seekers (asylum seekers say they are refugees and have fled their homes as refugees do, but their claim to refugee status is not yet definitively evaluated in the country to which they have fled); internally displaced persons (people who have not crossed an international border but have moved to a region different to the one they call home within their own country); stateless persons (stateless persons do not have a recognized nationality and do not belong to any country); and returnees (returnees are former refugees who return to their own countries or regions of origin after time in exile).
See http://www.un.org/en/events/refugeeday/background.shtml.

Regional management organizations (RFMOs)

Regional fisheries management organizations or arrangements (RFMOs or RFMAs) exist in the majority of high seas areas that have major deep-sea fisheries. They are usually tasked with collecting fisheries statistics, assessing resources, making management decisions and monitoring activities. RFMOs and RFMAs play a pivotal role in facilitating intergovernmental cooperation in fisheries management. See http://www.fao.org/fishery/topic/166304/en

Relative poverty

Relative poverty is defined in relation to the income distribution of a country; that is, when a person's income is less than some fraction of average income (income threshold) deemed necessary to maintain a general standard of living (that is, a person has insufficient income to properly participate in normal day-to-day economic, social and cultural activities) in a particular country or region. For example, the income threshold or relative poverty line could be set at 50 or 60 per cent of average income. Relative poverty is a particularly useful measure for measuring poverty at country or regional level as it implicitly incorporates the problem of inequality. But it is a complex measure that requires a lot of detailed data.

Relative preferential margins (RPM)

An RPM is the difference between the preferential rate for LDCs and the applied tariff rates applicable to LDC competitor countries in the same market taking into account the preferential tariff rates that are applicable to them.

Research and development intensity

Research and development expenditure as a proportion of GDP.

Resource-constrained hunger

Recurrent and involuntary lack of access to food (Anderson, 1990 - referenced in Goal 2).

Restricted civil liberties

Discrimination institutionalized as restricted civil liberties is measured using two indicators: (a) access to public space; (b) political voice.

Restricted physical integrity

Discrimination institutionalized in "*restricted physical integrity*" is measured using three indicators: (a) violence against women; (b) female genital mutilation; (c) reproductive autonomy.

Restricted resources and assets

Discrimination institutionalized as "*restricted resources and assets*" is measured using three indicators: (a) secure access to land; (b) secure access to non-land assets; (c) access to financial services.

Secondary education

Secondary education provides learning and educational activities building on primary education and preparing students for both first labour-market entry as well as post-secondary non-tertiary and tertiary education. Broadly speaking, secondary education aims at learning at an intermediate level of complexity.
See UNESCO http://www.uis.unesco.org/Pages/Glossary.aspx.

Services

Services are the result of a production activity that changes the conditions of the consuming units or facilitates the exchange of products or financial assets. Services are not generally separate items over which ownership rights can be established and cannot generally be separated from their production (IMF, 2009 - referenced in Goal 17).

Slum

There is no universally agreed definition of "*slum*". It can be defined as densely populated urban areas characterized by poor-quality housing, a lack of adequate living space and public services, and accommodating large numbers of informal residents with generally insecure tenure (Marx et al., 2013 - referenced in Goal 11). UN-Habitat applies the notion of "*slum household*" to any household lacking access to improved water, improved sanitation, sufficient living area, durable housing, and secure tenure. Slum areas are generally thought of as geographic areas accommodating informal residents that combine several of these characteristics (UN-Habitat , 2006 - referenced in Goal 11).

Small and medium-sized enterprises

Non-subsidiary independent firms that employ fewer than a given number of employees. This number varies across countries. The most frequent upper limit designating an SME is 250 employees, as in the European Union. However, some countries set the limit at 200 employees, while the United States considers SMEs to include firms with fewer than 500 employees (OECD).

Small arms and light weapons

There is no universally accepted definition of a "*small arm*" or "*light weapon*". However, the 1997 United Nations Panel of Governmental Experts categorized revolvers and self-loading pistols, rifles and carbines, assault rifles, sub-machine guns and light machine guns as small arms. The panel categorized heavy machine guns, hand-held under-barrel and mounted grenade launchers, portable anti-aircraft guns, portable anti-tank guns, recoilless rifles, portable launchers of anti-tank missile and rocket systems; portable launchers of anti-aircraft missile systems; and mortars of calibres of less than 100 millimetres as light weapons. Other classifications, such as that of the Small Arms Survey, have added single-rail-launched rockets and 120 millimetre mortars to this list.

Small arms main exporters

For the purposes of the Small Arms Trade Transparency Barometer, compiled by the Graduate Institute of International and Development Studies Small Arms Survey in Geneva, main exporters are defined as those States that are believed to have exported at least US$10 million worth of small arms and light weapons, including their parts, accessories, and ammunition, for at least one calendar year since 2001. The 2016 edition (Pavesi, 2016 - referenced in Goal 16) is based on activities occurring in 2013 and reported between 1 January 2014 and 31 January 2015.
See http://www.smallarmssurvey.org/weapons-and-markets/tools/the-transparency-barometer/interactive-map.html.

Small island developing States (SIDS)

SIDS were recognized as a distinct group of developing countries facing specific social, economic and environmental vulnerabilities at the Earth Summit, held in Rio de Janeiro, Brazil (3-14 June 1992). SIDS tend to confront similar constraints in their sustainable development efforts, such as a narrow resource base depriving them of the benefits of economies of scale; small domestic markets and heavy dependence on a few external and remote markets; high costs for energy, infrastructure, transportation, communication and servicing; long distances from export markets and import resources; low and irregular international traffic volumes; little resilience to natural disasters; growing populations; high volatility of economic growth; limited opportunities for the private sector and a proportionately large reliance of their economies on their public sector; and fragile natural environments (see http://unohrlls.org/about-sids/).

Social expenditure

The OECD define social expenditure as comprising cash benefits, direct in-kind provision of goods and services, and tax breaks with social purposes. Benefits may be targeted at low-income households, the elderly, disabled, sick, unemployed or young persons. To be considered "social", programmes have to involve either redistribution of resources across households or compulsory participation. Social benefits are classified as public when general government (that is central, state, and local governments, including social security funds) controls the relevant financial flows. All social benefits not provided by general government are considered private. Net total social expenditure includes both public and private expenditure. It also accounts for the effect of the tax system by direct and indirect taxation and by tax breaks for social purposes.

Social infrastructure

As there is no universally agreed definition, it is sometimes referred to as social or intangible capital. It has been variously defined as "*the networks, together with shared norms, values, and understandings which facilitate cooperation*" (OECD) or "*the degree of trust in a society and the ability of people to work together for common purposes"* (World Bank) and by Putnam as the features of social organization, such as trust, norms and networks that can improve the efficiency of a society by facilitating coordinated actions (Putman, 1993 - referenced in Goal 9). Social infrastructure typically includes education, health, population and reproductive health, water supply and sanitary sectors.

Soft infrastructure

The ideas and conceptual frameworks that give shape and direction to what is eventually physically manifest (Governing Institute and the Center for Digital Government, 2013 - referenced in Goal 9).

Son bias

Discrimination institutionalized as son bias is measured using two indicators: (a) missing women; (b) fertility preferences.

South-South cooperation

The term signifies a broad framework for collaboration among countries of the South in the political, economic, social, cultural, environmental and technical domains. Involving two or more developing countries, it can take place on a bilateral, regional, subregional or interregional basis. Developing countries share knowledge, skills, expertise and resources to meet their development goals through concerted efforts. Recent developments in South-South cooperation have taken the form of increased volume of South-South trade, South-South flows of foreign direct investment, movements towards regional integration, technology transfers, sharing of solutions and experts, and other forms of exchanges.

Special economic zone

A special economic zone is a geographically demarcated region where investors receive specific privileges, such as duty-free enclaves, tax privileges, or access to high quality infrastructure.

State of Food Insecurity Index

Food insecurity is a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution or inadequate use of food at the household level. Food insecurity, poor conditions of health and sanitation and inappropriate care and feeding practices are the major causes of poor nutritional status. Food insecurity may be chronic, seasonal or transitory (FAO et al., 2015 - referenced in Goal 2).

Strategic Plan on Biodiversity

The Strategic Plan on Biodiversity 2011-2020 was adopted in October 2010 in Nagoya, Japan. This plan provides an overarching framework on biodiversity, not only for the biodiversity-related conventions, but for the entire United Nations system and all other partners engaged in biodiversity management and policy development. The plan includes the Aichi Biodiversity Targets. See https://www.cbd.int/sp/.

Sustainability report

A report published by a company or organization about the economic, environmental and social impacts caused by its everyday activities. Such a report will also typically present an organization's values and governance model, and demonstrate the link between its strategy and its commitment to a sustainable global economy. Sustainability reporting can be considered as synonymous with other terms for non-financial reporting, triple-bottom-line reporting, corporate-social-responsibility reporting, inter alia. It is also an intrinsic element of integrated reporting - a more recent development that combines the analysis of financial and non-financial performance. An example of sustainability reporting guidelines were published by the Global Reporting Initiative (Global Reporting Initiative, 2015 - referenced in Goal 2).

Sustainable consumption

The use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations (Oslo Symposium, 1994).

Target 1.4 (SDG)

By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.

Tariff rates

A tariff rate is generally defined ad valorem, that is, as a percentage of the unit c.i.f. (cost, insurance and freight) price of an imported good at the border. In other cases, a tariff rate may be determined by the volume of an imported good (that is, a specific rate) or by a combination of the two.

Terawatt hour

Unit of energy measurement: 1 TWh = 1,000 GWh = 1,000,000 MWh = 1,000,000,000 kWh.

Tertiary education

Tertiary education builds on secondary education, providing learning activities in specialized areas. It aims at learning at a high level of complexity and specialization. Tertiary education includes what is commonly understood as academic education, but also includes advanced vocational or professional education.
See UNESCO http://www.uis.unesco.org/Pages/Glossary.aspx.

Tier 1 indicator (SDG)

The indicator is conceptually clear, an established methodology and set of standards are available, and data are regularly produced by countries.

Tier 2 indicator (SDG)

The indicator is conceptually clear, an established methodology and set of standards are available, but data are not regularly produced by countries.

Tier 3 indicator (SDG)

An indicator for which there are no established methodology or standards and availability of data is unknown. Methodology and standards are being or must be developed and tested.

Tobin tax

An excise tax assessed on currency conversions. The tax is imposed to help stabilize currency and interest rates by penalizing currency speculation.

Tourism receipts

International tourism receipts are expenditures by international inbound visitors, including payments to national carriers for international transport.

Trade costs

Trade costs are defined as *"...all costs incurred in getting a good to a final user other than the cost of producing the good itself: transportation costs (both freight costs and time costs), policy barriers (tariffs and non-tariff barriers), information costs, contract enforcement costs, costs associated with the use of different currencies, legal and regulatory costs and local distribution costs (wholesale and retail)"* (Anderson and Van Wincoop, cited in OECD and WTO, 2015, p. 40 - referenced in Goal 8).

Trademark

A sign capable of distinguishing the goods or services of one enterprise from those of other enterprises. Trademarks date back to ancient times when craftsmen used to put their signature or “mark” on their products.

Tourist arrivals

Tourism arrivals are the number of arrivals of international inbound tourists staying at least one night. International inbound tourists are tourists who travel to a country other than that in which they normally reside, but outside their usual environment, for a period not exceeding 12 months, and whose main purpose in visiting is other than an activity remunerated from within the country visited (World Bank, 2016).

Tragedy of the commons

It was coined by biologist Garret Hardin in 1968 (Hardin, G. 1968 - referenced in Goal 8). It describes a problem that occurs when individuals exploit a shared resource to the extent that demand overwhelms supply and the resource becomes unavailable to some or all. The tragedy of the commons has implications for the use of resources and sustainability. Depletion of non-renewable resources, such as water, is an example of the tragedy of the commons in action.

Turbo-urbanization

The term "*turbo-urbanization*" is taken from Robert Muggah’s paper on fragile cities (Muggah, 2016 - referenced in Goal 11).

Undernourishment

The proportion of undernourished people as a percentage of the population (reflecting the share of the population with insufficient caloric intake).

United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC entered into force on 21 March 1994. Today, it has near-universal membership. The 197 countries that have ratified the Convention are called Parties to the Convention. The UNFCCC is an international convention introduced with the aim of preventing dangerous human impacts on the climate system. It is a “Rio Convention”, one of three adopted at the “Rio Earth Summit” in 1992. The other two Rio Conventions are the CBD and the United Nations Convention to Combat Desertification. The three are intrinsically linked. It is in this context that the Joint Liaison Group was set up to boost cooperation between the three Conventions, with the ultimate aim of developing synergies in their activities on issues of mutual concern. It now also incorporates the Ramsar Convention on Wetlands.
See http://unfccc.int/essential_background/convention/items/6036.php.

Women’s legal and social status

Women’s legal and social status is measured using five indicators: (a) addressing violence against women (the existence of laws protecting women against violence); (b) freedom of movement (the opportunity to move freely outside the house) for women; (c) property ownership rights (this indicator considers if men and women have equal ownership rights over moveable and immoveable property both by law and in practice); (d) adolescent fertility rate (age-specific fertility rate per 1,000 women, 15–19 years of age); (e) country ratification of the Convention on the Elimination of All Forms of Discrimination against Women.

World Heritage Convention

The Convention Concerning the Protection of the World Cultural and Natural Heritage, or more simply the World Heritage Convention, is an international treaty adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization in 1972. The main purpose of the Convention is to identify, recognize, inventory and protect culturally and historically unique and irreplaceable “World Heritage” sites considered to be of outstanding universal value.
See http://whc.unesco.org/en/convention/.

Acronyms and abbreviations

ADB	Asian Development Bank
ADBG	African Development Bank Group
AOI	Agriculture Orientation Index
APEC	Asia–Pacific Economic Cooperation
BBC	British Broadcasting Corporation
BP	British Petroleum
BRICS	Brazil, the Russian Federation, India, China and South Africa
CBD	Convention on Biological Diversity
CDI	Commitment to Development Index
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CO2	carbon dioxide
COP 21	Twenty-first session of the Conference of the Parties (UNFCCC)
CSIS	Center for Strategic and International Studies
DAA	direct-acting antiviral drug
DAC	Development Assistance Committee (OECD)
DESA	United Nations Department of Economic and Social Affairs
ECA	United Nations Economic Commission for Africa
ECOSOC	United Nations Economic and Social Council
EDI	Education for All Development Index
EFA	education for all
EIA	United States Energy Information Administration
EIU	Economist Intelligence Unit
ESG	environmental, social and governance
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
FiBL	Forschungsinstitut für biologischen Landbau (Research Institute of Organic Agriculture)
FTT	Financial Transaction Taxation
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GERD	gross domestic expenditure on research and development
GGI	Gender Gap Index
GHG	greenhouse gas
GII	Gender Inequality Index
GNI	gross national income
GNP	gross national product
GPEDC	Global Partnership for Effective Development Cooperation
GPI	Genuine Progress Indicator
GSMA	Groupe Speciale Mobile Association
HCV	hepatitis C virus
HS	Harmonized System
IAEG-SDs	Inter-agency and Expert Group on Sustainable Development Goal Indicators
IBRD	International Bank for Reconstruction and Development
ICT	information and communications technology
IEA	International Energy Agency
IFOAM	International Federation of Organic Agriculture Movements
IGME	United Nations Inter-agency Group for Child Mortality Estimation
ILO	International Labour Organization
IMF	International Monetary Fund

IPCC	Intergovernmental Panel on Climate Change
IPPC	International Plant Protection Convention
ISAR	Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting
ITF	International Transport Forum
ITU	International Telecommunication Union
IUU	illegal, unreported and unregulated
IWI	Inclusive Wealth Index
LDC	least developed country
LLDC	landlocked developing country
MFN	most favoured nation
MHT	medium- and high-technology
MVA	manufacturing value added
NASA	United States National Aeronautics and Space Administration
NDI	national data infrastructure
n.e.c	not elsewhere classified
ODA	official development assistance
ODCs	other developing countries
OECD	Organization for Economic Cooperation and Development
PCD	policy coherence for development
PPP	purchasing-power-parity (Goal 8); public–private partnership (Goal 17)
PTR	pupil–teacher ratio
RCA	revealed comparative advantage
RFMA	regional fisheries management arrangement
RFMO	regional fisheries management organization
RPM	relative preferential margin
SEEA	System of Environmental–Economic Accounting
SIDS	small island developing States
SIGI	Social Institutions and Gender Index
SME	small and medium-sized enterprise
SPS	sanitary and phytosanitary
TBT	technical barriers to trade
TRAINS	Trade Analysis and Information System
TSA	Tourism Satellite Account
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children’s Fund
UNIDO	United Nations Industrial Development Organization
UNSD	United Nations Statistics Division
UNWTO	World Tourism Organization
WEF	World Economic Forum
WEOI	Women’s Economic Opportunity Index
WFP	World Food Programme
WHO	World Health Organization
WITS	World Integrated Trade Solution
WSIS	World Summit on the Information Society
WTO	World Trade Organization