

Chapter 3.

Review of progress

"Freedom is not worth having if it does not include the freedom to make mistakes." (Mahatma Gandhi)

This chapter provides a brief summary of global sustainable development progress from 1950 to 2013. Such a review relates closely to a core function of the HLPF and thus might provide the basis for future editions of the Global Sustainable Development Report that could focus on the most recent trends and progress. Due to space limitations, the list of trends can only be illustrative.

The United Nations crowdsourcing platform registered 110 contributions from scientists around the world who voted on each other's ideas and contributed 166 ideas/messages in response to the question "Which message on sustainable development progress do you prefer for Chapter III?" The most popular ideas submitted have been included in this chapter. They included statements on increased human security; on persistent gaps in life expectancy, poverty and health; on increasing income inequality, affluence, consumption, population, urbanization and literacy; as well as on the human ecological impact on freshwater, forests and coastal areas. In contrast, among the least popular ideas submitted were statements on climate change, biodiversity, land use, air pollution, terrorism and globalization - all issues that are high on the international political agenda. In other words, the majority of scientists decided to highlight many of the core development and sustainability issues already outlined in the 1987 Brundtland report.¹⁰²

3.1. Sustainable development trends and progress

This section describes sustainable development trends since 1950. It does not assess progress against existing goals or commitments - that is the subject of section 3.3. It builds on a wide range of assessments, in particular:

- Statistical tables for the *United Nations Millennium Development Goals Report 2013*¹⁰³ and the UNDATA database.¹⁰⁴
- Work by Bob Kates^{105, 106} and colleagues (Kates and Parris, 2003;¹⁰⁷ and Kates, 2010¹⁰⁸)¹⁰⁹ drew on *Our Common Journey* (NRC, 1999).

Historical progress towards sustainable development has been mixed since 1950. There has been progress in some areas, but worsening trends in others. In fact, there is evidence that impressive progress in some areas has come at the expense of worsening trends in other areas.

The world has managed to feed, nurture, house, educate and employ an additional 800 million people every decade from 1970 to 2000, and even 1.1 billion people in the 2000s. In the past 12 years alone, we have built cities for 770 million people (equivalent to 93 New York cities) - more than in any decade before. These are enormous achievements. Today's world gross domestic product (GDP) is more than 10 times larger than in 1950 and average per capita GDP is 4 times as large.¹¹⁰ Yet we have not managed to employ

our much greater wealth and technological capacity to eliminate poverty and hunger. Today, 850 million people go hungry, which is about as many people as decades ago. There are 200 million more slum dwellers today than 20 years ago. The unabated rise in the scale of material consumption has increased global environmental, social and economic pressures. There is more and more evidence that we are jeopardizing several of the Earth's basic life-support systems. People trapped in chronic poverty have probably suffered most from these impacts. And future generations will most likely face much greater challenges to meet their own needs.

Figure 6. From people to nature



Source: Authors' elaboration.

This report follows the frameworks shown in Table 2 and Figure 6. Groups of people form communities, which make up the economy, which is but one aspect of a society depending on nature's life-support systems. Table 14 summarizes the global sustainable development trends since 1950. Key data sources are provided in Table 51 (Annex 4) together with a critical note on statistical methods and uncertainty.

Trade-offs and synergies for progress in the various areas are complex: they differ at various spatial and timescales and change over time. Aggregate, global results for 1950-2013 are summarized in Table 18 (section 3.2).

3.1.1. People (1950-2013)

Population

Today's world population growth is only half of what it was at its peak in the early 1960s. However, the population reached 7.1 billion people in 2012, with about 80 million people being added each year

Table 14: Overview of global sustainable development trends

Sustainability	Development
<p>NATURE</p> <p>There is evidence of anthropogenic interference in half of terrestrial ecosystems and one quarter of the world's freshwater supply.</p> <p>Biodiversity continues to decrease at rates 100 to 1,000 times pre-human levels.</p> <p>Global CO₂ emissions from fossil-fuel burning, cement manufacture, and gas flaring have increased at an accelerated rate. They increased from 24.8 GtCO₂ in 2000 to 35.1 GtCO₂ in 2012 - the largest increase in any decade in human history.</p> <p>41% of the oceans showed high human-induced impacts on marine ecosystems in 2012.</p> <hr/> <p>LIFE SUPPORT</p> <p>Human settlements now cover 7% of the world's ice-free land cover, and croplands another 21%.</p> <p>The protected terrestrial and marine areas have been greatly expanded in developed and developing countries.</p> <p>Half of the world's forests have been lost to domestication. Tropical forests declined at around 12-14 million ha per year in both the 1990s and 2000s, and a similar amount have been degraded.</p> <p>In contrast, temperate and boreal forests have been undergoing reforestation since the 1980s.</p> <p>Global arable land and permanent crops expanded by 160 million ha since 1961, due to expansion in developing economies, but the world likely reached peak farmland by 2010.</p> <p>Humanity claims about 24% of the global terrestrial net primary production, more than ever before.</p> <p>Local and regional freshwater shortages and water stress are widespread in one third of the planet.</p> <p>The proportion of overexploited fish stocks tripled from 10% in 1970 to 30% in 2012.</p> <p>Many concentrations of local air pollutants have decreased, but the health burden of local air pollution remains large, especially in megacities of developing countries.</p> <p>The ozone layer is on a long-term path to stabilization by 2020/2030.</p> <p>Coastal zones where half the world's population lives, are degraded.</p> <hr/> <p>COMMUNITY</p> <p>There are now more State-based armed conflicts than during the cold war.</p> <p>Yet the number of deaths from non-State armed conflicts, including terrorism, has been greatly reduced.</p> <p>The diversity of cultural heritage, traditions, and traditional knowledge - and 90% of indigenous languages - are threatened, but there are indications of some revivals.</p>	<p>PEOPLE</p> <p>The global population has reached 7.1 billion people in 2012, and 80 million are added each year.</p> <p>Human life expectancy has been extended by 22 years, but with persistent gaps between regions and a widening gap between men and women and since 1950.</p> <p>There is better global health and shifting disease, but more years of injury and illness.</p> <p>The 2000s were the first decade since 1980 when both the absolute numbers and the proportion of people in absolute poverty declined. However, the number of relative poor in the developing world has continued to increase since 1980.</p> <p>850 million people suffer from hunger, which is slightly more than in 1990 but 150 million less than in 1970.</p> <p>Universal primary education has been achieved in most parts of the world. The literacy rate of 15–24-year-olds in developing countries reached 88% in 2011. In stark contrast to 20 years earlier, today women dominate tertiary education in most parts of the world.</p> <p>740 million people lack access to safe drinking water (500 million fewer than in 1990) and 2.4 billion people lack access to basic sanitation (650 million more than in 1990). Water pollution continues to claim the lives of millions.</p> <p>There have been great improvements in modern energy access since 1990, but in 2010 there were still 1.27 billion people without access to electricity and 2.59 billion without access to clean cooking fuels.</p> <p>Ageing has increased, even in many developing countries. 810 million people are now over than 60 years old.</p> <p>In 2010 there were 215 million international migrants (59 million more than in 1990) and 740 million internal migrants.</p> <p>383 million employed people are getting by on less than US\$1.25 per day - half the number of 1990, but there has been no reduction in LDCs, LLDCs and SIDS.</p> <p>Intergenerational social mobility earning, wage and educational mobility varies widely across countries.</p> <p>There has been mixed progress on human security and human rights.</p> <p>The overall well-being of people - as measured by the human development index - has substantially improved since 1950.</p> <hr/> <p>ECONOMY</p> <p>Affluence has increased amid persistent poverty. The world economy doubled since 1990 to US\$69 trillion in 2012. The per capita genuine progress indicator has slightly decreased since 1978.</p> <p>Consumption remains grossly inadequate for the poorest people.</p> <p>Greater material consumption and less per unit of value, but progress in technology access and performance has fallen far short of the requirements for sustainability.</p> <p>From 1988 to 2008, all gains in real income have been reaped by the very wealthy in all countries and by the rising middle class in developing countries.</p> <p>Income inequality is growing in many parts of the world.</p> <p>Trade has grown at more than twice the rate of economic growth since 1950.</p> <p>Total assistance to developing countries more than doubled since 2000, to US\$126 billion in 2012.</p> <p>The proportion of net official development assistance to donors' gross national income regained their 1990 levels of 0.32% in 2010, up from 0.22% in 2002. Estimates for 2012 are 0.29%.</p> <p>Energy almost tripled between 1970 and 2010 - reaching 493 EJ. Renewable energy share increased from 5.4% in 1970 to 7.0% in 2000 and 8.2% in 2010.</p> <p>Water withdrawals are increasing, but slowing down.</p> <hr/> <p>SOCIETY</p> <p>Developed and developing countries alike have seen extraordinary changes in terms of values, attitudes, and behaviour, in particular the attitudinal and behavioural shifts in sex and reproduction, the role of women, the environment and human rights.</p> <p>There are fewer stable families in most developed and developing countries than in past decades. In developed countries, the crude marriage rate halved since 1970 and the divorce rate increased. The average duration of marriages has stayed constant, at 10-15 years.</p> <p>There is widening governance and globalization. Power has shifted from the nation state upward to the global level and downward to the local level, and at all levels from the public to the private. There is now a crisis of multilateralism.</p> <p>In most countries where a high level of societal consensus existed on intergenerational equity, it has been lost or has come under pressure.</p>

Note: Yellow indicates trends that scientists have expressed concerns about, green indicates what is typically considered a trend towards sustainable development, and black indicates a neutral or mixed trend. Source: Authors' elaboration.

in net terms (Table 15). While an increasing population has contributed to economic opportunities and growth, it remains a serious challenge to feed, nurture, house, educate and employ an additional 80 million people - about the population of Germany - each year. While the lives of billions of people have improved since 1950, billions more continue to be deprived of even the most basic services. In fact, the absolute numbers of people in poverty have not drastically changed for decades despite enormous development progress.

Today, about 1.25 billion people live in developed countries and 5.83 billion in developing countries. There are 0.88 billion people in the

LDCs - four times as many as in 1950.¹¹¹ Since most population growth occurred in poor countries but material consumption is concentrated in higher-income countries, the additional global pollution pressure due to increased population has remained low since the 1990s, in contrast to the earlier decades.

Life expectancy and ageing

Life expectancy at birth is one of the most objective, broadest measures of progress. It has been extended by 22 years since 1950, reaching 69 years in 2011, which was primarily due to reductions in

infant and child mortality.¹¹² Yet there continue to be persistent gaps between regions and a widening gap between men and women.¹¹³ A child born in Africa can still expect to live 25 fewer years than one in Europe - a difference that has not changed in more than a century. The world's maternal mortality rate and the mortality rate in children under age five have both been roughly halved between 1990 and 2010, but the average rates are still about 10 times as large in the developing world as in the developed world.

One consequence of longer life expectancy has been ageing. The world population is ageing, including in many developing countries. The number of people older than 60 years reached 810 million, which was equivalent to 11 per cent of the world's population in 2012. Ageing has changed consumption patterns and has increasingly constrained long-term economic growth potential. In developed countries, ageing has stressed public pension systems and intergenerational equity consensus, whereas in developing countries it has tended to exacerbate old age poverty. Ageing has also contributed to shifting global health patterns.

Table 15: Global number of people, in billions, 1950-2012

	1950	1970	1990	2000	2012
In absolute poverty: living on less than US\$1.25 per day (PPP)	-	-	1.95	1.78	1.17
Employed but living on less than US\$1.25 per day	-	-	0.83	0.69	0.38
Living on less than US\$2.15 per day	-	-	3.1	3.3	2.7
Below relative poverty line in developing world	-	-	2.5	2.7	2.8
Hungry	-	1.0	0.8	0.8	0.85
Without safe drinking water	-	-	1.25	-	0.74
Without access to sanitation	-	-	1.80	-	2.44
Without access to electricity	-	1.8	2.0	1.65	1.27
Migrants	-	-	0.16	-	0.21
Above 60 years of age	0.2	0.25	0.5	0.6	0.81
Internet users	0	0	0.003	0.36	2.4
Urban residents	0.75	1.35	2.28	2.86	3.63
Slum dwellers	-	-	0.67	0.78	0.87
Population of LDCs	0.20	0.31	0.51	0.66	0.88
World population	2.5	3.7	5.3	6.1	7.1

Source: Authors' calculations and estimates based on various data sources. For detailed sources, see Table 51, Annex 4.

Health

Global health has improved, due to immunization and improved water, sanitation and nutrition. But with increased life expectancy, the global burden of disease has shifted from infectious diseases to chronic diseases.¹¹⁴ Men and women spend more years living with injury and illness.¹¹⁵ A number of infectious diseases re-emerged around the turn of the century, due to increased global trade, mobility and antimicrobial resistance. Today's HIV prevalence (0.8 per cent of the population aged 15-49 years) is three times the level of 20 years ago.¹¹⁸ More than half of all people with advanced HIV infection in developing countries do have access to antiretroviral drugs. Most deaths from malaria are concentrated in LDCs and in sub-Saharan Africa, where only 37 per cent of children under age five with fever are treated with appropriate antimalarial drugs. The number of new cases of tuberculosis has decreased since 2002, and 87 per cent of patients were successfully treated in 2010. Better

health has not only increased life expectancy, but has enabled long-term investments in education and skills, and has reduced poverty and positively impacted the economy. It should be noted that health issues are often a key reason for poverty in developing and developed countries.

Poverty

Poverty is a matter of great concern not only for ethical reasons, but since it has the potential to jeopardize progress on all other sustainable development issues. Poor people struggle to meet their immediate, most basic survival needs, allowing no room for longer-term considerations.

Today there are more relatively poor people than in 1980 in what is a less absolute-poor world. The 2000s were the first decade since 1980 when both the absolute numbers and the proportion of people in absolute poverty declined.

The number of absolute poor had not changed much between 1980¹¹⁶ and 2000, but it decreased thereafter. Today, the number of people living in absolute poverty - i.e. on less than US\$1.25 per day (in purchasing power parity [PPP] terms) - is 1.17 billion, down from 1.78 billion in 2000 (Table 15). However, this progress has been uneven across regions and countries. Most of the total reduction is due to poverty reduction in China and other parts of Asia. Yet even Africa, which had seen a doubling of its poverty headcount from 1980 to 2005, achieved absolute reductions by 2008. One third of the absolute poor lived in LDCs. Hence, the majority of absolute poor live in developing countries that are not LDCs.

Even as the number of absolute poor has declined, the number of people living on between US\$1.25 and US\$2.15 a day has doubled to 1.16 billion since 1980. Further, the number of relative poor in the developing world has *increased* since 1980, and it continued to increase from 2.5 billion in 1990 to 2.8 billion in 2012 (Table 15).¹¹⁷ An increasing number of these relative poor live in the slums of cities in developing countries. It is debatable whether moving from living on one dollar a day in a rural area to living on two dollars a day in a city's slum can be considered progress at all.

The *proportion* of population living on less than US\$1.25 per day in developing countries has been more than halved from 47 per cent in 1990 to 22 per cent in 2010.¹¹⁸ The respective reduction in the LDCs was from 64 to 46 per cent, whereas the share stayed roughly constant in the SIDS at 29 per cent.

The world's *number of working poor* - i.e. employed people getting by on less than US\$1.25 per day (PPP) - has been cut by more than half since 1990, to 384 million in 2012 (Table 15). However, in LDCs, LLDCs and SIDS the number of working poor has not changed much at all in the past 20 years: it was 138 million, 47 million and 3 million, respectively.

In short, the world has made little progress in reducing the absolute number of poor. At any time for the past quarter century, about three billion people have struggled to survive on a daily basis. In a world without extreme poverty, their ideas and innovations could have contributed to build better lives and improved technology performance and economic prosperity.

Hunger

Not all, but many of the poor suffer from hunger, i.e. they have less

than the minimum level of dietary energy consumption. Today, 850 million people - 260 million of which live in LDCs - suffer from hunger, which is *more* than in 1990 but *less* than in 1970 (Table 15). This means that one in three people in LDCs and one in seven people in developing countries still go hungry today. Yet world food production per capita has risen significantly since 1950. The absolute number of people suffering from hunger decreased by more than 200 million from 1970 to 1990, reaching 800 million in 1990. No more absolute reductions have been achieved since. Beginning in 2006, as food production declined from adverse weather, fuel costs increased, and a growing share of corn production went to biofuels, food prices surged and the numbers of hungry people started to rise again.

On the other hand, the *proportion* of children going hungry has been significantly reduced, especially since 1990. The global prevalence of underweight children under five years old decreased from 25 per cent in 1990 to 16 per cent in 2011. In fact, it decreased in all developing regions.¹¹⁹ Yet large pockets of hunger persist. It should be noted that today there are more boys than girls that are undernourished and underweight, especially in Africa and Latin America.¹¹⁸

Education and literacy

Continued and sustained improvements in literacy have been achieved, with adult illiteracy having been cut in half since 1970. The literacy rate of 15-24-year-olds in developing countries was as high as 88 per cent between 2005 and 2011 (the most recent estimate) - eight percentage points more than 20 years earlier. Literacy rates in the Caucasus and Central Asia, Eastern Asia, Latin America, South-Eastern Asia and Western Asia have reached levels similar to developed countries. However, progress elsewhere has been uneven. While the LDCs and South Asia achieved the greatest improvements in literacy, progress in literacy in sub-Saharan Africa has remained slow.¹¹⁸

There are reasons to be optimistic for the future. Net enrolment ratios in primary education in developing countries have greatly increased from 80 per cent in 1990 to 91 per cent in 2011. Universal

primary education has been achieved in most parts of the developing world, with the notable exceptions of the LDCs and some parts of sub-Saharan Africa and South Asia. It should be noted, however, that this finding is based on net enrolment rates and not the percentage of the cohort of children who have completed primary school (note a global dropout rate of 25 per cent). In the past 20 years, great progress has also been achieved in secondary and tertiary education (Figure 7).¹²⁰

In stark contrast to 20 years ago, today women dominate tertiary education in most parts of the world, in developed and developing countries alike. In 2011, there were more women than men in tertiary education - 44 per cent more in SIDS, 29 per cent more in developed countries, 27 per cent more in Latin America, 8 per cent more in Eastern Asia, 7 per cent more in Northern Africa and 6 per cent more in South-Eastern Asia. The notable exceptions are LDCs, where there are almost twice as many men as women enrolled in tertiary education, compared to three times as many men as women 20 years ago.

Education of women has been one of the most important factors leading to falling fertility rates, which has greatly reduced population growth and contributed to ageing societies in many countries. The shift has been especially drastic in a number of Asian developing countries.

Rapid expansion of secondary and tertiary education in developing countries (Figure 7) has been one of the most important factors driving global economic growth since 1990. It has changed the global economic landscape.

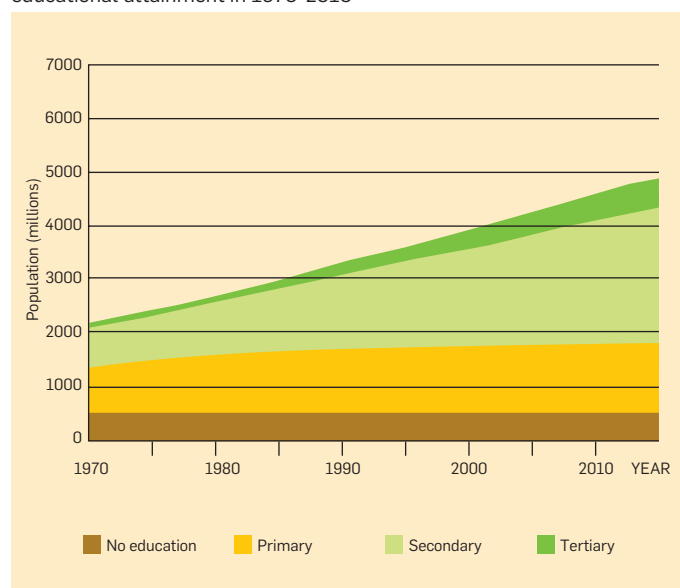
Access to basic services

Lack of knowledge, skills and resources have limited progress in terms of access to basic services, especially in the poorest countries. In contrast, some of the larger and rapidly growing developing economies have been able to pool resources and skills to make impressive progress in providing access to basic services.

Significant progress has been made in developing countries in terms of access to safe drinking water. In 2011, 87 per cent of the population used an improved water source, up from 70 per cent in 1990. About 740 million people still lack access to safe drinking water, which is 500 million fewer than 20 years ago.¹¹⁸ 57 per cent of the population of developing countries used an improved sanitation facility in 2011, up from only 36 per cent in 1990. This was not big enough progress to compensate for the growing population. Today, 2.4 billion people lack access to basic sanitation, which is 650 million *more* than 20 years ago (Table 15).¹¹⁸ Taking into account population growth, 2.3 billion people were provided with access to safe drinking water and 1.1 billion with basic sanitation - an enormous achievement. Water pollution remains a major problem in rapidly growing urban areas in Africa, Asia, and Latin America, and infectious water-borne diseases continue to claim lives of millions, especially children.

Great improvements have been achieved in terms of modern energy access since 1990. The number of people without access to electricity increased from 1.8 billion in 1970 to 2 billion in 1990, after which it decreased to 1.65 billion in 2000 and to 1.27 billion (24 per cent of the developing world population) in 2010. Taking into account population growth, this means that from 1990 to 2010, more than 2.5 billion people were provided with access to electricity - an enormous achievement (Table 15). Further, in 2010, 2.59 billion people (49 per cent of the developing world) relied on

Figure 7. World population aged 15 years and above by level of educational attainment in 1970-2010



Source: Lutz (2009)¹²¹. © 2009 Royal Statistical Society.

the traditional use of biomass for cooking, which causes harmful indoor air pollution. These people lived primarily in rural areas of developing Asia and sub-Saharan Africa.

Progress in terms of access to basic services - where it was achieved - has improved health, promoted education, reduced poverty and environmental pollution; yet it has increased economic growth. For example, the provision of access to electricity to more than 2.5 billion people has greatly reduced local and indoor pollution, while only marginally increasing global environmental pressures. The environmental trade-offs have been negligible for providing 2.3 billion people with access to safe drinking water and 1.1 billion with basic sanitation.

Migration

International migration has been punctuated by cyclical periods of economic growth and immigration liberalization, as well as by periods of forced emigration from war, (resource) conflict and political change. Although the share of international migrants has remained at about 3 per cent since 1990, their absolute numbers have increased. In 1990, an estimated 156 million people worldwide were living in a country other than that of their birth. By 2010, there were 215 million international migrants and 740 million internal migrants. Immigration restrictions have become increasingly strict in many countries.

Migration has often been a result of poverty, conflict and lacking opportunities. It also has had important long-term economic impacts, in terms of a perceived brain drain and remittances. Remittances have become a very important source of international financing for some developing countries, especially SIDS. In cases without immigration/migration restrictions (including intra-national), migration has been circular, i.e. migrants typically return to their place of origin, bringing with them financial resources and skills.

Intergenerational social mobility

Intergenerational social mobility, in terms of earning, wage and educational mobility, varies widely across developed countries but tends to be lower in unequal societies.¹²² There is evidence that intergenerational wage mobility is lower in many developing countries than in most developed countries. Access to education has been identified as an important determinant of intergenerational wage persistence in OECD countries.^{123, 124}

There are only few studies that attempted to identify the global trend in intergenerational social mobility. One such study used surnames to track the rich and poor through many generations in Chile, China, England, India, Japan, Korea, Sweden and the United States. In all these societies from medieval England to modern-day Sweden, the intergenerational correlation (for generalized social status) was between 0.7 and 0.9, which implies very low social mobility - i.e. it takes 10 to 15 generations for social mobility to erase most of the initial differences in general social status.¹²⁵ According to this study "social mobility seems to be a constant, independent of inequality... 50 to 70 per cent of the variation in general social status within any generation is predictable at conception".¹²⁵ Neither free public education, modern economic growth, nor redistributive taxation appears to have changed this constant.¹²⁵

Human security and human rights

The world has seen mixed progress on human security and human rights. Data on human security and human rights are sparse and

subject to controversies. Significant progress has been made in many parts of the world in terms of the economic and social dimensions. Such progress has not been matched by progress in personal and political security.¹²⁶ The long-term trend to democratization has continued.¹²⁷ There is no general consensus on the direction and magnitude of the interlinkages between human security and human rights with other sustainable development issues.

Overall well-being

Since 1950, the overall well-being of people as measured by the human development index (HDI) has substantially improved. The long-term trend to greater well-being continued in the most recent decade, but was set back from 2008 by the global economic crisis and high commodity prices. But the HDI is not really a good measure of well-being. However, some question whether overall well-being has *substantially* improved since 1950, and in this context refer to objective measures of well-being and surveys of subjective well-being (e.g. see the UNEP GEO-4 report).

3.1.2. Economy (1950-2013)

World GDP

Affluence has increased amid persistent poverty. World GDP (i.e. the sum of national GDPs) increased from US\$5 trillion in 1950 to US\$17 trillion in 1970, US\$36 trillion in 1990, US\$49 trillion in 2000 and US\$67 trillion in 2010. From 2000 to 2011, the world average GDP per capita increased from US\$8,000 to US\$9,700. World economic output grew by 3.9 and 3.1 per cent in 2011 and 2012, respectively.¹²⁸ Since there is no national economy that has achieved absolute decoupling between economic growth and material consumption and pollution, continued world GDP growth at or above the previous century's average of 3 per cent per year has meant ever-increasing (although shifting) environmental and resource pressures. The global military expenditure reached US\$1.75 trillion in 2013 –about the same proportion of world GDP as in 2004.

Per capita GDP (PPP) has more than tripled since 1960. All regions of the world except Africa, where growth had stopped in the 1990s, showed such growth. Africa also joined the catch-up growth in the 2000s. However, differences between regions persist. Further, ever-increasing incomes have only partially been used for long-term investments in education, infrastructure and health.

Table 16. Global macroeconomic data

World	1950	1970	1990	2000	2010
GDP (in US\$ trillion)	-	17	36	49	67
GDP (in trillion 1990 international dollars)	5	14	27	37	52
GDP per capita (in 1,000 1990 international dollars)	2.1	3.7	5.1	6.1	7.8
Total assistance to developing countries (US\$ billion)	-	-	53	54	128
World-adjusted ¹²⁹ GPI (US\$1,000 2005)	2.0	3.5	4.0	3.9	3.9

Source: Authors's elaboration, adapted from United Nations Statistics Division, OECD DAC, and Kubiszewski et al. (2013)¹³⁰.

Genuine progress indicator

The genuine progress indicator (GPI) is a measure of economic welfare. It adjusts average incomes for elements that are added up in the GDP but that few would consider to be elements that increase economic welfare. For example, more accidents, diseases, traffic jams, and exploited natural resources all increase GDP, but

arguably do not increase economic welfare (see chapter 5 for more details). The world's average per capita GPI also doubled from 1950 to 1978, but has actually decreased slightly since 1978.¹³⁰ In other words, in contrast to previous decades, economic growth since 1978 has no longer increased economic welfare per person at an aggregate, global level. Of course, many people are economically much better off today than decades ago, but many others have borne the negative side effects of growth, both in developed and developing countries. Further, the components of GPI illustrate the interlinkages between the present economic growth model and environmental and social issues.

Trade and global economic landscape

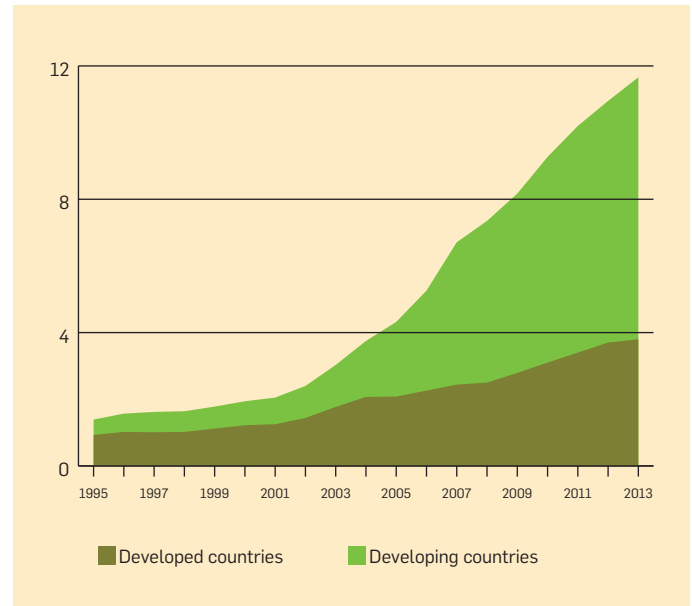
Trade has grown at more than twice the rate of economic growth since 1950, and current trade in money and capital is 100 times greater than trade in goods and services. The increased integration of world markets has brought with it a disintegration of the production process through "offshore outsourcing". A number of developing countries (referred to by some as "emerging economies") have benefited greatly from these trends, whereas others have been further marginalized. The emerging economies have achieved rapid and sustained catch-up growth - especially since 1980 - and this has shifted global production and distribution patterns. They account for rising shares of global GDP, manufacturing and trade. As a result, the share of advanced economies in global economic activity declined from 80 per cent in the 1960s to 57 per cent in 2008-2009, whereas the share of emerging economies rose from 17 per cent to 39 per cent.¹³¹ The relative contribution of advanced economies to global economic growth over time declined from 70 per cent in the period 1973-1985 to 57 per cent in 1986-2007, and to 6 per cent in 2008-2009, while the contribution of emerging economies rose from 26 per cent to 39 per cent to 86 per cent, respectively. Consequently, South-South cooperation among emerging economies has become decisive in global economic management.

Money supply, financialization and reserves

The growth rate of global money supply has accelerated, and the money supply of the world's major economies has tripled since 2000 - i.e. it has increased much faster than GDP.¹³² Over the last 12 years, the nine largest currency blocs in the world have increased their total money supply by more than 200 per cent (using current exchange rates). To achieve short-term economic goals, most central banks monetized that debt, injecting large sums of money into their economies. The super-exponential growth of money supply has raised concerns about long-term economic and financial sustainability.

The shares of the financial sector in the national economies of major developed and developing countries has significantly increased since the late 1980s. Liberalization and a greater role of the private sector has been a major factor in this process. As a consequence, funds have been looking for financial returns on investment (ROIs) typically on the order of 10-15 per cent or more; this is much larger than the ROIs of 2-5 per cent for many long-term investments (e.g. infrastructure) that are essential for a sustainable future. Before the 1980s, ROIs of 5 per cent were completely acceptable to financiers. In short, financialization has essentially redirected the economic engine to short-term and/or unsustainable investments. Policy interventions by Governments, such as green taxes, subsidies, feed-in tariffs and risk guarantees, have increasingly aimed to make long-term sustainable investments more attractive in line with their social returns. However, there are many examples where this approach has fallen short of expectations, due to strategic gaming,

Figure 8. Global foreign exchange market reserves in trillion US\$, 1995-2013



Source: IMF¹³³.

unintended consequences and other reasons.

The accumulation of foreign exchange market (forex) reserves has increased at an accelerated rate, especially in some developing countries - the export-intensive emerging economies and natural resource-exporting countries (Figure 8). Large reserves have been accumulated as insurance precipitated due to a perceived global economic and financial instability. While the global trading system seemed to work just fine with less than US\$2 trillion in global forex reserves in 2000, they reached US\$11.7 trillion in 2013. Global forex reserves have increased much faster than world trade since 2000 - at about 14 per cent per year compared to 4 per cent per year. In contrast, in the 1990s global forex reserves increased at roughly the same rates as overall world trade. In other words, around US\$10 trillion could be invested in projects with long-term sustainable development impacts if we achieved a more balanced and stable global economic system.

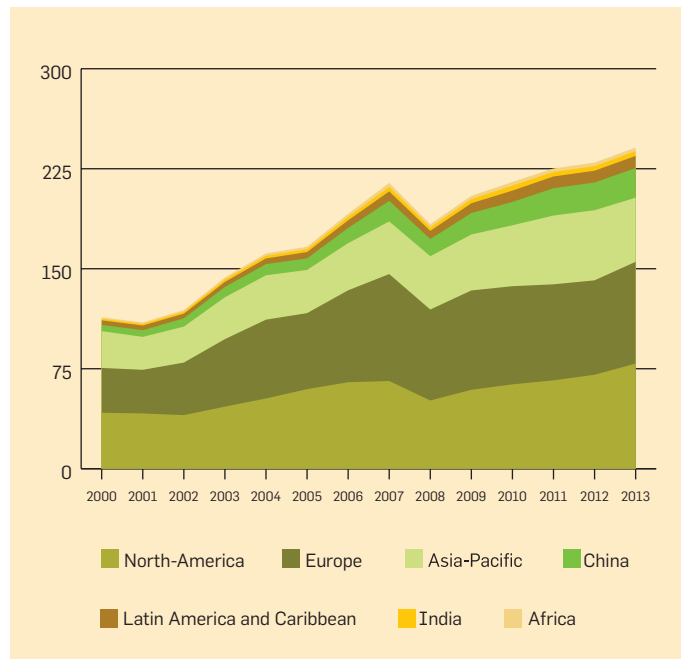
Global household wealth and its distribution

Despite the setback caused by the global financial crises in 2008, global household wealth more than doubled, from US\$113 trillion in 2000 to US\$241 trillion in mid-2013 (Figure 9). This is equivalent to a 68 per cent increase in wealth per adult, from US\$30,700 for the 3.7 billion adults in 2000 to US\$51,600 for the 4.7 billion adults in 2013. Today, global household wealth is about four times the size of world GDP, compared to only two times in 2000. Thus, the world today is in a much better financial position to address the big development and sustainability challenges. This is despite the lingering impacts of the global financial crisis of 2007-2008.

Global household wealth is unequally distributed: "To be among the wealthiest half of the world, an adult needs only USD 4,000 in assets, once debts have been subtracted. However, a person needs at least USD 75,000 to belong to the top 10 per cent of global wealth holders and USD 753,000 to be a member of the top 1 per cent. The bottom half of the global population together possess less than 1 per cent of

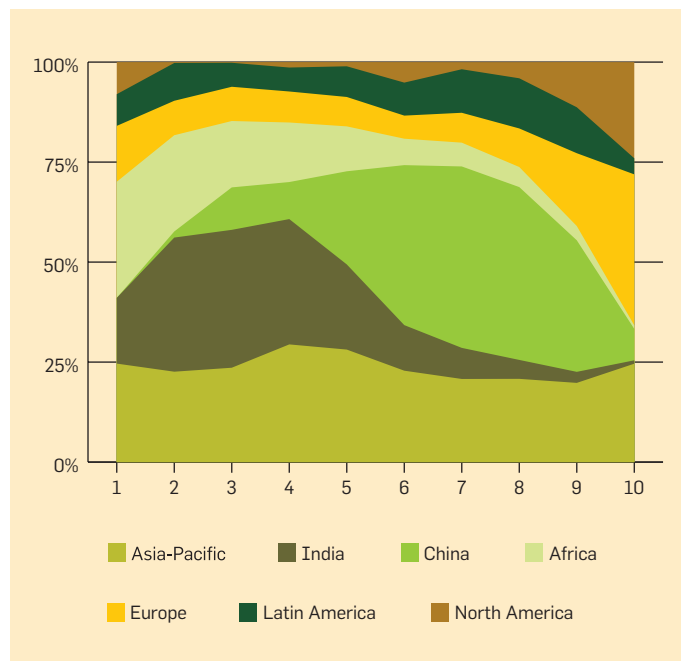
global wealth. In sharp contrast, the richest 10 per cent own 86 per cent of the world's wealth, with the top 1 per cent alone accounting for 46 per cent of global assets.¹³⁴ There are about 31 million millionaires and 1,151 billionaires (in US\$) in the world. Figure 10 shows the regional distribution of global household wealth. The 10 per cent adults with the lowest net wealth live in all world regions.

Figure 9. Global household wealth, 2000-2013



Source: Credit Suisse Global Wealth Databook (2013)¹³⁴. Reprinted with permission from Credit Suisse Research Institute.

Figure 10. Regional distribution of global household wealth



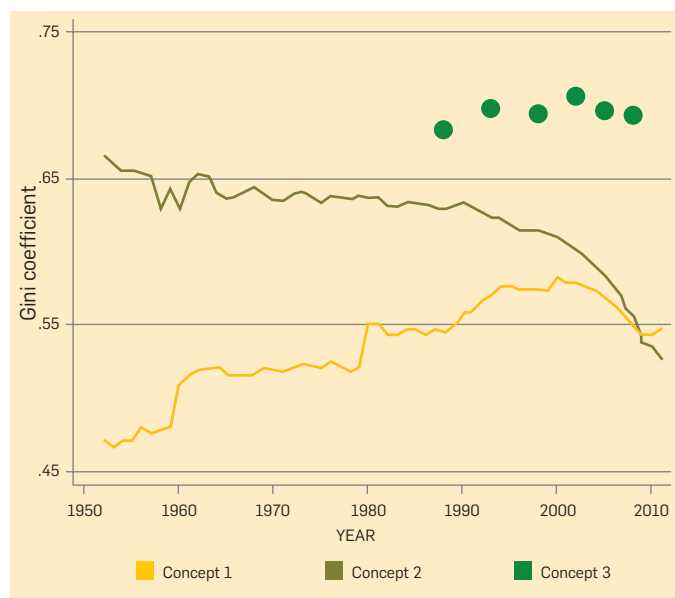
Source: Credit Suisse Global Wealth Databook (2013)¹³⁴. Reprinted with permission from Credit Suisse Research Institute.

Income inequality

While income and wealth are related, there are major differences in terms of this relationship among regions.

Income inequality between countries calculated from GDP per capita or mean incomes without population-weighting has increased since 1950 until the early 2000s, after which it declined. However, when adjusted for the countries' different population sizes, income inequality between countries has continuously decreased since 1950. These measures, however, do not account for inequality within countries. Another measure of global income inequality is global inequality between individuals, not countries - where each person, regardless of his country, enters into the calculation with his actual income. By this measure, global inequality has not changed significantly since the late 1980s (Figure 11).¹³⁵

Figure 11. International and global income inequality



Concept 1: Inequality between countries, calculated from GDP per capita or mean incomes without population-weighting.
Concept 2: Same as concept 1, but weighted by population.
Concept 3: Global inequality between individuals, not countries - each person, regardless of his country, enters into the calculation with his actual income.

Source: Milanovic (2012)¹³⁵. Reprinted with permission from the World Bank. © by the World Bank.

From 1988 to 2008, all gains in real income have been reaped by the rising middle class in developing and newly industrialized countries, as well as the "super-rich" in all countries. In contrast, incomes of the poorest in developing countries and of very low and high middle-income groups in developed countries have stagnated or decreased (Figure 12). For the poorest people and LDCs, consumption remains grossly inadequate, with unmet needs for energy and materials for food production, housing, consumer goods, transportation and health.

Since 1950, public social protection programmes (e.g. health care and social security) grew in centrally planned countries and all industrialized market-oriented countries. Since the 1980s, however, many of these programmes have shrunk or even disappeared. In developing countries, public social protection programmes - where they existed - also shrank. Since 2000, income inequality increased significantly in most

Figure 12. Changes in real income between 1988 and 2008 at various percentiles of the global income distribution



Note: real income calculated in 2005 international dollars.

Source: Milanovic (2012)¹³⁵. Reprinted with permission from the World Bank. © World Bank.

countries, except in Latin America, where growth in social protection programmes had marked effects. One explanation that has been put forward for the increasing within-country inequality is globalization driven by international trade and investment.

Aid flows

In many developing countries, aid flows have been essential for achieving development goals (e.g. public energy and water goals), for disaster relief, and for providing regional and global public goods.

Annual total assistance (official development assistance [ODA] and non-ODA debt forgiveness) to developing countries reached US\$125.6 billion in 2012 - more than twice the level in 1990 and 2000. About one third of this amount went to LDCs. The proportion of net ODA (OECD / Development Assistance Committee) to donors' gross national income (GNI) regained their 1990 levels of 0.32 per cent in 2011. Estimates for 2012 are 0.29 per cent.¹³⁶

A majority of extremely poor people today live in middle-income countries that have growing resources at their disposal, but that may still lack the domestic capacity to fully alleviate poverty and address inequality. Moreover, a growing share of poor people are concentrated in fragile and regions affected by conflict, where institutions that would enable public and private investments are weak.

Technology

Paradoxically, humanity has not made full use of its greatly expanded wealth and technological capabilities to effectively solve global sustainable development challenges. At the end of 2011, an estimated 2.3 billion people were Internet users, the majority of whom were in developing countries. Information sharing and knowledge generation has grown at an accelerated pace. Over the past 20 years, the number of people in the emerging global innovation community has more than doubled. It is estimated

that US\$1.2 trillion was spent on research and development (R&D) globally in 2009, with the contribution of middle- and low-income countries more than doubling over the previous 15 years. While the participation of the poorest and smaller economies remains negligible at the global level, several technology-intensive developing economies have become world leaders - not only in the manufacturing and trade of technologies, but also increasingly in research and innovation. Communication and interconnection in this increasingly urbanized cluster have reached levels that would have been unimaginable just a few decades ago. All of this should, in principle, have put humanity in a much better position to find solutions to sustainable development challenges. Yet persistent poverty means that opportunities to mobilize the ingenuity of more than 4 billion poor people are being wasted.

Technology has greatly shaped society and the environment. While technology progress has addressed many problems, it has also added new problems.¹³⁷ All technologies consume resources, use land and pollute air, water and the atmosphere. An urbanizing world must innovate at an ever faster rate, with the general pace of life inevitably quickening, just in order to sustain continuous growth and avoid a planet of slums, social strife and environmental destruction.¹³⁸ Governments have called for concerted actions to accelerate change towards cleaner technology. Actual progress in technology performance at the global level has fallen far short of such ambitions.^{139,140}

Material consumption

The global growth in material consumption exceeded the growth in population, but was less than the growth in income or value of product. However, for the poorest people and LDCs, consumption remains grossly inadequate, with unmet needs for energy and materials for food production, housing, consumer goods, transportation and health.

The global metabolic rate has almost doubled since 1950 to more than 9 tonnes of biomass, construction materials, fossil fuels, ores and industrial minerals per capita per year. Its fastest increase in the past 100 years was experienced in the 2000s, primarily due to increased construction. National metabolic rates continue to vary greatly between countries, even up to a factor of 10 between countries at similar GDP per capita levels.¹⁴²

Primary energy use doubled from 1970 to 2000. Energy use further increased from 384 EJ in 2000 to 493 EJ in 2010. At the same time, the renewable energy share increased from 5.4 per cent in 1970 to 7.0 per cent in 2000 and 8.2 per cent in 2010.

Global withdrawals of water to satisfy demands grew rapidly in the 20th century. Between 1900 and 1995, water withdrawals increased by over six times, more than double the rate of population growth. However, per capita withdrawals peaked in the mid-1980s. Since then, they have declined and absolute water withdrawals have slowed worldwide. In industrialized countries, greater efficiency of use has led to lower per capita consumption (e.g. -22 per cent in the United States of America from 1980 to 1995). Agriculture, primarily irrigation, accounts for 70 per cent of current freshwater withdrawals. About 50 countries are already experiencing moderate to severe water stress all year round, while many others have water stresses during part of the year. Local and regional imbalances between water availability and rising demand are a growing concern globally.

Society (1950-2013)

The past 60 years have seen extraordinary changes in developed

and developing countries alike, in terms of values, attitudes and actual behaviour - in particular the attitudinal and behavioural shifts, the role of women, the environment and human rights.

Women

In addition to the gains in educational attainment described above, women have made inroads in the work place over the past 20 years. The share of women in wage employment in the non-agricultural sector increased from 35 per cent in 1990 to 40 per cent in 2011. In 2012, close to half (48 per cent) of the world's women were employed, compared to 73 per cent of men. Of these, 48 per cent of women and 75 per cent of men were employed in developing countries, and 49 per cent of women and 62 per cent of men in developed countries. The largest proportion of women employed were in the LDCs (61 per cent), Eastern Asia (64 per cent), and sub-Saharan Africa (58 per cent).

The proportion of seats held by women in national parliaments almost doubled since 1990 to 21 per cent in 2013. This share is similar in developed countries, developing countries, and the LDCs - 24 per cent, 20 per cent and 21 per cent, respectively.

The adolescent birth rate, i.e. the number of live births per 1,000 women aged 15-19, has decreased in almost all parts of the world since 1990. By 2010, the world average was 49 per 1,000 women aged 15-19. By far the lowest adolescent birth rate was found in Eastern Asia.

Household size

Average household size has decreased in developed and developing countries alike in recent decades, due to ageing, higher incomes and fewer stable families. Had the household size stayed at the level of 1985, there would have been 155 million fewer households in the 76 biodiversity hotspot countries in 2000, and another 230 million additional households by today.¹⁴³ In particular, the number of single-person households and single-parent households has increased, with important social, economic and environmental consequences. The environmental impact of household size is very significant, in some cases even more so than the absolute population size.¹⁴³

Larger households are much more resource efficient due to economies of scale. For example, two-person households in the United Kingdom use 31 per cent less electricity and 35 per cent less natural gas per person than single-person households, whereas four-person households use 55 per cent and 61 per cent less, respectively (Table 17).¹⁴⁴ In other words, the continued reduction in household size has counteracted the gains from technologies' increasing efficiencies, especially since the 1970s.

Table 17. Households size versus electricity and natural gas use

Household size	Per capita electricity use		Per capita natural gas use	
	Netherlands	United Kingdom	Netherlands	United Kingdom
1	100	100	100	100
2	75	69	77	65
3	60	55	64	47
4	54	45	58	39
5	47	38	52	35

Note: One-person household = 100. Source: Fawcett et al. (2000)¹⁴⁴.

Families

Across the world, there are fewer stable families than in the past decades. Countries with the highest divorce rates include developed and developing countries alike. In almost all developed countries, the crude marriage rate has declined since the 1970s by half, on average.¹⁴⁵ Crude divorce rates have increased in almost all countries. However, the average duration of a marriage has not significantly changed in the past 40 years and ranges between 10 and 15 years. Divorce rates are higher in cities than in rural areas, in developed and developing countries alike.

Societal views on intergenerational equity

In most countries where a high level of societal consensus existed on intergenerational equity, it has been lost or come under pressure. National pension systems - where they exist - have typically been under constant reform discussion. This is closely related to ageing and broader societal changes.

Institutions

At a global level, new institutions of governance have emerged, transnational corporations and financial institutions grow and consolidate, and networks of nongovernmental institutions collaborate and expand. At the subnational level, government has devolved, privatization is more common than in the past, and in many places civil society has been strengthened. Power has shifted from the nation State upward to the global level and downward to the local level, and at all levels from the public to the private. A "crisis of multilateralism" has been diagnosed, indicating that expectations for global governance have grown much faster than actual institutional developments.

3.1.3. Nature (1950-2013)

Humans' overall impact on nature

Human economic activities have reached a level where they significantly affect and alter nature at the global level. For example, human modification, management or appropriation of nature has reached about one-half of the terrestrial ecosystems and one-quarter of the freshwater supply.

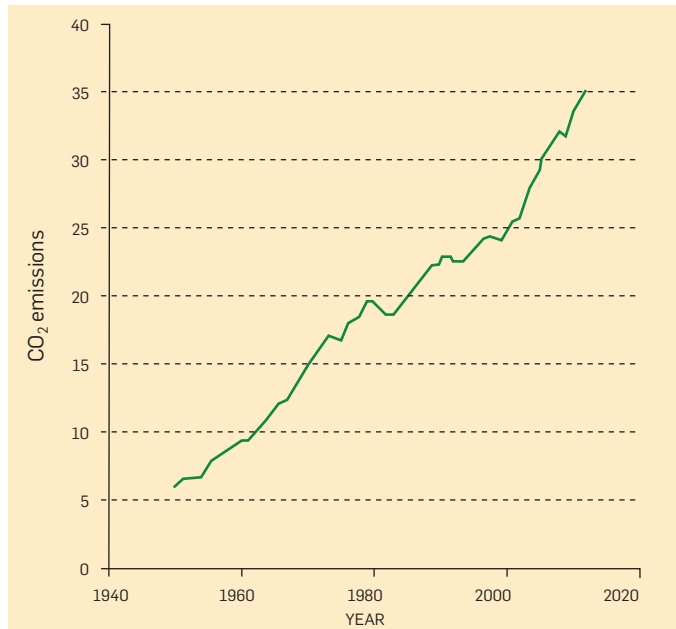
Biodiversity

Biodiversity continues to decrease at rates 100 to 1,000 times their pre-human levels: 11 per cent of bird species, 18 per cent of mammals, 8 per cent of plant species, and 5 per cent of fish species are threatened. In some areas as many as 20 per cent of freshwater species are threatened, endangered or extinct. Introduced or "invasive" species have increased diversity in some places and decreased it elsewhere, as immigrant species replace local ones (i.e. "biological invasions").

CO₂ emissions

Global CO₂ emissions from fossil-fuel burning, cement manufacture and gas flaring have increased at an accelerated rate since 2000 - from 24.8 gigatons (Gt) of carbon dioxide (GtCO₂) in 2000 to 35.1 GtCO₂ in 2012. (Figure 13).¹⁴⁶ Despite the global economic crisis, this was the largest increase in any decade since 1750. The tropospheric CO₂ concentration has now reached 393 parts per million by volume (ppmv) in 2012 - 113 ppmv more than at the beginning of the Industrial Revolution. The 2000s have been the warmest decade on record since measurements began in 1861.

Figure 13. Global CO₂ emissions from fossil-fuel burning, cement manufacture and gas flaring (billion metric tons)



Source: Boden et al. (2013)¹⁴⁶.

Oceans

Forty-one per cent of the oceans showed high human-induced impacts on marine ecosystems in 2012, with the highest impacts in coastal regions. The ocean currently absorbs approximately 26 per cent of the CO₂ emitted into the atmosphere resulting in ocean acidification at a rate that may not have been seen for the last 30 million years. Ocean acidification is known to have significant impacts, including reduced ability of many key marine organisms - including calcareous phytoplankton, the base of much of the marine food chain - to build their shells and skeletal structures. Otherwise the chemical composition of the open oceans has not yet been greatly affected by human activities (with the exception of lead). Oceans have warmed leading to sea level rise of 10-20 cm over the last century. There is no clear evidence yet that warming had significantly altered the system of ocean currents.

3.1.4. Life support (1950-2013)

Human impact on nature has reached a scale such that it alters a series of life-support functions provided by nature that are ultimately essential for human survival. This includes land use and the appropriation of net primary productivity, freshwater use, overfishing and local and regional air pollution.

Land use

The world's land cover of the ice-free earth is divided into dense settlements (1 per cent), villages (6 per cent), croplands (21 per cent), rangelands (30 per cent), forests (19 per cent), and wildlands (23 per cent).¹⁴⁷ The protected terrestrial and marine areas have been greatly expanded in developed and developing countries alike - from 8.9 per cent to 14.6 per cent of total surface area and from 4.6 per cent to 9.7 per cent of territorial waters between 1990 and 2012.

Despite the loss of half of the world's forests historically to domestication, they currently occupy 20 per cent of the world's

ice-free land are, with over one-half located in the tropics. Tropical forests declined at around 12 million to 14 million hectares (ha) per year in both the 1990s and 2000s, and a similar amount was degraded due to commercial logging, agriculture, cattle ranching, dam building and mining.¹⁴⁸ Altogether 57 per cent of tropical forests have been lost. In contrast, temperate and boreal forests have been reforested since the 1980s, with the exception of Siberia. After 1990, growing stock expanded in many forested countries,¹⁴⁹ and during 1990-2010 the density of forests grew in all world regions, albeit unevenly.¹⁵⁰

Grasslands have been extensively modified worldwide and increasingly degraded in terms of standing biomass. There has been a sustained expansion of croplands in developing economies, especially the tropics, arid and semi-arid lands, and high mountains. Arable land per person has been cut from 0.42 ha to 0.20 ha, while food production rose 160 per cent from 1950 to 2010. Fortunately for the sparing of cropland, meat consumption is increasing only half as fast as affluence. Global arable land and permanent crops increased from 1,371 million ha in 1961 to 1,533 million ha in 2009. According to one account, peak farmland may have been reached by 2010.¹⁵¹

Human appropriation of net primary production

Human appropriation of net primary production (HANPP) is a prominent measure of human domination of the biosphere. HANPP measures human alterations of photosynthetic production in ecosystems and the harvest of products of photosynthesis. It reduces the amount of energy available to other species, influences biodiversity, water flows, carbon flows between vegetation and atmosphere, energy flows within food webs, and ecosystem services. Humanity claims about 15.6 petagram of carbon (Pg C) per year or 24 per cent of potential net primary productivity, of which 53 per cent was contributed by harvest, 40 per cent by land-use-induced productivity changes, and 7 per cent by human-induced fires.¹⁵² According to the latest estimates, HANPP has doubled from 13 per cent of net primary production of potential vegetation in 1910 to 25 per cent in 2005.¹⁵³ The long-term impact of such a level of anthropogenic interference on the ecosystem is controversial, and greater technological progress than otherwise anticipated may be required, in order to feed a growing population. With current technologies, intensified production on prime croplands in most countries depends on high inputs of water, fertilizer, pesticides and improved seeds, and limits to yield increases are becoming apparent.

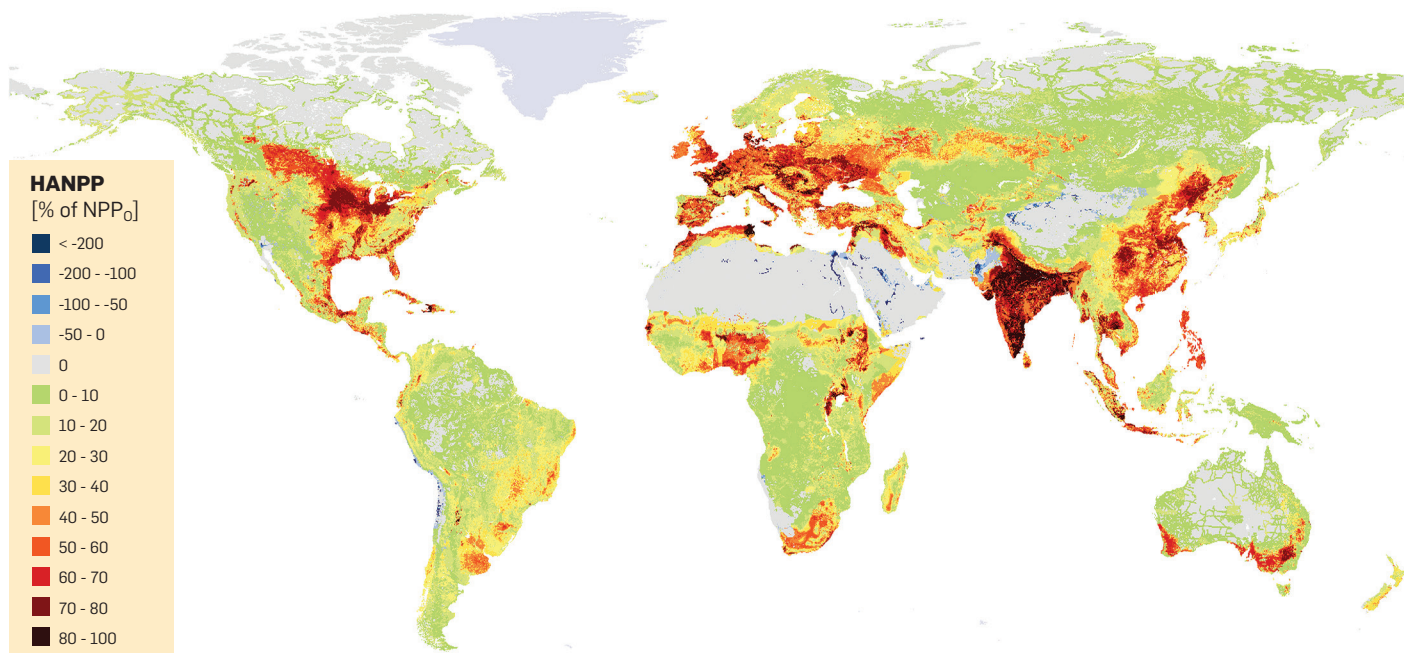
Water

Local and regional freshwater shortages, and water stress was widespread in one third of the world, where withdrawals exceeded 20 per cent of available supply. In many developing countries, the quality of available water continues to decline because of pollution and salinization.

Fisheries and coastal areas

Commercial ocean fisheries were significantly more stressed in 2012 than in previous decades. Despite strong international consensus to preserve maximum sustainable yields, the proportion of overexploited fish stocks tripled from 10 per cent in 1970 to 27 per cent in 2000 and 30 per cent in 2012. Even where elaborate institutional frameworks exist, overfishing has continued, as in the case of the Bluefin tuna in the Eastern Atlantic and the Mediterranean.

Figure 14. Human appropriation of net primary productivity excluding human fires



Source: Haberl et al. (2007)¹⁵². © National Academy of Sciences.

Half the world's population live within 200 kilometres of a coastline, a number that has grown over time. Much of their waste, garbage and waterborne pollutants, as well as ship-borne waste, oil spills and distant agricultural runoff, end up offshore and have degraded coastal zones.

Coastal habitats have come under pressure, with approximately 20 per cent of the world's coral reefs lost and another 20 per cent degraded. Mangroves have been reduced to 30-50 per cent of their historical cover, with major impacts on biodiversity, habitat for inshore fisheries and carbon sequestration potential. Since the late 1800s, 29 per cent of seagrass habitats are estimated to have disappeared. Over 80 per cent of the world's 232 marine ecoregions reported the presence of invasive species - the second most significant cause of biodiversity loss on a global scale.

Air pollution

Most concentrations of local air pollutants (e.g. nitrogen dioxide, ozone, sulphur dioxide, carbon monoxide and lead) have decreased in developed countries, many also in developing countries. Global sulphur oxide (SO_x) emissions peaked in 1989 and have declined since. However, the health burden of local air pollution remains large, especially in megacities of developing countries.

The global release of chlorofluorocarbon gases peaked in the late 1980s, and the ozone layer is on a long-term path to stabilization by 2020/2030.

3.1.5. Community (1950-2013)

Conflicts

The number of State-based armed conflicts increased from fewer than 20 in the 1950s to over 50 in 1991. Thereafter, it decreased to fewer than 30 in 2005 - a level not seen since the 1970s. Since 2005, however, the number has again increased.¹⁵⁴ There have been

more State-based armed conflicts in recent years than during the cold war. There is also evidence for a very long-term trend towards more frequent and ever more intense conflicts.¹⁵⁵

The number of reported battle deaths from non-State armed conflicts has decreased by more than half since 1992, in contrast to the perception created by international media. Even more striking, today's number of deaths from one-sided violence (such as terrorism) is one hundredth of its peak in 1994.¹⁵⁴

Culture

There is ample evidence indicating that the impact of the above trends on cultural heritage, traditions, and traditional knowledge and indigenous languages has been very significant. For example, indigenous cultures today are threatened with extinction in many parts of the world. There are between 6,000 and 7,000 oral languages in the world today, and most of them are spoken by very few people. At the current rate, as many as 90 per cent of the world's languages might disappear in this century. Yet there are also indications that some indigenous languages and cultures are revitalizing.¹⁵⁶

3.2. Reflection on synergies and trade-offs

As illustrated above, historical progress towards sustainable development has been mixed since 1950. There is evidence that impressive progress in some areas has come at the expense of worsening trends in other areas. However, these trade-offs have been rather complex and have sometimes differed greatly at various spatial and timescales. They have also changed over time depending on the overall environment. For example, success in reducing poverty has in some cases led to a reduction in biodiversity, whereas in others it has been key to its conservation. Similarly, no country has achieved absolute decoupling between economic

are good examples of where *Agenda 21* has achieved positive and lasting outcomes.

Overall, based on expert ratings, progress on *Agenda 21* has been limited. Of the 39 *Agenda 21* chapters, most were rated by both expert assessors as having only made limited progress to date. Three chapters (chapter 4 on Changing consumption patterns; chapter 7 on Promoting sustainable human settlement development; and chapter 9 on Protection of the atmosphere) were rated as having made no progress or witnessed a regression. Only five chapters were rated by both assessors as having achieved good progress or better: chapters 27 and 18 on the Involvement of NGOs and local authorities, chapter 35 on Science for sustainable development, chapter 38 on International institutional arrangements, and chapter 39 on International legal instruments and mechanisms). Ratings varied across the two assessors for a few chapters, but overall they are fairly consistent.

Successes: Arguably, *Agenda 21*'s biggest success has been in driving ambition on what sustainable outcomes are achievable on a sector-by-sector basis. For example, our understanding of biodiversity, of the contribution that agriculture makes to development or of the role of indigenous peoples in society, has been advanced in no small part through *Agenda 21*. Further, *Agenda 21* has engendered a much stronger notion of participation in decision-making. This affirmation of the important role of non-governmental actors has percolated through all levels of government, international law and international governance.

Challenges: In retrospect, the format for *Agenda 21* based on sectors may have contributed to defeating the concept of integration that is at the heart of sustainable development, which seeks to promote cross-sectoral solutions. Some areas of *Agenda 21* have remained largely unsuccessful and could even be deemed failures.

Implementation of the Rio Principles

The review of the *Rio Principles* shows that many of the principles have been transposed into further international laws or national instruments, but have not necessarily filtered down into meaningful action. Without full compliance and enforcement mechanisms, there is little to ensure that States will comply with the objective and aspiration of the principles. However, there are some successes in this regard, such as Principle 10 (Access to environmental information) as enshrined in the Aarhus Convention, which covers most European Union members.

Overall, based on expert ratings, progress on the Rio Principles has been slow. Of the 27 Rio Principles, 17 were rated by both expert assessors as having made limited progress to date.¹⁵⁷

3.3.2. Progress towards achievement of current goals or commitments in 19 focus areas

Initial discussions of the United Nations Open Working Group on Sustainable Development Goals (OWG on SDGs), an intergovernmental working group established by the United Nations General Assembly on 22 January 2013 and tasked to prepare a proposal for SDGs, considered 19 focus areas as potential areas for future SDGs. These have now been narrowed down to 17 areas in the final report of the OWG of August 2014. Global progress towards achievement of goals or commitments has been rather mixed in these initial 19 focus areas. Clearly, the level of progress depends, *inter alia*, on the level of ambition of the goal or commitment in

the first place. Early achievement of a goal might reflect faster than foreseen progress - or it might reveal that the goal was less ambitious than it could have been. These differences are discussed in chapters 4 and 5.

3.4. Perspectives: Making sense of the debate on sustainable development progress

Views on progress made, remaining gaps and ways towards sustainable development cover a broad spectrum and tend to differ across and within Governments, civil society groups, academia and the public at large. The following statements are typical.^{158, 159}

- Elements of a sustainable future are already visible. Corporations and NGOs are showing the way. What is needed is to quickly scale up these initiatives.
- While we are not yet on a sustainable development path, we know what should be done, and we have the means to do it. All that is needed is political will to implement commitments in terms of finance, technology and capacity development.
- Current environmental trends are unsustainable. Markets are the most efficient way to guide us on the right path. What is needed is full internalization of environmental externalities, and expansion of markets for ecosystem services.
- We are on a fundamentally unsustainable path. Drastic changes in behaviour and lifestyles are necessary to achieve the necessary transition towards sustainable development.
- Humanity surpassed the Earth's carrying capacity decades ago. Only an immediate stop to ecosystem destruction, as well as population control and large-scale restoration of ecosystems might restore global biotic regulation and prevent total collapse of ecosystems and the human species.

At first glance these statements look mutually contradicting. More in-depth analysis shows that none of them is necessarily wrong. Different conclusions are reached by choosing different scopes and completely different timescales. In fact, system size and timescales increase greatly from the focus on local, current actions to the comprehensive view of the Earth's biota and thousands of years. However, policy prescriptions derived from short-run and narrow approaches are often contradictory to those that would be predicated on long-term considerations.

What is immediately apparent too is that the different statements mix opinions on: (a) where we are today with respect to sustainability; (b) what the main constraints to progress are; (c) what means should be adopted to achieve sustainable development; and (d) what specific policies should be used. Importantly, few perspectives articulate ends (where we want to be), as opposed to means.

Not only do views differ across all actors. One of the main barriers to productive dialogue is the fact that arguments are made at very different levels, referring to:

- Sustainable development as an overarching goal, including the scientific basis that underpins it or its application to specific sectors or clusters
- The overall approach that should be followed to achieve sustainable development

Table 19. Progress towards achievement of goals or commitments in the initial 19 focus areas of the United Nations Open Working Group on Sustainable Development Goals

Thematic areas identified by Member States	Selected international reports and assessments	Existing goals or commitments	Existing targets	Current status
1. Poverty eradication (MDGs)	United Nations Millennium Development Goals Reports; World Bank-IMF Global Monitoring Reports	Eradicate poverty	Reduce extreme poverty by half by 2015	Completed in the MDGs context, but one billion people still live in extreme poverty
2. Food security and sustainable agriculture (MDGs and beyond)	United Nations Millennium Development Goals Reports; World Bank-IMF Global Monitoring Reports; FAO The State of the World reports; the State of Food Insecurity Reports; UNCCD Reports	World free of hunger	Reduce hunger by half by 2015	On track in the MDGs context
3. Water and sanitation (MDGs)	United Nations Millennium Development Goals Reports; World Bank-IMF Global Monitoring Reports; United Nations World Water Development Report	Ensure access to safe drinking water and stop unsustainable exploitation of water resources	Reduce proportion of people without sustainable access to safe drinking water and basic sanitation by half by 2015	On track in the MDGs context
4. Health (MDGs)	United Nations Millennium Development Goals Report; World Bank-IMF Global Monitoring Reports; World Health Organization (WHO) World Health Report	Reduce child mortality; improve maternal health; combat HIV/ AIDs etc.	Reduce by two thirds, between 1990 and 2015 , the under-five mortality rate	On track in the MDGs context
5. Education (MDGs)	United Nations Millennium Development Goals Report; World Bank-IMF Global Monitoring Reports; UNESCO Global Monitoring Reports	Universal primary schooling	By 2015 , children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	Off track
6. Employment (MDGs)	ILO Global Employment Trends; World Bank World Development Reports	Full and productive employment and decent work for all	Time-bound targets for assessments are not stated	Off track
7. Oceans (Ch. 17 of <i>Agenda 21</i> ; JPOI; Aichi Targets 6, 10 and 11; Target 7.B of MDG)	United Nations General Assembly Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects; UNEP Keeping Track Reports	Protection of the oceans and all kinds of seas	By 2015 , the multiple anthropogenic pressures on coral reefs are minimized, to maintain their integrity and functioning	Off track
8. Biodiversity (Aichi Targets; MDG Target 7.B)	CBD Global Biodiversity Outlooks	20 Aichi Targets of halting global biodiversity loss	Achieving, by 2010 , a significant reduction in the rate of biodiversity loss	Off track
9. Forest (Aichi Targets on forest; Four shared global objectives on forests, agreed at United Nations Forum on Forests Session 6)	United Nations Forest Forum Reports; CBD Global Biodiversity Outlooks; FAO Global Forest Resources Assessments	Forest component of Aichi Targets: reducing deforestation	A 25 per cent reduction in annual global deforestation and degradation rates by 2015 relative to the 2000-05 average	Off track
10. Sustainable consumption and production (Ch.4 <i>Agenda 21</i> ; and JPOI Ch. 3)	United Nations Trends Reports: Towards Sustainable Consumption Production; World Business Council for SD: Vision 2050 Report; UNEP: The Marrakech Process Progress Report	Changing unsustainable patterns of consumption and production	International Plan of Action is in place, but no time-bound target yet	Off track
11. Means of implementation (MDGs, Rio+20; Copenhagen Accord)	UNCTAD Trade and Investment Reports; MDG Gap Task Force Reports; World Bank World Development Reports; IPCC Reports; World Intellectual Property Organization (WIPO) Annual Reports	Develop a global partnership for development	Meet the 0.7% ODA/GNI target now; US\$100 billion per year for climate change by 2020	Off track
12. Sustained and inclusive economic growth (Rio+20)	UN DESA World Economic and Social Survey; UNIDO Industrial Development Report	Achieve sustainable, inclusive and equitable economic growth	Ongoing	Mixed progress
13. Needs of countries in special situations, and mid-income countries (Istanbul PoA; Rio+20)	Secretary-General's Report on Implementation of the Programme of Action for the LDCs; UN-OHRLLS Reports on LDCs, LLDCs and SIDS; African Development Bank: African Development Reports	Address special needs of Africa, LDCs, LLDCs and SIDS. Goals/ commitments on mid-income countries?	Ongoing	Mixed progress among these groups
14. Human rights, the right to development and global governance (Rio+20)	United Nations Development Programme (UNDP) Human Development Reports; World Bank: World Development Reports	Respect, protect and promote human rights and fundamental freedom for all	Ongoing	Mixed progress
15. Equality (MDGs)	Human Development Reports; United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)'s Progress of the World's Women; United Nations Millennium Development Goals Reports	Promote gender equality and empower women	Equal girl's enrolment in primary school; women's share of paid employment, etc. by 2015	Off track
16. Energy (Rio+20 Outcome Document)	Global Tracking Framework Report; IIASA Global Energy Assessment; International Energy Agency (IEA) World Energy Outlooks; IPCC WG III Reports	Make sustainable energy for all a reality	Ongoing	Off track
17. Sustainable cities, transport (MDGs, etc.)	UN-Habitat: Global Reports on Human Settlement; IEA: World Energy Outlook	Improve the lives of slum dwellers	Achieve, by 2020 , a significant improvement in the lives of at least 100 million slum dwellers	Off track
18. Climate Change and Disaster Risk Reduction (Copenhagen Accord)	IPCC Assessment Reports; UNFCCC Independent Reports; UNEP: Emission Gap Reports; World Bank: Turn Down the Heat Reports; United Nations International Strategy for Disaster Reduction (UNISDR) Global Assessment Report	Hold global mean temperature increase below 2 °C	By 2050 or longer term based on scientific evidence	Off track
19. Conflict prevention, post-conflict peace-building	Human Security Report	Maintain international peace and security - United Nations Charter	Time-bound goals are not stated	Different views on how much progress has been made

Source: Authors' elaboration.

- The nature and content of strategies that the international community and national Governments select for going forward
- The details of the blueprints (e.g. *Agenda 21*) upon which action is based
- Progress and shortcomings in the implementation of specific actions and plans.

This can result, at best, in an unproductive exchange of arguments, and at worst in incomprehension and mistrust. This report argues that in order to start a constructive conversation on sustainable development, views at these different levels have to be made explicit as far as is possible. The range of perspectives on specific sectors and issues are described in the United Nations SD21 study.¹⁵⁹