# The Sustainable Development Goals

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## A Plan for the Future

The Sustainable Development Goals (SDGs) were approved by all 193 countries participating at the 70th General Assembly of the United Nations, held in New York on 25th September 2015. The goals are the "2030 Agenda for Sustainable Development". They define a universal, holistic set of objectives to help countries move towards the three dimensions of sustainable development—economic development, social inclusion and environmental sustainability—in a climate of peace, justice, and international collaboration. After more than a year of deliberations, the Open Working Group proposed a set of 17 SDGs and 169 accompanying targets that form a basis for the post-2015 intergovernmental process (UN-SG, 2014).

The previous Millennium Development Goals (2000–15) were eight purely social goals aimed at developing countries. During the 15 years of their application, great improvements were made in national data gathering, however annual statistical information was slow in becoming available—often three or more years after the reference year—and the databases were sometimes incomplete or noncomparable across countries, making the indicators useless for decision-making (UN, 2015). There was also insufficient investment to strengthen statistical capacity and ensure real-time monitoring of those goals. To achieve the Sustainable Development Goals, more investment in independent, impartial national statistical capacity is required. Annual reporting must offer high-quality data from all countries, disaggregated and comparable across countries and time (IEAG, 2014). This should ensure a constant flow of information, useful for implementing policies in line with reality and the new goals.

## The 17 Sustainable Development Goals

The 17 SDGs address the three pillars of sustainability: economic development, social inclusion, and environmental sustainability. The targets for each goal articulate the aims and link the goals where possible (UN, 2014) (**Fig. 1**).

### SDG1: End Poverty in All Its Forms Everywhere

Since 1990, extreme poverty has halved from 1.9 billion people below the poverty line of $2 a day to nearly 800 million people in 2015, against a corresponding rise in the global population (especially in countries with high rates of extreme poverty) from 5.2 to 7 billion. Despite this remarkable result, one in five people still live in absolute poverty and many others risk slipping back into it.

### SDG2: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture

Last century, intensive agriculture caused food insecurity and loss of soil fertility. The world wastes 1.3 billion tons of food every year, while 1 billion people are hungry and another billion are undernourished. At the same time, almost 2 billion people are overweight or obese.

A profound change in agriculture is needed to end malnutrition, account for an additional 2 billion people by 2050, and to meet the rising per capita demand for meat and other high-protein diets that require plant feed.

Climate change is raising average temperatures, changing precipitation patterns, and increasing the likelihood and severity of extreme weather events. On current trends climate change will therefore have a major adverse impact on agricultural productivity in most regions. It will also likely increase mass migration.

### SDG3: Ensure Healthy Lives and Promote Well-Being for All at All Ages

Between 2000 and 2015, maternal and infant/under-five mortality rates fell by 37% and 44%, respectively. Significant progress was made against severe infectious diseases such as tuberculosis, malaria and polio and against the spread of HIV. However, much effort is still needed to eradicate these diseases. Research and investment are needed to address the possibility of new pandemics caused by high population density, climate change and antibiotic resistance.

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**Fig. 1** The framework of the 17 SDGs. *Source*: http://www.un.org/sustainabledevelopment/sustainable-development-goals/.

### SDG4: Ensure Inclusive Quality Education for All and Promote Lifelong Learning

In 2015, enrolment in primary education in developing countries reached 91%, but there are still 57 million children left out of school. Quality education is fundamental for many of the SDGs. Education gives people tools to rise out of poverty and helps reduce inequalities and achieve gender equality. Greater efforts are required to achieve the goal of global literacy with gender equality not only in primary education but at all levels.

### SDG5: Achieve Gender Equality and Empower All Women and Girls

Significant progress has been made towards gender equality and the emancipation of women in recent decades, however in the period 2005–16, 19% of women aged 15 to 49 years in 87 countries reported suffering physical or sexual violence from a partner in the last 12 months.

Even today many women receive lower salaries than their male counterparts, even in developed countries. In many countries, although women represent more than 30% of the political electorate, female managerial representation remains low in the private sector. Strengthening female empowerment will fuel more equitable and sustainable economies and societies.

### SDG6: Ensure Access to Water and Sanitation for All

Between 1990 and 2015, the percentage of the global population with access to safe drinking water increased from 76% to 91%, corresponding to 2.6 billion people, but almost 700 million people are still without access to improved water sources. Water scarcity affects more than 40% of the global population and is rising rapidly. Water availability is fundamental for a healthy life, but each day nearly 1000 children die from preventable water sanitation-related gastrointestinal diseases.

Finally, 70% of all freshwater withdrawals are used for irrigation. Hydropower is the major renewable source of energy, representing 16% of total electricity production worldwide in 2011. Floods and drought are two opposite problems related to the availability of water that will increase in many parts of the world due to climate change.

### SDG7: Ensure Access to Affordable, Reliable, Sustainable, Modern Energy for All

Modern societies need energy for every aspect of work: production of food, goods, services, transport, trade, recreation, and fun. A radical transition from the use of fossil fuels to renewable sources such as solar, wind, hydroelectric, biomass, geothermal, and wave energy is needed as soon as possible, also to mitigate the effects of climate change.

In addition to the change in production upstream of the energy process, it is also necessary to spread awareness about energy saving and the negative effects of wasting energy. It is often not necessary to produce more energy if what is already produced is used more efficiently.

### SDG8: Promote Inclusive and Sustainable Economic Growth, Employment and Decent Work for All

Duly paid work is the only universal tool that can allow people to rise above absolute poverty and therefore escape hunger, enjoy good physical and mental health, and contribute to the economic development of their country.

The opportunity for decent work would strengthen the basic social contract, the democratic foundations of which are threatened. Providing quality work for everyone will remain a major challenge for all nations, since every year 30 million new people are looking for jobs.

### SDG9: Build Resilient Infrastructure, Promote Sustainable Industrialization and Foster Innovation

Industrial development that is socially inclusive and attentive to environmental protection will be the main source of income for millions of people in developed and developing countries. Energy efficiency and substantial reductions in resource use can be achieved through technological innovation.

Infrastructure is necessary to transport sustainable energy and to exploit technological progress in many other sectors, such as agricultural production, education, transport, and information.

### SDG10: Reduce Inequality Within and Between Countries

In the period 2008–14, 40% of the world's poor saw an increase in their income or consumer opportunities. Although the international community has achieved significant results in the reduction in income disparities between nations, inequality within countries has increased. Less than one hundred people hold the same amount of wealth as is the bottom 50% of the world population. It is now widely believed that economic growth is only possible when the three dimensions of sustainability (economic, social, and environmental) are considered.

### SDG11: Make Cities Inclusive, Safe, Resilient, and Sustainable

Cities have been the engines of civilizations and cultures since historic times. Businesses, centers of learning, social development, ideas, and innovations thrive in cities. However, the population explosion over the last 200 years has led to rapid urbanization, and many cities have been unable to build adequate infrastructure and provide social service to support their growing populations.

The lack of adequate housing and infrastructure has led to the spread of slums and road congestion. In 2015, 54% of the world's population (4 billion people) lived in cities and it is expected that by 2030 there will be a total of 5 billion people living in urban areas. The challenges that cities have to face in order to restore social prosperity include reduction of poverty and pollution, construction of infrastructure and implementation of services required by today's and tomorrow's citizens.

### SDG12: Ensure Sustainable Consumption and Production Patterns

Globally, the Material Footprint, which indicates the flows of mineral and organic resources withdrawn from the environment to produce assets, increased from 48.5 billion tons in 2000 to 69.3 billion tons in 2010. If the global population reaches 9.6 billion by 2050, the equivalent of three planets will be needed to support current lifestyles unless technologies change profoundly to dematerialize consumption and production patterns.

Sustainable production and consumption require the promotion of energy efficiency and the reduction of waste. Their implementation would create jobs, reduce negative environmental, social and economic impacts, and improve the competitiveness of nations. The circular economy aims to “do more and better by consuming less” but requires a considerable effort and a systemic approach involving all actors in production chains, as well as much commitment and awareness on the part of consumers, who are empowered to make informed purchases through information labels.

### SDG13: Take Urgent Action to Combat Climate Change and Its Impacts

Climate change has now begun to show its first effects in every country in the world. If we do not take measures to curtail emissions of greenhouse gases, global average temperatures could exceed 3–4°C this century. In some parts of the world the increase may be significantly greater. Climate migrants could number 1 billion.

Climate change is a global challenge that goes beyond national borders and must therefore be tackled by international concerted action. Countries adopted the Paris Agreement at COP21 and pledged to work together to maintain the increase in global average temperature below 2°C and possibly below 1.5°C.

### SDG14: Conserve and Sustainably Use the Oceans, Seas, and Marine Resources

Through phytoplankton, the oceans are the lungs of planet Earth. They also sequester carbon, but this acidifies seawater and endangers coral reefs, hot-spots of biodiversity. Sixteen percent of marine ecosystems are at risk or seriously at risk of coastal eutrophication, while overfishing has reduced food production, damaged ecosystems, and decreased biodiversity.

Seas and oceans are heavily polluted by chemicals, excess organic matter and urban waste such as plastics. The latter form huge plastic islands trapped in the ocean gyres. Protecting marine resources means supporting island populations, biodiversity and the health of the planet.

### SDG15: Sustainably Manage Forests, Combat Desertification, Halt and Reverse Land Degradation, Halt Biodiversity Loss

Terrestrial ecosystems support most of our development, from raw materials to food production. Forests make up 30% of the Earth's surface, provide oxygen and shelter for many land species, and constitute and important stock of carbon. In the period 2010–15, the annual loss of forested land was less than half that in 1990 but 12 million hectares of forest per year are lost and biodiversity continues to decline at alarming rates. At today's technologies, a growing human population will require more cultivated fields but this cannot be allowed at the expense of forested land, also considering advancing desertification due to climate change. Water resources and many new drugs and unknown active ingredients depend on the conservation of forest ecosystems.

### SDG16: Promote Just, Peaceful and Inclusive Societies

Wars and conflicts breed inequality and poverty. Effective institutions and access to justice for all are the best way to prevent future conflicts. On a global level, the number of victims of voluntary homicide in 2015 stood between 4.6 and 6.8 per 100,000 people, and many forms of violence against children persist. Racial, religious and sexual intolerance continue to be a problem. Corruption, theft and tax evasion cost the world community $1.25 billion per year that could be used to raise people out of absolute poverty.

### SDG17: Revitalize the Global Partnership for Sustainable Development

Some sustainable development challenges can be addressed thorough efforts of individual nations. Others will require concerted international action. Some solutions start bottom-up, from individual behavior, while others must be managed by policy makers at various levels (from local to international). To achieve sustainable development, every part of society must be involved: governments, the private sector, and civil society. International mobilization is necessary if industrialized countries are to help poorer nations fight extreme poverty and prevent them from repeating today's models of resource depletion. Long-term investments are needed in the fields of sustainable energy, infrastructure, transport and ICT. In 2014, official development aid reached 135 billion dollars, the highest ever recorded. Together it is possible to achieve the Sustainable Development Goals through greater investments and policy coordination centered on the 2030 Agenda.

## Monitoring Systems at Different Spatial Scales

The goals and targets form a common context for all institutions, public or private, that choose to implement the SDGs as strategic objectives. They are available on the United Nations website: https://sustainabledevelopment.un.org/?menu=1300. The United Nations proposes a set of 232 SDG indicators (A/RES/71/313), but institutions can choose the ones they judge most appropriate (on the basis of the targets) for tracking their progress towards sustainable development (SDSN, 2015).

However, the goals also describe a global agenda which includes cross-border issues that can only be successfully addressed through close international cooperation, which in turn requires national responsibility and monitoring. The SDGs cannot be approached unless national efforts are complemented by an effective global monitoring framework.

These four levels of monitoring—national, regional, global, and thematic (UN-SG, 2014)—are illustrated in **Fig. 2** (SDSN, 2015).

### National Monitoring

The most important level of monitoring is the national one. Nations should implement the SDG monitoring framework in their government agendas, selecting indicators to suit their national needs and priorities. Indicators must be specific, measurable over time, disaggregated and processed by official National Statistics Offices. Nonofficial indicators can be elements of further interest to add richness to national monitoring.

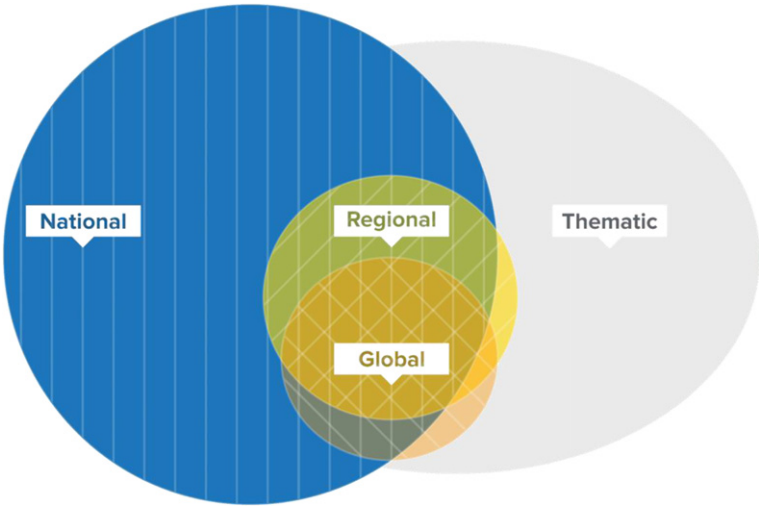


**Fig. 2** Schematic illustration of indicators for national, regional, global and thematic monitoring. Source: Sustainable Development Solution Network (2015). Indicators and monitoring framework for the Sustainable Development Goals. Launching a data revolution.

### Global Monitoring

Global monitoring is necessary to ensure global coordination and to achieve cross-border goals in thematic areas of supranational interest (e.g., climate change, poverty, inequalities). A dialogue between states is necessary to determine which areas will need more assistance and international aid.

Series of common indicators are chosen by international organizations, ranging from the United Nations to other institutions working in thematic spheres, for example the Food and Agriculture Organization (FAO) and the World Health Organization (WHO).

### Regional Monitoring

Regional monitoring can be seen as a subset of the national and global levels (Fig. 2). It may affect political or geographical regions such as the European Union, OECD countries, Southeast Asia and the Pacific and Caribbean islands. It can offer an opportunity for countries linked by common issues to share knowledge and to collaborate in the implementation of joint projects for regional priorities such as shared watersheds, regional conflicts and regional infrastructure. Thus, indicators for regional monitoring may extend beyond the scope of the Global Monitoring Indicators and may include some metrics not considered under Complementary National Indicators.

### Thematic Monitoring

Many challenges for mankind concern thematic areas like health, agriculture, education, nutrition, the water-energy-food nexus, consumption, and production. Partnerships between countries are the key to shared solutions to a given issue through common knowledge. Specific monitoring indicators should be developed by specialized international organizations for each issue and accountable thematic communities built to track countries across the globe. These indicators are often complementary to official national indicators, and tend to focus better on the issues.

## International Institutions

The UN Secretary-General launched the Sustainable Development Solution Network (SDSN) in 2012. Its task is to mobilize global scientific and technological expertise to promote practical solutions towards sustainable development, including implementation of SDGs, involving policy-makers, the private sector and all citizens.

The SDSN is involved in implementation of the SDG framework and publishes an annual report on the progress towards achieving the goals. This report draws on official UN indicators for the SDGs and fills data gaps using other official or unofficial metrics.

The 2017 SDG Index and Dashboards Report published in collaboration with the Bertelsmann Stiftung presents data for 157 countries using some 89 indicators across the 17 SDGs. Countries' distance from the targets is calculated for each indicator, SDG, and the sum of all 17 goals. The using average performance across the 17 goals, the report presents a ranking of all countries.

The report contains an analysis of the international "spillovers" in achieving the SDGs. Major cases of SDG-related spillovers and misuse of the global commons are identified and measured (Bertelsmann Stiftung & SDSN, 2017).

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## Further Reading

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