Lecture 2
Sustainable Development (II): Measuring Progress

KEY QUESTION:
How do we know that there is progress towards sustainable development?

With the completion of this lecture, attached readings and tutorial, you should be able to understand:
- ways to progress towards sustainable development as defined by the SDGs
- use of quantitative targets and indicators in the SDGs to measure progress
- the difficulty of measuring progress towards sustainable development using quantitative indicators in the SDGs due to the lack of capacity of some countries to collect data

Lecture Outline

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Readings:

(1) Sustainable Development Goals: Selected targets and indicators
(2) The challenges of measuring progress on SDG 11
(3) Cartoon series on the SDGs (please obtain from shared folder)

In September 2015, the United Nations formally put forward a set of 17 goals (comprising 169 targets and 231 indicators) to help stimulate global action to move the world towards sustainable development for the period 2016-2030. These SDGs share the overarching purpose to end extreme poverty in all its forms in the context of sustainable development and to have in place building blocks of sustained prosperity for all.

2.1 Monitoring Development using the Sustainable Development Goals (SDGs)

- With increasing research that is going into *sustainable development*, this spurred the global sustainable development agenda, resulting in the **United Nations** to develop and launch the **Sustainable Development Goals** (SDGs) in 2015. The goals aim to **end poverty**, **reduce inequality** and build **more peaceful and prosperous societies** by 2030, so as to create a world where no one is left behind.
- The SDGs are a series of **17 Sustainable Development Goals** (see **Box 1**), each one including several targets and indicators. In total, there are **169 targets** and **231 indicators**. Targets specify the goals, and indicators represent the metrics by which to track whether targets are achieved.
- The SDGs address poverty in **all nations** (developed and developing). Since eradicating poverty is at the heart of the goals, there must be a universal and comprehensive push to find an agenda that speaks to all countries and all levels of economic development, to ensure that no one is left behind.
- Eradicating extreme poverty lies at the heart of the SDGs. While each of the 17 proposed goals has its own agenda, they collectively address the many facets that complicated global poverty as political and environmental landscapes continue to change.
- SDGs are integrated and indivisible and balance the three dimensions of sustainable development: the **economic**, **social** and **environmental**.
- While ambitious, well-intended and in fact necessary for some, the SDGs have their share of criticisms. We cover some of these concerns in **Section 2.5**.
- The large number of indicators is considered necessary to fulfill the criteria of being useful in a management context and for the purpose of evaluating the overall success in achieving sustainable development. In this section, we select only 6 indicators (out of 231).
- See the relationship between its goals, examples of targets and indicators in **Reading 1**, classified by the broad dimensions of economy, society and environment.

Box 1: The Sustainable Development Goals (SDGs)

The SDGs were formally adopted at the General Assembly of the United Nations held in New York on 25-27 September 2015. The SDGs consist of 17 overarching goals, each to be achieved by 2030.

Cont'd from Pg 2

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

You are <u>not</u> required to commit to memory all of the above. More important to do is to gain an overall awareness of the scope of these SDGs. There are some selected SDGs of stronger relevance to the syllabus however, and we cover these in subsequent sections of this lecture as well as other lectures.

2.2 Economic Growth

- Various goals and indicators focus on the need for sustainable economic growth, consumption and production, and the need to decouple these activities from natural resource use and environmental degradation.

2.2.1 Examples of Indicators

(a) *Economic growth*: Gross Domestic Product [Used in SDG 8]

- The traditional indicator of a country's wealth has been the **Gross Domestic Product (GDP)**. The GDP is the **total value of final goods and services produced in a particular economy in a year**.
- GDP is a convenient and standardised metric that served an important role in evaluating economic growth and a country's production capacity. Therefore, GDP is similarly used as a proxy for average standard of living for **Goal 8 of the SDG** (refer to **Reading 1** Target 8.1; in the least developed countries, the SDG target aims for at least 7% real GDP growth per year).

- There are several ways of calculating GDP. The most straightforward is to **add together all recorded final expenditures on goods and services** in a particular country. This expenditure would include the ***private consumption of individuals*** (all the goods and services bought on a daily basis), the ***consumption expenditure of governments*** (supplying hospitals, schools, armed forces, etc.), and *the* ***expenditure directed toward investment***. In addition, the calculation would also include ***money entering the economy from abroad***. This can be done by taking the value of output that is exported, minus the value of imports. **Fig. 1** summarises the components of GDP.

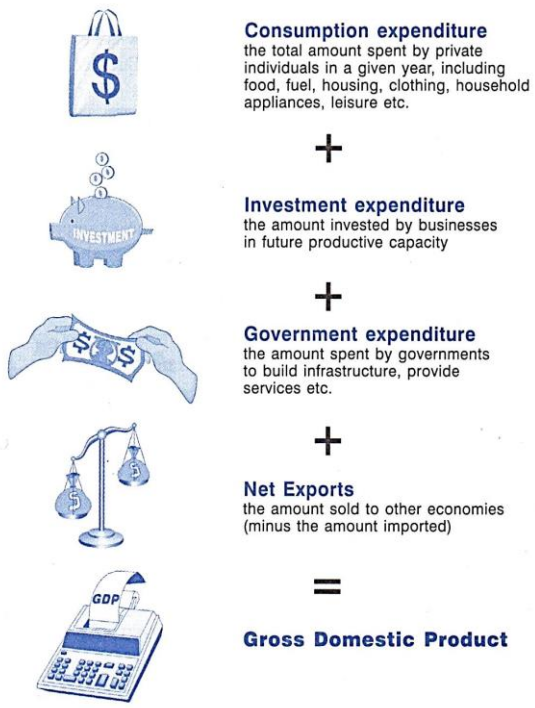
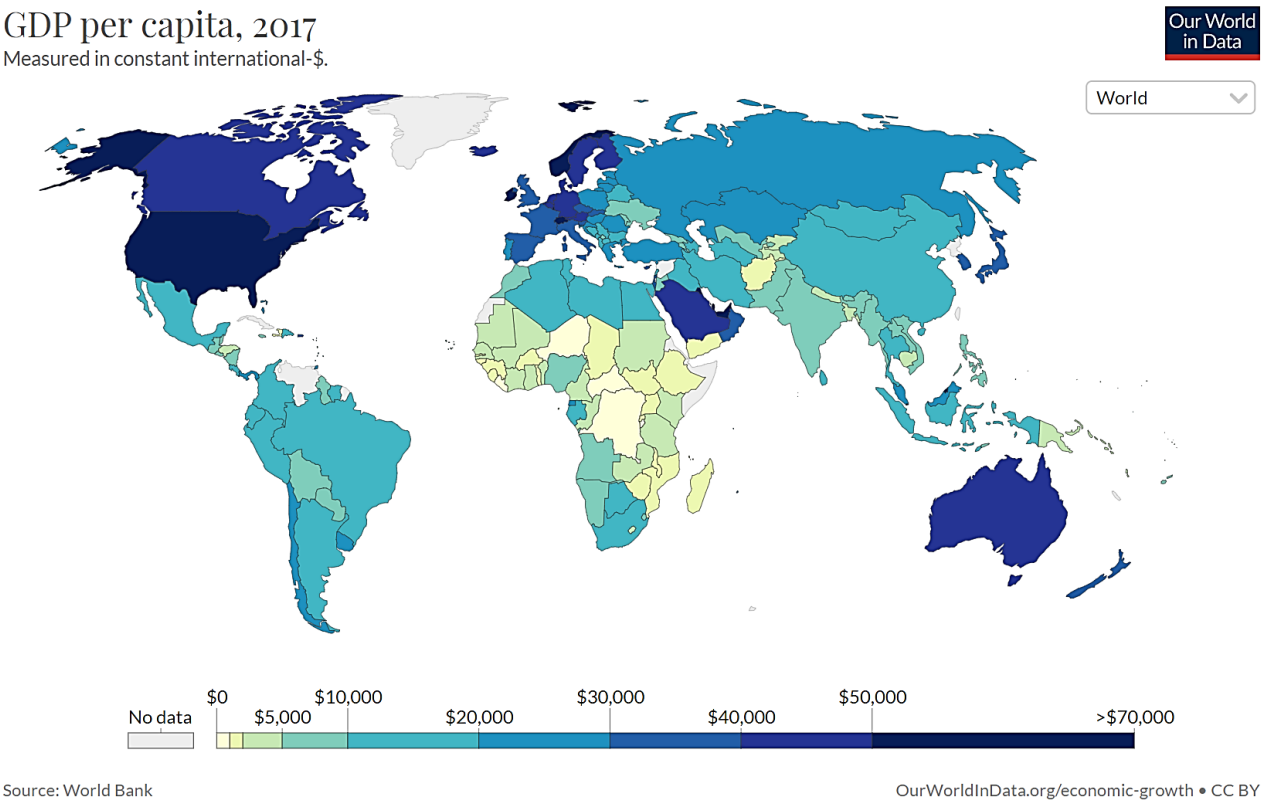


Fig. 1 The components of Gross Domestic Product

Fig. 2



(b) *Poverty*: International Poverty Line [Used in SDG 1]

- Ending extreme poverty and achieving sustainable development by 2030 is the summary of the SDGs, reflecting the significance of poverty reduction in the issue of development.
- The **international poverty line** is ***the threshold below which determines whether someone is living in extreme poverty***, currently defined at **US$1.90 per day**. This global poverty measurement aims to compare the standards of living of widely different peoples, consuming vastly different goods and services, all priced in different currencies. See **Fig. 3** for the spatial distribution of people living **under the international poverty line**.
- As of 2015, about 736 million people still lived on less than US$1.90 a day; many lack food, clean drinking water and sanitation. Rapid growth in countries such as China and India has lifted millions out of poverty, but progress has been uneven. Women are more likely to be poor than men because they have less paid work, education and own less property.
- Progress has also been limited in other regions, such as South Asia and sub-Saharan Africa, which accounts for 80% of those living in extreme poverty. New threats brought on by climate change, conflict and food insecurity, mean even more work is needed to bring people out of poverty.

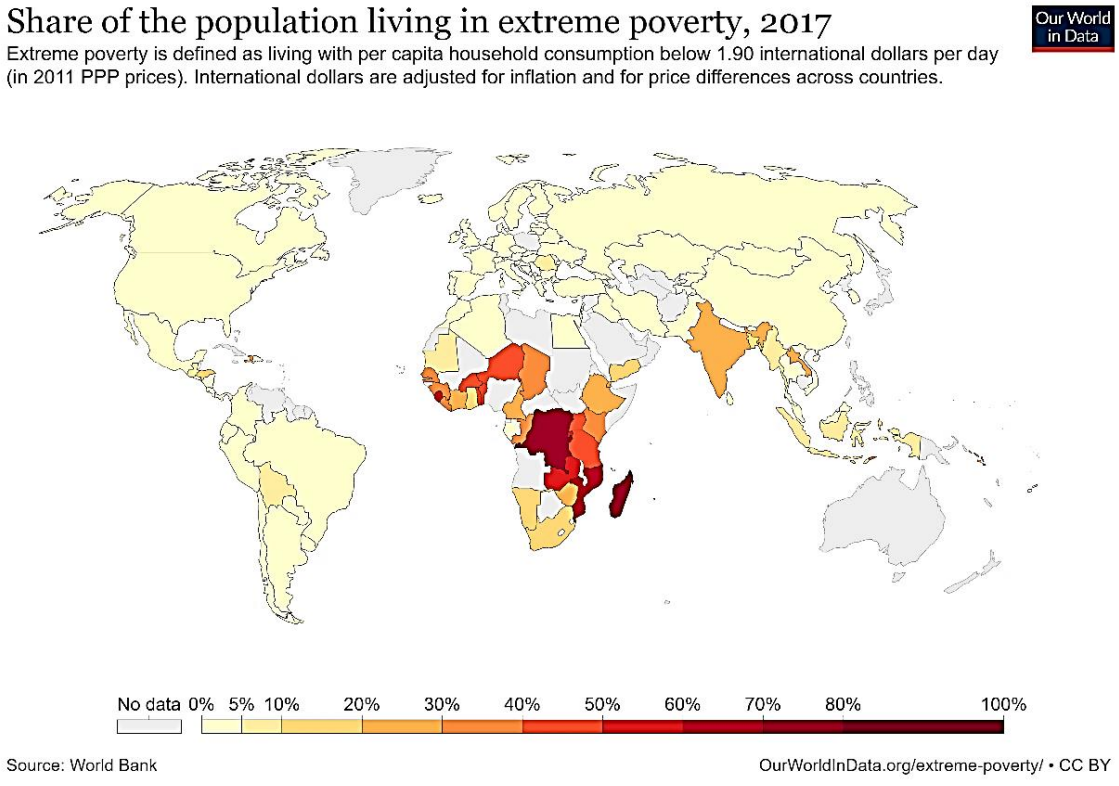


Fig. 3

2.2.2 Ways to Progress towards Economic Growth

To attain growth in GDP figures, as well as lift more people above the poverty line, most work would have to be done by the state. Other actors may be involved too, such as TNCs and the World Bank. Both the state and these other actors will be examined at a greater detail in subsequent lectures, but for now, the following actions by the state would suffice.

(a) Macroeconomic policies

- States may raise or lower **taxes** on companies and/or individual citizens, and determine appropriate levels and recipients of government **expenditure** (see **Section 2.2.1a**).
  - Raising taxes on companies may generate more revenue while lowering taxes for individuals stimulates demand.
  - Similarly, raising public expenditure such as on public services including transport and housing can influence the level of economic activity in the economy.
- States may **manipulate the interest rate** on borrowing. Lowering interest rates should stimulate economic activity through increased investment or private **expenditure**. (Note however that interest rates cannot be lowered by too much as this may lead to other economic problems.)
- Another mechanism is through the adjustment of a country's international **currency exchange rate**, whose level and volatility affect the costs of exports and imports. For instance, the low exchange rate of the Chinese renmimbi, particularly with the U.S. dollar, is a huge ongoing geopolitical issue given its effect on the relative cost of Chinese manufacturing exports.

(b) Foreign direct investment (FDI) strategies

- Foreign direct investment (FDI) is a form of investment in which a company or an individual in one economy establishes a lasting interest in and a significant degree of influence in another economy.
- FDI is an important channel for the transfer of technology between countries, promotes international trade through access to foreign markets, and can be an important vehicle for economic development.
- In many cases, states combine tax incentives, the availability of prime land, and supporting industries and workforce characteristics *to form an attractive package* for foreign investors. States may also, however, seek to capture the gains from inward investment by insisting on certain levels of local purchasing and technology transfers, and/or by trying to limit the repatriation of profits

2.3 Social Inclusion

- According to the UN, social inclusion is **the process by which efforts are made to ensure equal opportunities – that everyone, regardless of their background, can achieve their full potential in life.** Such efforts include policies and actions that promote equal access to (public) services as well as enable citizen's participation in the decision-making processes that affect their lives.

- A focus on social inclusion – which highlights key issues such as poverty, unemployment, various forms of inequality, political participation and social cohesion – is therefore, of direct relevance to the SDG. 'Leaving no one behind' is hence, a central theme of the entire agenda.

2.3.1 Examples of Indicators

(a) *Health*: Child Mortality Rate **[Used in SDG 3]**

- The ***child mortality rate (CMR)*** refers to **number of deaths of children under the age of five in a given year per 1,000 live births in the same year.** (See **Fig. 4**)(Or more simply, ***the share of newborns who die before turning the age of five***, if expressed as a percentage)
- In very developed countries, such as Japan and Sweden, CMR would be very low, in the range of 2-5, compared to least developed countries such as Nigeria and Somalia, with CMR registering above 100. **SDG Target 3.2 aims to reduce CMR to at least as low as 25**.
- Children, and especially infants, are the most vulnerable age group of a population. If a country is able to look after this segment of the population well, this necessarily implies that the country is very likely to be able to look after the rest of the population well too. The health of babies and children typically also improve earlier and faster than of people at other ages when the general standard of living of a country is raised.

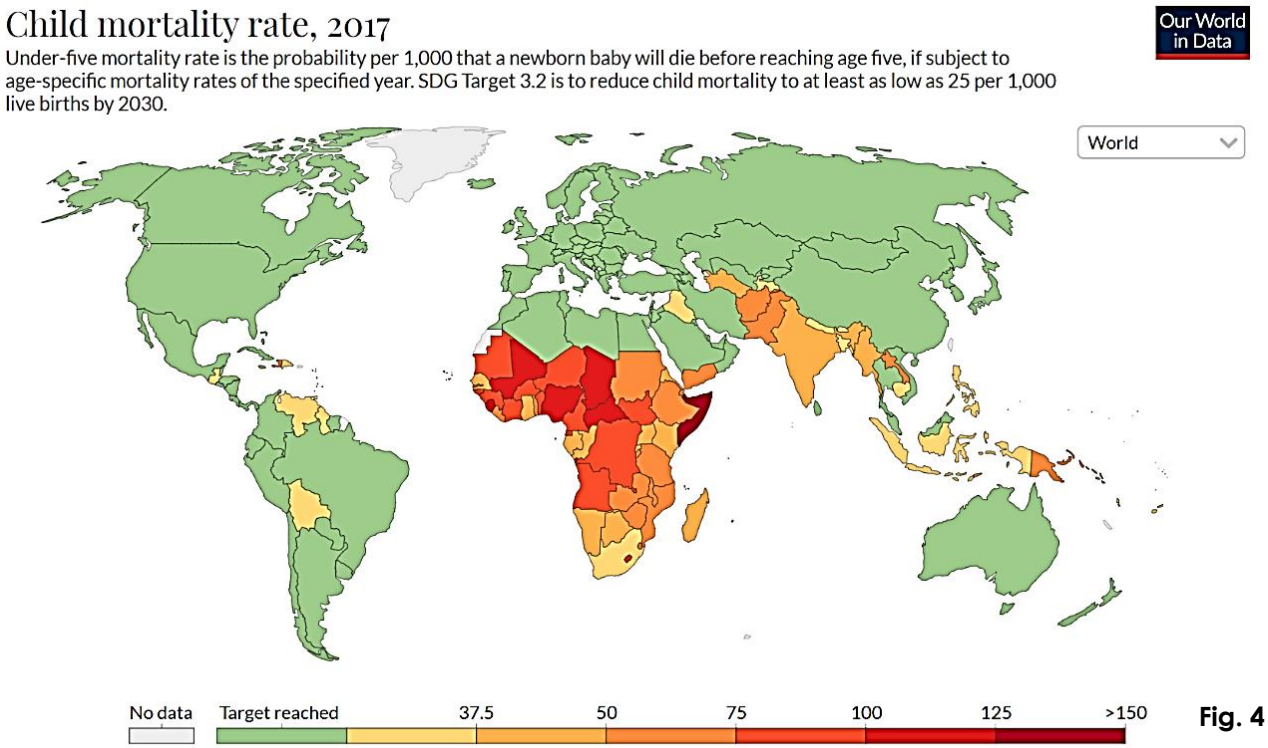


Fig. 4

(b) *Education*: Completion rate (pre-primary, primary and secondary) [Used in SDG 4]

- Education is undoubtedly the key to social development. It can be defined as *the process of acquiring knowledge, understanding and skills.*
- The ***completion rate*** refers to ***the percentage of children or cohort of young people in a given age group who have completed the relevant level of education.*** **Fig. 5** shows the completion rates for primary school education in 2015.
  - Its calculation is based on cohorts aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade. By choosing an age-group which is slightly older than the theoretical age-group for completing each level of education, the indicator measures how many children and adolescents enter school more or less on time and progress through the education system without excessive delays.
  - For example, the completion rate at or near 100% indicates that most or all children and adolescents have completed a level of education by the time they are 3 to 5 years older than the official age of entry into the last grade of the given level of education.

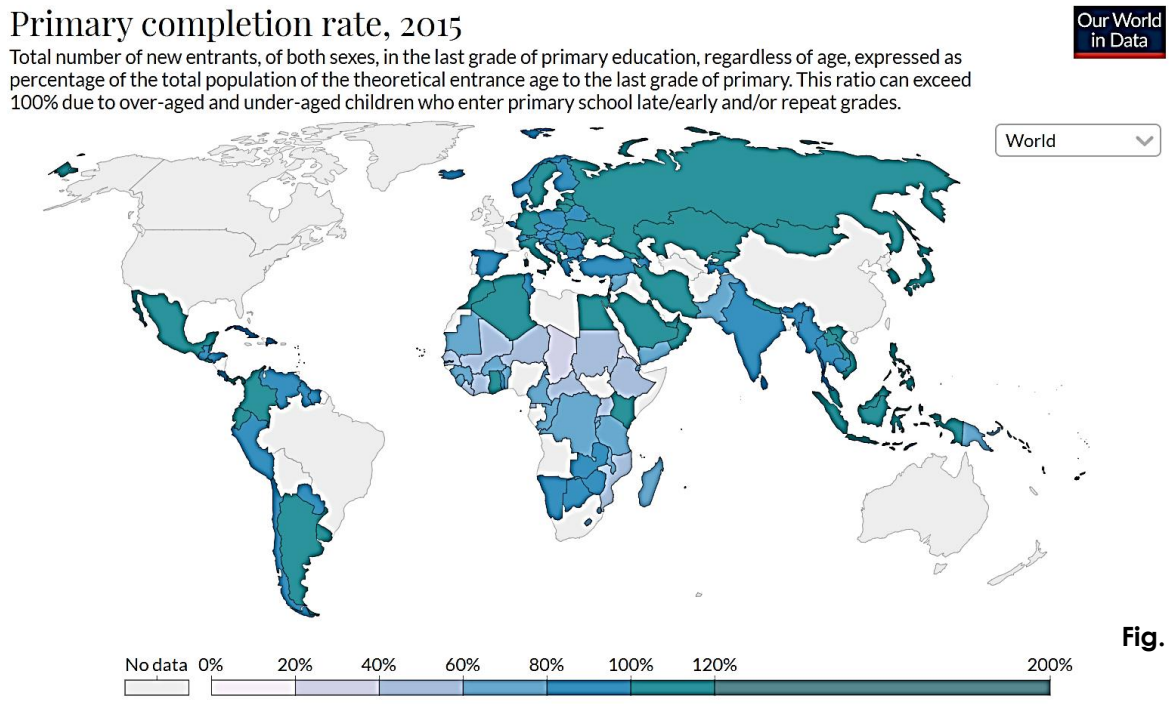


Fig. 5

2.3.2 Ways to Progress towards Social Inclusion

- **Universal health coverage** should be provided so that all children are able to access essential health services. Primarily, **low CMR** are observed in countries with **high levels of education and income**, as well as **political stability**.
  - At the general level, countries with the highest levels of income and education are those with enough money to provide the population with clean water, adequate sanitation, food and shelter, and very importantly, access to health care services.

- At the individual level, education here can refer simply to knowledge of a few basic rules, such as about hygiene that would avoid unnecessary infant and child death.
- CMR could also reflect maternal health and women's empowerment, etc. as often it is the mothers that take on most of the burden of looking after children. It is important that mothers can look after themselves and survive well in order to ensure survival of their children.
- CMR may be raised due to political factors. Wars and civil unrest in a country would also make it difficult for a child to survive, raising CMR.

- To **raise education outcomes**:
  - Build school facilities to be conveniently accessed by children would help to encourage more consistent lesson attendance. In some rural parts of the world, long walks that may take up to 2-3 hours is not unheard of.
  - Upgrade school facilities to enable a conducive learning environment so that students learn better and therefore more likely to complete their education. These could be as basic as providing the necessary stationery such as pencils and notebooks.
  - While states may step in to enact laws or schemes to guarantee free and/or compulsory education in the formative years, parents must also be willing to prioritise their children's education. Often, children, especially the older ones, are needed to stay home to assist with agriculture work, looking after younger siblings, running household errands such as fetching water and firewood.
  - Attract, retain and enhance the capacity of teachers and education leaders is another key step. The teaching profession in countries such as those in North Africa tends to be associated with a low social and economic status. The notion is reinforced by the meagre salaries – rarely amounting to about US$281 a month – and the poor quality of training.

- Often, states may lack the resources to enact changes such as those described above. This is especially so in African countries such as Kenya. They therefore depend on other sources of help. We refer to this as **aid**, which is **assistance given from one country to another**. It includes money, equipment, training and loans.
  - Aid can take on different forms. It can be **foreign** aid from the government of one country to another, from **multilateral institutions** such as the World Bank (comprising many countries; see a subsequent lecture), or from **non-governmental organisations** (NGOs) to a country or region. The aid may be specific to one project, or can be over a long term.

2.4 Environmental Protection

- In principle, the environment appears to be an essential pillar to development. However, in practice, many governments have often prioritised economic and social concerns, believing in the 'trade-off' between the environment and the economy. The common strategy was to 'grow first and clean up later'.
- However, with the increased attention placed on sustainable development (refer to **Lect 1**), there was a recognition to raise the level of commitment to address and accelerate progress in environmental protection.

2.4.1 Examples of Indicators

(a) *Combating climate change*: Greenhouse gas emissions [Used in SDG 13]

- Climate change is already having a profound and alarming impact worldwide. Warming temperatures and more extreme weather events such as storms and droughts, coupled with rising sea levels and habitat destruction are well-known impacts (more on these in **Cluster 3**). These changes affect people everywhere, but disproportionately harm the poorest and the most vulnerable.
- From a scientific point of view, contemporary climate change is connected with the increased concentrations of greenhouse gases (GHGs) in the atmosphere. While carbon dioxide takes up the majority of these, other GHGs of concern include methane and nitrous oxide. **A reduction in the emissions of these GHGs** would help a long way in our global efforts to contain the impacts of climate change, helping the most vulnerable countries cope much better and attain development that is more sustainable.
- Rising CO_2 emissions have clear negative environmental consequences, so reducing CO_2 emissions is important to protect the living conditions of future generations. This perspective – that we must consider both the environmental and human welfare implications of emissions – is important if we are to build a future that is both sustainable and provides high standards of living for everyone.
- **Fig. 6** shows the very large inequalities in CO_2 emissions across the world, for example, North America and Europe versus Africa. Whilst all countries must work collectively, action from the very top emitters will be essential. China, the USA and the 28 countries of the EU account for more than half of global emissions. Without commitment from these largest emitters, the world will not come close to meeting its global targets.

(b) Forest conservation: *Forested Area as a Proportion of Total Land Area* [Used in SDG 15]

- Deforestation refers to the total clearance of forest cover by cutting and/or burning. Often, this is deliberately done so as to allow a change in landuse, such as for agriculture, or to use the logs for timber and fuel.

- But forests fulfill a number of functions that are vital for humanity, including the provision of goods (wood and non-wood forest products) and services such as habitat for biodiversity, carbon sequestration (i.e. absorption) to help mitigate climate change (see **Section 2.41a**), coastal protection and soil and water conservation.
- The indicator provides a measure of the relative extent of forest in a country and is used as a rough proxy for the extent to which the forests in a country are being conserved or restored (see **Fig. 7**).
- Changes in forest area reflect the demand for land for other uses and may help identify unsustainable practices in the forestry and agricultural sector.

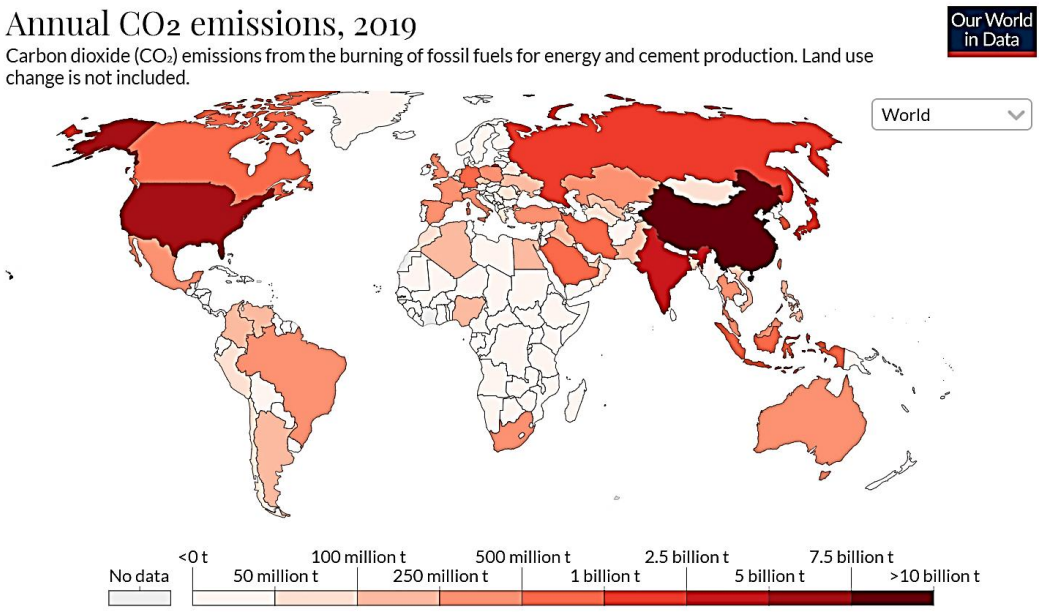


Fig. 6

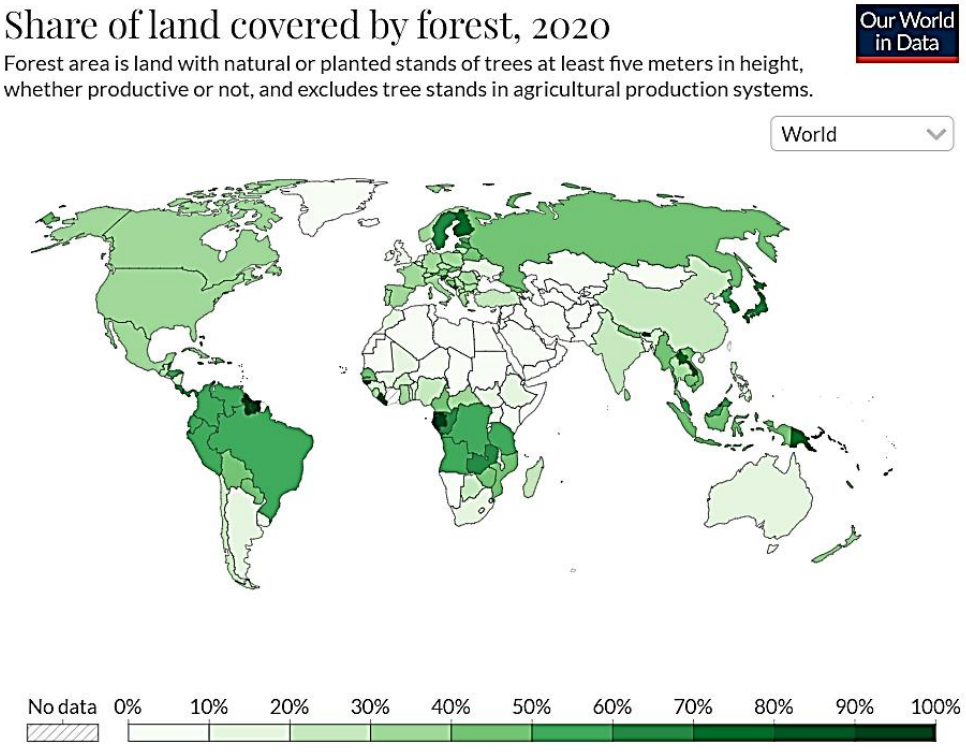


Fig. 7

2.4.2 Ways to Progress towards Environmental Protection

- **Convert to carbon-free and renewable energy alternatives.** It has been estimated that electricity generation produces 40% of the global greenhouse gas emissions. Our heavy reliance on burning fossil fuels such as coal and oil for electricity generation has encouraged the release of carbon dioxide into the atmosphere much faster than the Earth can reabsorb them into carbon sinks. Renewable non-fossil fuel such as solar power and hydropower could significantly reduce greenhouse gas emissions.
- **Encourage forest growth and conservation. Reforestation** refers to *restoring forest cover by either tree planting or encouraging native forest ecosystems to expand into previously forested areas*. Through photosynthesis, trees remove CO_2 from the atmosphere and store it as organic carbon until the tree dies and decays, or are burned.
    - For example, between 2005 and 2010, India added 145,000 hectare of forest area per year. As a result of India's successful reforestation projects, its forestry sector is a net carbon sink, capturing and storing 177 million tonnes of CO_2 as of 2007.
- **Discourage deforestation through the establishment of Protected Areas.** A **protected area** is *a clearly defined geographical space* that is strictly protected for its biological reserves, and may only allow for controlled removal of trees and other natural resources. Another objective of such areas is to safeguard the rights and livelihoods of indigenous people.

2.5 The difficulty of measuring the progress towards sustainable development

- The 17 SDGs lay out a uniquely ambitious and comprehensive agenda for global development until 2030. However, achieving these goals is not the only challenge. Monitoring progress towards these goals represents an enormous task for countries' statistical systems.

Complex Indicators

- The SDG indicators are not only numerous (231 of them), they are also complex.
    - Indeed, when the SDGs was adopted in 2017, 84 (36%) out of the 231 indicators did not have any internationally established methodology or standards. The situation has improved since then, but most countries' statistical systems remain unable to fully keep up in providing reliable data on SDG indicators.
    - This is a serious issue as it makes it harder to track any progress or setbacks, to compare the performance of countries and regions with each other, or to provide transparent and accurate information to investors.

Data Gaps

- A World Bank study published in 2020 found that there are serious data gaps in assessing country-level progress towards SDGs.
    - On average, countries had reported one or more data points on only 55% of the SDG indicators for the years 2015-2019. No country reported data on more than 90% of the SDG indicators, while 22 countries reported on less than 25% of the SDG indicators.
- The good news is that countries improved their data reporting on most SDGs in recent years. **Fig. 8** shows that for 10 out of the 16 goals analysed, countries reported more data for 2019 than for 2015. Yet, it is also projected there would be no SDG with all its indicators reported by 2030.

Progress on SDG Data Reporting (2015-2019)

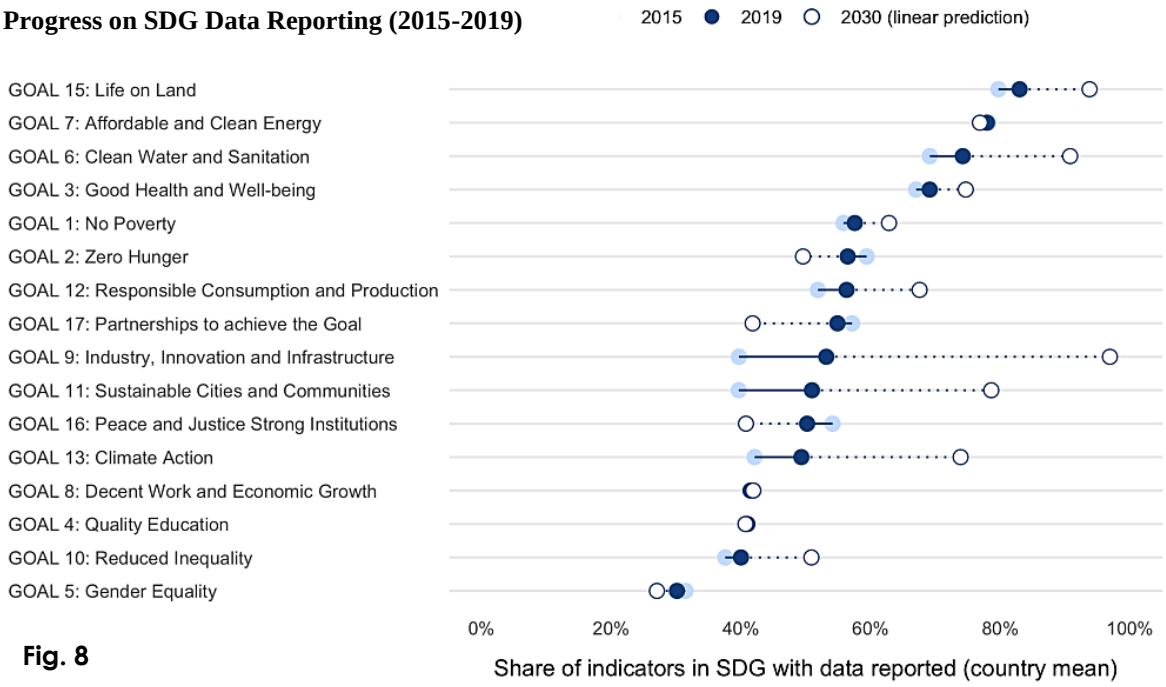


Fig. 8

- While it may be easy to assume that low-income countries are less able to report data, this is not true. In fact, the share of SDG indicators with data reported among high-income countries has a lowest median value compared to lower income countries (see **Fig. 9**).

SDG Data Reporting by Income Level (2019)

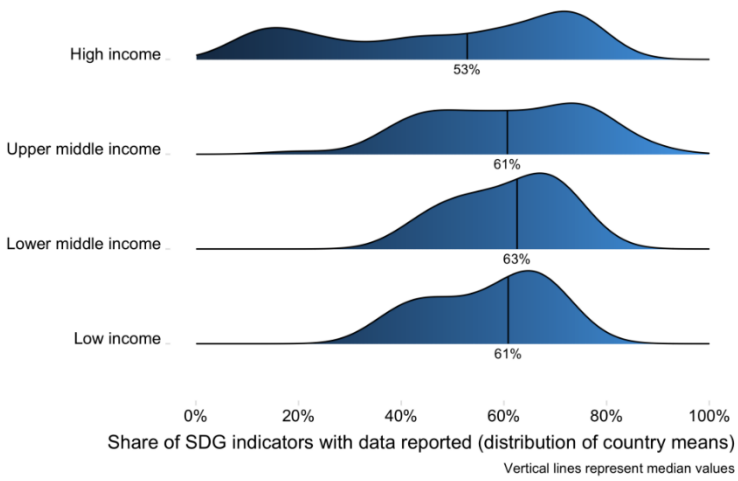


Fig. 9

2.6 Concluding remarks

- As seen from the above indicators, the SDGs can indeed be measured, and reveal the global **unevenness** or **variations** in development levels. These indicators will allow NGOs and others to hold governments accountable to their people and also identify the gaps between countries, or more broadly regions, globally.
- In addition, the SDGs are premised on the **idea of leaving no one behind**. The idea of focusing on the most vulnerable people, including people with disabilities and indigenous communities, is central to the goals. The importance of the SDGs lies in that they **serve as a guide forward**, and the next task of implementation is then possible.
- However:
    - Critics (including those from development agencies and NGOs) have argued that with **so many goals and high degree of complexity**, sufficient attention will not be given to any of them. Monitoring is made even more challenging. (See **Reading 2**)
    - Furthermore, there remains **no commitment to accountability** by the governments. The SDGs are voluntary and country-led. Countries cannot be forced to adopt SDGs. Governments are expected to take ownership and establish national frameworks for the achievement of the 17 goals.
    - In some arenas, the SDGs could be described as **aspirational rather than realistic**. For example, it has been observed that children in conflict zones are unlikely to gain access to education despite how the education goal has been framed in SDGs.

Reading 1

Sustainable Development Goals: Selected targets and indicators

https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202020%20review_Eng.pdf

Economic

Goal 1. End poverty in all its forms everywhere	
Examples of targets	*Examples of indicators*
1.1 By 2030 eradicate extreme poverty for all people everywhere	• Proportion of the population living below the international poverty line (less than US$1.90 a day)
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
Examples of targets	*Examples of indicators*
8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	• GDP • Average hourly earnings of employees • Unemployment rates
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
Examples of targets	*Examples of indicators*
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries 9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	• Manufacturing employment as a proportion of total employment • Research and development expenditure as a proportion of GDP
Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	
Examples of targets	*Examples of indicators*
17.3 Mobilize additional financial resources for developing countries from multiple sources 17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed 17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020	• FDI • Official development assistance (ODA) • Volume of remittances • Internet access • Share of global exports in developing and least developed countries

Social

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	
Examples of targets	*Examples of indicators*
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round 2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in	• Proportion of population who are undernourishment or suffering from malnutrition

children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	
Goal 3. Ensure healthy lives and promote well-being for all at all ages	
Examples of targets	*Examples of indicators*
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births 3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births 3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	• Maternal mortality rates • Child mortality rates • Incidences of diseases such as tuberculosis, malaria incidence, Hepatitis B, and HIV • Access to essential health services
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	
Examples of targets	*Examples of indicators*
4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes 4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education 4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy 4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States	• Completion rates for education at different levels • Proportion of teachers with minimum required qualifications
Goal 5. Achieve gender equality and empower all women and girls	
Examples of targets	*Examples of indicators*
5.1 End all forms of discrimination against all women and girls everywhere 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	• Incidences of violence and abuse on women and girls • Proportion of women in positions of authority, such as managers in companies, or holding seats in parliaments
Goal 6. Ensure availability and sustainable management of water and sanitation for all	
Examples of targets	*Examples of indicators*
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to	• Access to safe drinking water • Access to sanitation facilities • Level of water stress

address water scarcity and substantially reduce the number of people suffering from water scarcity	
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	
Examples of targets	*Examples of indicators*
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	• Access to electricity • Renewable energy share in the energy mix
Goal 10. Reduce inequality within and among countries	
Examples of targets	*Examples of indicators*
10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average 10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality 10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	• Growth rates of household expenditure or income per capita • Gini coefficient • Proportion of the population who are refugees, by country of origin
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	
Examples of targets	*Examples of indicators*
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons 11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management 11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	• Proportion of urban population living in slums, informal settlements or inadequate housing • Proportion of population that has convenient access to public transport • Waste collection and management • Air quality • Access and amount of open and public spaces
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
Examples of targets	*Examples of indicators*
16.1 Significantly reduce all forms of violence and related death rates everywhere 16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children 16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all 16.5 Substantially reduce corruption and bribery in all their forms 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	• Proportion of population that feel safe walking alone around the area they live • Human trafficking incidences • Bribery incidences by people and businesses • Proportion of population who believe decision-making is inclusive and responsive

Environment

Goal 12. Ensure sustainable consumption and production patterns	
Examples of targets	*Examples of indicators*
12.2 By 2030, achieve the sustainable management and efficient use of natural resources 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses 2.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	• Material footprint • Material consumption • Food waste index • Recycling rates • Extent of environmental education in mainstream education
Goal 13. Take urgent action to combat climate change and its impacts	
Examples of targets	*Examples of indicators*
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries 13.2 Integrate climate change measures into national policies, strategies and planning 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	• Readiness towards disasters and extent of plans to reduce disaster risk • Total greenhouse gas emissions per year • Extent of environmental education in mainstream education
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
Examples of targets	*Examples of indicators*
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	• Proportion of fish stocks within biologically sustainable levels
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
Examples of targets	*Examples of indicators*
15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	• Forest area as a proportion of total land area • Progress towards sustainable forest management • Mountain Green Cover Index • Red List Index

Reading 2: The challenges of measuring progress on SDG 11

Excerpt from an article from **cityscope.org**

Every one of the 17 SDGs has something to do with work happening at the city level. One of them — Goal 11 — specifically aims to build cities that are "inclusive, safe, resilient and sustainable".

It's an ambitious undertaking. But how will progress be measured so that leaders of city, regional and national governments, NGOs, development banks, businesses and philanthropies know if their efforts are moving in the right direction?

There are significant challenges ahead in terms of collecting data that all these stakeholders will find useful. There's also significant opportunities to do it using new technologies and new partnerships that have never been leveraged.

Here's an overview of some of the major questions and issues.

What data needs come with the SDGs?

- From a city's perspective, the SDGs will require rigorous data collection and analysis on almost all components of urban living — population, access to public transport and adequate housing, sanitation, public space and much more.
- The United Nations has devised a framework for monitoring the SDGs. Each of the 17 goals has been broken down into a set of targets. Progress on those targets will be measured by "indicators" — specific metrics related to those targets.
- For example, SDG 11 — the one focused entirely on cities — is made up of 10 targets, with 15 proposed indicators. One of those targets is to "ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums" by 2030.

Does all this information exist?

- In some cases yes but in many cases no. Unfortunately, there are still huge data gaps when it comes to measuring progress on sustainable development, particularly in cities of the developing world.
- In many cases, basic information is simply unavailable. For example, as many as 100 countries, mostly in the Global South, do not yet keep accurate record of births and deaths.
- Likewise, there is a gap when it comes to data on access to adequate housing, which has not been collected in "a rigorous manner across countries" over the past 20 years, according to the Global Urban Futures Project.
- On top of that, official data on informal settlements — such as accurate population numbers, access to services and settlement boundaries — is often lacking in detail or not available.
- Finally, the SDGs include many areas in which governments have never previously attempted to keep accurate data — around public space, for instance.

Are there data challenges specifically related to cities?

- Much of the work on development data globally is based on national sample surveys. That often makes it difficult to zoom in on indicators that are more specific to cities or metropolitan areas.
- For example, in many countries it can be hard to find city-level data to measure the proportion of population below the international poverty line, access to electricity or the proportion of urban population living in slums.
- The technical term for this is *disaggregation* — and within the SDGs framework, the problem is not limited to cities. There are similar challenges around breaking down national-level data around dimensions such as age, sex, income, race, migratory status and disability. Without properly disaggregated data the SDGs' noble aim of leaving "no one behind" will be untenable.
- As yet, however, this is a contentious and unresolved topic at the U. N. level, where national governments have tended to focus on data-gathering through a national lens.
- Even once national officials do start to look more closely at disaggregating their metrics to cities, that will only lay bare the glaring problem of data capacity at the city level.

Why is data so important?

- Without accurate, reliable data, leaders at all levels won't be able to measure their progress (or lack thereof) on sustainable urban development. And neither will civil society, researchers, citizens and others who want to hold their governments to account.
- Second, sound data is needed to make good decisions. When national leaders are presented with questions about where to allocate funding, resources and infrastructure, good data on where the greatest needs are in cities can help point to the answers.
- Better data benefits city leaders, as well. It gives them the knowledge they need to manage services more efficiently and equitably. Further, the private sector is more likely to invest in cities that have a data-driven and transparent understanding of their strengths and weaknesses, and where they are working to improve.