

## Module 1

### Overview - United Nations Sustainable Development Goals (UNSDGs)

#### 1.1. Environment, Human and Society

The interdependency between environment, humans and society is complex and dynamic that shapes the functioning and sustainability of life on Earth. Each element influences and relies on the others in significant ways.

The environment refers to the surroundings or conditions in which living organisms exist. The environment can be categorized into the **physical environment** (which includes natural resources and climate) and the **biological environment** (which consists of living organisms and their interactions). Humans are the crucial part of the environment. Humans depend on the environment for survival needs and adapt to the changes through technology, culture and innovation. Over time, humans have contributed to the environmental change, caused degradation, and, contrarily promoted conservation and restoration. Societies create laws, frameworks, and economic systems that govern how people use resources and interact with the environment. Environmental changes (e.g., natural disasters, resource depletion) influence societal structures, economic stability, and public health.

#### 1.2. Sustainability

Sustainability is the practice of meeting current needs without compromising the ability of future generations to meet their own needs. It involves maintaining a balance between environmental health, economic prosperity, and social equity to ensure long-term viability and well-being for people and the planet.

#### Significance of Sustainability in Today's World

Sustainability is important for the following reasons:

##### 1. Environmental Protection

Sustainability promotes **climate change mitigation** by adopting sustainable practices such as reducing greenhouse gas emissions, utilizing renewable energy, and conserving resources. It fosters **preserving ecosystems and biodiversity** and **conservation of resources** through recycling, reusing materials, and reducing consumption

##### 2. Economic Stability

Sustainable development supports economic stability and **long term growth** by encouraging investments in clean technologies, renewable energy, and green infrastructure. It often leads to **cost savings** by promoting energy-efficient buildings, waste reduction, and sustainable agriculture practices. Sustainability fosters the growth of the **green economy**, a sector driven by environmental goals such as reducing emissions, conserving resources, and enhancing environmental health.

##### 3. Social Equity and Well-being

Sustainability promotes **fairness and social equity** by ensuring that resources and opportunities are accessible to all people, regardless of their socioeconomic background,

geographic location, or cultural identity. Sustainable practices **improve quality of life** by prioritizing public health, social welfare, and education.

#### **4. Corporate Responsibility**

Companies play a key role in promoting sustainability by adopting practices that minimize environmental impacts, ensure fair labor practices, and contribute positively to the community. The **circular economy** model is based on sustainability principles and aims to keep resources in use for as long as possible by extending the lifecycle of products through reuse, repair, and recycling.

#### **5. Addressing Global Challenges**

Sustainability is key to ensuring a stable and sufficient **food supply** by promoting **sustainable agriculture practices**, such as crop rotation, organic farming, and agroforestry. Sustainable water management practices such as water conservation, improved irrigation techniques, and wastewater treatment are essential to ensuring equitable access to **clean water**.

#### **6. Global Commitment**

**United Nations Sustainable Development Goals (SDGs):** The SDGs, adopted by all UN Member States in 2015, serve as a global framework for sustainable development. These 17 goals address issues ranging from poverty, education, and gender equality to climate action, responsible consumption, and life on land and water.

### **1.3. History of Sustainable Development Goals (SDGs)**

The Sustainable Development Goals (SDGs) are a set of 17 global goals established by the United Nations to address pressing social, economic, and environmental challenges by 2030.

#### **1972: Stockholm Conference on the Human Environment**

The United Nations Conference on the Human Environment in Stockholm marked the first global recognition of environmental issues linked to development. The conference laid the foundation for integrating environmental protection into global development discussions.

#### **1987: Brundtland Report**

The report introduced the concept of sustainable development, defining it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

#### **1992: Rio Earth Summit**

The United Nations Conference on Environment and Development (UNCED), or Earth Summit, was held in Rio de Janeiro. The key outcomes were comprehensive action plan for sustainable development.

#### **2000: Millennium Development Goals (MDGs)**

The Millennium Summit in New York resulted in the adoption of the Millennium Development Goals (MDGs). The MDGs consisted of eight goals focused on reducing poverty, improving health, and promoting education by 2015.

### **2012: Rio+20 Summit**

The United Nations Conference on Sustainable Development (Rio+20) was held to assess progress since the 1992 Earth Summit. It called for the creation of a new set of global goals that integrated economic, social, and environmental dimensions of development. The concept of Sustainable Development Goals (SDGs) was introduced.

### **2015: Adoption of the SDGs**

At the United Nations Sustainable Development Summit in September 2015, world leaders adopted the **2030 Agenda for Sustainable Development**, including **17 SDGs and 169 targets**.

## **1.4. Millennium Development Goals (MDG)**

The **Millennium Development Goals (MDGs)** were a set of eight global goals established in 2000 by the United Nations to address critical development challenges and improve the well-being of people worldwide. They were designed to be achieved by the year **2015** and focused on eradicating poverty, improving health, and ensuring sustainable development. The 8 MDGs are:

#### **1. Eradicate Extreme Poverty and Hunger**

Halve the proportion of people living on less than \$1.25 a day.

Achieve full and productive employment for all.

Halve the proportion of people suffering from hunger.

#### **2. Achieve Universal Primary Education**

Ensure all boys and girls complete primary schooling.

#### **3. Promote Gender Equality and Empower Women**

Eliminate gender disparity in primary and secondary education.

#### **4. Reduce Child Mortality**

Reduce the under-five mortality rate by two-thirds.

#### **5. Improve Maternal Health**

Reduce the maternal mortality ratio by three-quarters.

Achieve universal access to reproductive health.

#### **6. Combat HIV/AIDS, Malaria, and Other Diseases**

Halt and reverse the spread of HIV/AIDS.

Ensure universal access to treatment for HIV/AIDS.

Halt and reverse the incidence of malaria and other major diseases.

#### **7. Ensure Environmental Sustainability**

Integrate sustainable development into national policies.

Halve the proportion of people without access to safe drinking water and basic sanitation.

Improve the lives of at least 100 million slum dwellers.

## **8. Develop a Global Partnership for Development**

Address the needs of least developed countries.

Make essential medicines affordable.

Enhance technology and internet accessibility.

## **Transition from MDGs to SDGs**

The transition from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) occurred due to several key reasons and lessons learned from the MDGs' implementation.

### **1. Limitations of the MDGs**

The MDGs, had a **limited scope**, focusing primarily on eradicating poverty, improving education, and addressing health issues, with eight specific goals. While they made progress in these areas, they focused mainly on basic needs and did not consider broader sustainability, environmental, and economic factors, thereby **lacking inclusivity**. The MDGs mainly targeted developing countries, but did not adequately address inequalities within and between countries. The MDGs had limited emphasis on **environmental sustainability**, which became increasingly apparent as climate change and environmental degradation began to threaten the future of development.

### **2. Emerging Global Challenges**

The MDGs did not focus on emerging global challenges such as **climate change**, **economic inequality within countries**, **urbanization and population growth** and importance of fostering **innovation and harnessing technology to support sustainable development**.

## **1.5. Sustainable Development Goals (SDG)**

The **2030 Agenda for Sustainable Development**, adopted by all **United Nations Member States** in **2015**, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. It comprises of **17 Sustainable Development Goals (SDGs) with 169 targets**, which are an urgent call for action by all developed and developing countries and promote global partnership. The 17SDGs are as follows:

### **1. End poverty in all its forms everywhere.**

**Target 1.1:** Eradicate extreme poverty

**Target 1.2:** Reduce at least by half the proportion of men, women and children of all ages living in poverty

**Target 1.3:** Implement nationally appropriate social protection systems and measures

**Target 1.4:** Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources.

**Target 1.5:** Build the resilience of the poor

**Target 1.a:** Ensure significant mobilization of resources

### **Target 1.b:** Create sound policy frameworks

**Progress:** There have been efforts to reduce extreme poverty, with several countries focusing on social protection programs, job creation, and inclusive growth strategies. However, poverty rates have risen in some regions due to economic disruptions from the COVID-19 pandemic.

**Challenges:** The global poverty rate increased in 2020, with an estimated 120 million people pushed back into extreme poverty due to the pandemic. Ongoing efforts are needed to address the long-term effects of these setbacks.

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

**Target 2.1:** End hunger and ensure access by all people

**Target 2.2:** End all forms of malnutrition,

**Target 2.3:** Double the agricultural productivity and incomes of small-scale food producers,

**Target 2.4:** Ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change.

**Target 2.5:** Maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species.

**Target 2.a:** Increase investment, to enhance agricultural productive capacity in developing countries, in particular least developed countries.

**Target 2.b:** Correct and prevent trade restrictions and distortions in world agricultural markets.

**Target 2.c:** Adopt measures to ensure the proper functioning of food commodity markets

**Progress:** Some countries have made strides in improving food security and nutrition, particularly through sustainable agricultural practices and innovations in food distribution.

**Challenges:** Global hunger is on the rise again, with conflicts, climate change, and economic shocks worsening food insecurity in many regions. The United Nations reports that nearly 750 million people faced severe food insecurity in 2022.

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

**Target 3.1:** Reduce the global maternal mortality ratio to less than 70 per 100,000 live births

**Target 3.2:** End preventable deaths of newborns and children under 5 years of age

**Target 3.3:** End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

**Target 3.4:** Reduce by one third premature mortality from non-communicable diseases

**Target 3.5:** Strengthen the prevention and treatment of substance abuse

**Target 3.6:** Halve the number of global deaths and injuries from road traffic accidents

**Target 3.7:** Ensure universal access to sexual and reproductive health-care services

**Target 3.8:** Achieve universal health coverage

**Target 3.9:** Substantially reduce the number of deaths and illnesses from hazardous chemicals

**Target 3.1a:** Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries

**Target 3.1b:** Support the research and development of vaccines and medicines for the communicable and non-communicable diseases

**Target 3.1c:** Substantially increase health financing

**Target 3.1d:** Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

**Progress:** Significant advancements have been made in global health, including the rapid development and distribution of COVID-19 vaccines, improvements in maternal health, and progress in combating diseases like malaria and tuberculosis.

**Challenges:** Health systems worldwide remain under pressure due to the pandemic's aftermath, and non-communicable diseases are on the rise. Access to healthcare remains unequal, especially in low-income countries.

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

**Target 4.1:** Ensure that all girls and boys complete free, equitable and quality primary and secondary education

**Target 4.2:** Ensure that all girls and boys have access to quality early childhood development, care and pre-primary education

**Target 4.3:** Ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education,

**Target 4.4:** Substantially increase the number of youth and adults who have relevant skills for employment

**Target 4.5:** Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training

**Target 4.6:** Ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

**Target 4.7:** Ensure that all learners acquire the knowledge and skills needed to promote sustainable development

**Target 4.a:** Build and upgrade education facilities that are child, disability and gender sensitive and provide safe learning environments

**Target 4.b:** Substantially expand globally the number of scholarships available to developing countries, for enrolment in higher education

**Target 4.c:** Substantially increase the supply of qualified teachers

**Progress:** Many countries have invested in expanding access to education, with increasing enrollment rates in primary and secondary education globally, especially for girls.

**Challenges:** The COVID-19 pandemic caused widespread school closures, leading to significant learning losses. Educational disparities, particularly in low-income and conflict-affected areas, continue to be a significant challenge.

## **5. Achieve gender equality and empower all women and girls.**

**Target 5.1:** End all forms of discrimination against all women and girls

**Target 5.2:** Eliminate all forms of violence against all women and girls

**Target 5.3:** Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation

**Target 5.4:** Recognize and value unpaid care and domestic work and the promotion of shared responsibility within the household

**Target 5.5:** Ensure women's full and effective participation and equal opportunities for leadership at all levels

**Target 5.6:** Ensure universal access to sexual and reproductive health and reproductive rights

**Target 5.a:** Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national law

**Target 5.b:** Enhance the use of enabling technology

**Target 5.c:** Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment

**Progress:** There have been notable advances in women's representation in politics and business, and significant strides in addressing gender-based violence and ensuring equal access to education for girls.

**Challenges:** Gender inequality persists, particularly in terms of income disparity, domestic violence, and access to reproductive health services. The pandemic disproportionately affected women and girls, exacerbating existing inequalities.

## **6. Ensure availability and sustainable management of water and sanitation for all.**

**Target 6.1:** Achieve universal and equitable access to safe and affordable drinking water for all

**Target 6.2:** Achieve access to adequate and equitable sanitation and hygiene\

**Target 6.3:** Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater

**Target 6.4:** Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity

**Target 6.5:** Implement integrated water resources management at all levels

**Target 6.6:** Protect and restore water-related ecosystems

**Target 6.a:** Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes

**Target 6.b:** Support and strengthen the participation of local communities in improving water and sanitation management

**Progress:** Access to clean drinking water has improved globally, with billions of people gaining access to basic sanitation services.

**Challenges:** Water scarcity is becoming an increasing issue, especially in arid regions, and access to safe sanitation still lags in many rural and underserved communities.

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

**Target 7.1:** Ensure universal access to affordable, reliable and modern energy services

**Target 7.2:** Increase substantially the share of renewable energy in the global energy mix

**Target 7.3:** Double the global rate of improvement in energy efficiency

**Target 7.a:** Enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

**Target 7.b:** Expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries

**Progress:** Renewable energy sources, such as solar and wind, have seen significant growth, with some countries making substantial investments in clean energy infrastructure.

**Challenges:** Despite progress, many developing countries still face challenges in energy access, and global emissions from fossil fuels remain high, hindering the transition to sustainable energy systems.

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

**Target 8.1:** Sustain per capita economic growth in accordance with national circumstances

**Target 8.2:** Achieve higher levels of economic productivity through diversification, technological upgrading and innovation

**Target 8.3:** Promote development-oriented policies that support productive activities, decent job creation

**Target 8.4:** Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation



**Target 8.5:** 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

**Target 8.6:** Substantially reduce the proportion of youth

**Target 8.7:** Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour

**Target 8.8:** Protect labour rights and promote safe and secure working environments for all

**Target 8.9:** Devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

**Target 8.10:** Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

**Target 8.a:** Increase Aid for Trade support for developing countries, in particular least developed countries

**Target 8.b:** Develop and operationalize a global strategy for youth employment

**Progress:** Some countries have made significant efforts to create more jobs, reduce unemployment, and foster inclusive growth.

**Challenges:** The economic impacts of COVID-19 led to a global recession, with rising unemployment rates, particularly in vulnerable sectors. Additionally, income inequality remains a significant issue.

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

**Target 9.1:** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

**Target 9.2:** Promote inclusive and sustainable industrialization

**Target 9.3:** Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services

**Target 9.4:** Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

**Target 9.5:** Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries

**Target 9.a:** Facilitate sustainable and resilient infrastructure development in developing countries

**Target 9.b:** Support domestic technology development, research and innovation in developing countries

**Target 9.c:** Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet

**Progress:** Innovations in technology, especially digital infrastructure, have spurred economic growth and innovation in many regions.

**Challenges:** Access to quality infrastructure remains uneven, especially in developing countries, and the pace of industrialization needs to be aligned with environmental sustainability goals.

## **10. Reduce inequality within and among countries.**

**Target 10.1:** Progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average

**Target 10.2:** Empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

**Target 10.3:** Ensure equal opportunity and reduce inequalities of outcome

**Target 10.4:** Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality

**Target 10.5:** Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations

**Target 10.6:** Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions

**Target 10.7:** Facilitate orderly, safe, regular and responsible migration and mobility of people

**Target 10.a:** Implement the principle of special and differential treatment for developing countries

**Target 10.b:** Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest

**Target 10.c:** Reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors

**Progress:** Many countries are making progress in reducing inequality through policies targeting marginalized groups, inclusive economic growth, and access to education.

**Challenges:** Inequality has been exacerbated by the pandemic, with the wealthiest benefiting the most from the global recovery, while the most vulnerable continue to suffer from increased inequality.

## **11. Make cities and human settlements inclusive, safe, resilient, and sustainable.**

**Target 11.1:** Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

**Target 11.2:** 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

**Target 11.3:** Enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

**Target 11.4:** Protect and safeguard the world's cultural and natural heritage

**Target 11.5:** Reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters

**Target 11.6:** Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

**Target 11.7:** Provide universal access to safe, inclusive and accessible, green and public spaces

**Target 11.a:** Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning

**Target 11.b:** Substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, holistic disaster risk management at all levels

**Target 11.c:** Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings

**Progress:** Urban areas are increasingly adopting sustainable practices, such as promoting green spaces, enhancing public transportation, and improving waste management.

**Challenges:** Rapid urbanization continues to strain infrastructure and resources, and many cities, especially in developing countries, face challenges in achieving sustainability goals.

## **12. Ensure sustainable consumption and production patterns.**

**Target 12.1:** Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action

**Target 12.2:** Achieve the sustainable management and efficient use of natural resources

**Target 12.3:** Halve per capita global food waste at the retail and consumer levels and reduce food losses

**Target 12.4:** Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

**Target 12.5:** Substantially reduce waste generation through prevention, reduction, recycling and reuse

**Target 12.6:** Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

**Target 12.7:** Promote public procurement practices that are sustainable ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

**Target 12.8:** Ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

**Target 12.a:** Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production

**Target 12.b:** Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

**Target 12.c:** Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

**Progress:** Some progress has been made in promoting circular economies and reducing waste through recycling and sustainable practices in production.

**Challenges:** Unsustainable consumption patterns remain prevalent, especially in high-income countries, and much more needs to be done to reduce waste and promote sustainable production at a global scale.

### **13. Take urgent action to combat climate change and its impacts.**

**Target 13.1:** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters

**Target 13.2:** Integrate climate change measures into national policies

**Target 13.3:** Improve education, awareness-raising and human and institutional capacity on climate change

**Target 13.a:** Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change

**Target 13.b:** Promote mechanisms for raising capacity for effective climate change-related planning and management

**Progress:** There has been growing awareness and action on climate change, with countries setting net-zero emissions targets and investing in renewable energy and climate adaptation strategies.

**Challenges:** Despite progress, global emissions continue to rise, and the impacts of climate change, such as extreme weather events, are becoming more pronounced. More ambitious action is required to meet climate goals.

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

**Target 14.1:** Prevent and significantly reduce marine pollution of all kinds

**Target 14.2:** Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts

**Target 14.3:** Minimize and address the impacts of ocean acidification

**Target 14.4:** 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

**Target 14.5:** Conserve at least 10 per cent of coastal and marine areas

**Target 14.6:** Prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing

**Target 14.7:** Increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

**Target 14.a:** Increase scientific knowledge, develop research capacity and transfer marine technology

**Target 14.b:** Provide access for small-scale artisanal fishers to marine resources and markets

**Target 14.c:** Enhance the conservation and sustainable use of oceans and their resources by implementing international law

**Progress:** Efforts to protect marine ecosystems and reduce plastic pollution have gained momentum, with initiatives to establish marine protected areas and address overfishing.

**Challenges:** Marine biodiversity continues to be threatened by pollution, overfishing, and climate change, and progress on addressing these issues remains insufficient.

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

**Target 15.1:** Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services

**Target 15.2:** Promote the implementation of sustainable management of all types of forests

**Target 15.3:** Combat desertification, restore degraded land and soil, including land affected by desertification

**Target 15.4:** Ensure the conservation of mountain ecosystems

**Target 15.5:** Take urgent and significant action to reduce the degradation of natural habitats

**Target 15.6:** Promote fair and equitable sharing of the benefit

**Target 15.7:** Take urgent action to end poaching and trafficking of protected species of flora and fauna

**Target 15.8:** Introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems

**Target 15.9:** Integrate ecosystem and biodiversity values into national and local planning

**Target 15.a:** Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems

**Target 15.b:** Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation

**Target 15.c:** Enhance global support for efforts to combat poaching and trafficking of protected species

**Progress:** There has been increased focus on reforestation, biodiversity conservation, and land restoration, particularly through international agreements and national policies.

**Challenges:** Deforestation, desertification, and biodiversity loss continue to threaten ecosystems and the services they provide, requiring more ambitious action for land conservation.

**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.**

**Target 16.1:** Significantly reduce all forms of violence and related death rates everywhere

**Target 16.2:** End abuse, exploitation, trafficking and all forms of violence against and torture of children

**Target 16.3:** Promote the rule of law at the national and international levels and ensure equal access to justice for all

**Target 16.4:** Significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime

**Target 16.5:** Substantially reduce corruption and bribery in all their forms

**Target 16.6:** Develop effective, accountable and transparent institutions at all levels

**Target 16.7:** Ensure responsive, inclusive, participatory and representative decision making at all levels

**Target 16.8:** Broaden and strengthen the participation of developing countries in the institutions of global governance

**Target 16.9:** provide legal identity for all, including birth registration

**Target 16.10:** Ensure public access to information and protect fundamental freedoms

**Target 16.a:** Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime

**Target 16.b:** Promote and enforce non-discriminatory laws and policies for sustainable development

**Progress:** Efforts to promote peace, stability, and the rule of law have led to some improvements in governance, anti-corruption measures, and human rights protections in several countries.

**Challenges:** Conflicts, political instability, and corruption continue to undermine peace and justice in many regions, with setbacks in the protection of human rights and the strengthening of institutions.

## **17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.**

### **Finance**

**Target 17.1:** Strengthen domestic resource mobilization

**Target 17.2:** Developed countries to implement fully their official development assistance commitments

**Target 17.3:** Mobilize additional financial resources

**Target 17.4:** Assist developing countries in attaining long-term debt sustainability through coordinated policies

**Target 17.5:** Adopt and implement investment promotion regimes for least developed countries Technology

**Target 17.6:** Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms

**Target 17.7:** Promote the development, transfer, dissemination and diffusion of environmentally sound technologies

**Target 17.8:** Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries

### **Capacity-building**

**Target 17.9:** Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals

### **Trade**

**Target 17.10:** Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda

**Target 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

**Target 17.12:** Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

### **Systemic issues**

#### **Policy and institutional coherence**

**Target 17.13:** Enhance global macroeconomic stability

**Target 17.14:** Enhance policy coherence

**Target 17.15:** Respect each country's policy space and leadership to establish and implement policies for poverty eradication

**Target 17.16:** Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder

**Target 17.17:** Encourage and promote effective public, public-private and civil society partnerships

**Target 17.18:** Enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

**Target 17.19:** Build on existing initiatives to develop measurements of progress on sustainable development

**Progress:** There has been a growing focus on global partnerships for sustainable development, with collaboration between governments, businesses, and civil society to achieve the SDGs.

**Challenges:** Achieving the SDGs requires stronger international cooperation, particularly in financing, technology transfer, and addressing global challenges such as climate change and pandemics.

#### **Global Challenges and Progress of SDGs:**

- The world faces challenges like poverty, inequality, climate change, and resource depletion, but the SDGs offer a framework for addressing these issues.
- Progress has been made in areas like health (SDG 3), education (SDG 4), and water (SDG 6), but challenges persist in areas such as climate action (SDG 13), reducing inequalities (SDG 10), and biodiversity loss (SDG 15).

The **UNSDGs** are transformative and interconnected. They focus on creating a world where poverty is eradicated, prosperity is shared, and the planet is protected for future generations.



Achieving these goals will require coordinated efforts across all sectors of society, including governments, businesses, and individuals.

## **1.6. Climate Mitigation**

Climate mitigation and the United Nations Sustainable Development Goals (UNSDGs) are closely interconnected. **Climate change** refers to long-term changes in the average temperature and weather patterns on Earth, primarily driven by human activities like burning fossil fuels, deforestation, and industrial processes that release greenhouse gases (GHGs) into the atmosphere.

**Mitigation** involves efforts to reduce or prevent the emission of GHGs to slow the rate of climate change. It includes strategies like renewable energy adoption, improving energy efficiency, reforestation, and carbon capture and storage.

In the 2030 Agenda for Sustainable Development, Member States express their commitment to protect the planet from degradation and take urgent action on climate change. The Agenda also identifies climate change as “one of the greatest challenges of our time” and worries about “its adverse impacts undermine the ability of all countries to achieve sustainable development. Increases in global temperature, sea level rise, ocean acidification and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and Small Island Developing States. The survival of many societies, and of the biological support systems of the planet, is at risk”.

### **Historical Context**

#### **1. Pre-industrial Climate Variability:**

Historical records and paleoclimate data (e.g., ice cores, tree rings, sediment layers) show natural climate variability over millennia, driven by factors like volcanic activity, solar radiation changes, and orbital variations (Milankovitch cycles).

#### **2. Industrial Revolution:**

The Industrial Revolution (beginning in the late 18th century) marked a significant increase in human activities that release greenhouse gases (GHGs) such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) into the atmosphere. The combustion of fossil fuels, deforestation, and industrial processes have been the primary contributors.

### **Key Connections Between Climate Mitigation and the UNSDGs:**

#### **1. SDG 13: Climate Action**

This is the goal most directly related to climate mitigation. It emphasizes the importance of reducing greenhouse gas emissions, improving resilience to climate-related hazards, and integrating climate change measures into policies and strategies. Achieving SDG 13 requires efforts to transition to low-carbon economies, adopt cleaner energy solutions, and implement strategies to reduce emissions across sectors like energy, transportation, agriculture, and industry.

#### **2. SDG 7: Affordable and Clean Energy**

Climate mitigation requires a transition to renewable energy sources such as solar, wind, and hydropower to reduce reliance on fossil fuels. A shift to clean energy is essential for reducing emissions and limiting global warming.

### **3. SDG 9: Industry, Innovation, and Infrastructure**

Sustainable industrialization and innovations in green technologies are crucial for climate mitigation. SDG 9 encourages the development of resilient infrastructure, sustainable industrialization, and fostering innovation. This includes the development and deployment of low-carbon technologies, green manufacturing practices, and sustainable transport systems.

### **4. SDG 12: Responsible Consumption and Production**

Mitigating climate change involves reducing emissions from production processes and consumption patterns.

### **5. SDG 11: Sustainable Cities and Communities**

Urban areas are major contributors to carbon emissions. SDG 11 focuses on making cities inclusive, safe, resilient, and sustainable, which involves improving urban planning, enhancing public transportation, energy efficiency, and green spaces—all vital for mitigating climate change.

### **6. SDG 15: Life on Land**

Climate change mitigation is also closely linked to the conservation and restoration of ecosystems. Forests, wetlands, and other natural systems act as carbon sinks, absorbing CO<sub>2</sub> from the atmosphere.

### **7. SDG 2: Zero Hunger**

Climate mitigation strategies often involve sustainable agricultural practices, which can reduce emissions from agriculture, preserve soil health, and improve food security. SDG 2 focuses on ending hunger, achieving food security, and promoting sustainable agriculture, which is increasingly intertwined with efforts to mitigate climate change.

### **8. SDG 3: Good Health and Well-being**

Climate change mitigation can improve health by reducing air pollution from fossil fuels

## **Evidence for Human-Caused Climate Change**

Evidence for human-caused climate change includes:

#### **1. Rising Greenhouse Gas Concentrations:**

Atmospheric concentrations of carbon dioxide (CO<sub>2</sub>) have significantly increased since the industrial revolution due to human activities.

#### **2. Global Temperature Increase:**

Global temperatures have risen by approximately 1.1°C since the late 19th century, with the rate of warming accelerating in recent decades.

#### **3. Melting Ice and Sea Level Rise:**

The Arctic has warmed at twice the global average rate, leading to the melting of ice sheets and glaciers and contributing to sea level rise.

#### **4. Changing Weather Patterns:**

An increase in extreme weather events, including heatwaves, hurricanes, and flooding, is consistent with climate model predictions based on human-driven climate change.

#### **6. Isotopic Signature of Carbon:**

Fossil fuels release carbon with a specific isotopic ratio (low in carbon-13). The declining ratio of carbon-13 to carbon-12 in the atmosphere provides a "fingerprint" linking increased CO<sub>2</sub> to human activities.

#### **7. Ocean Acidification and Warming:**

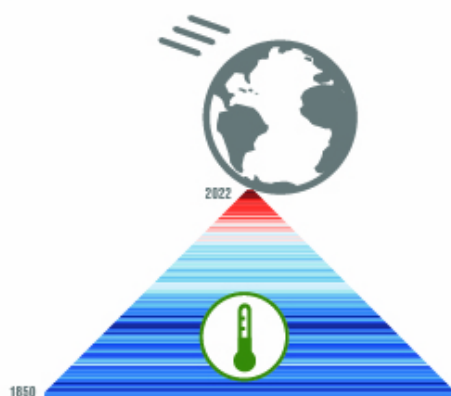
The oceans absorb about 25% of human-emitted CO<sub>2</sub>, leading to acidification. This is observable in declining pH levels. Additionally, ocean heat content measurements confirm significant warming.



## TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

# EARTH'S TIPPING POINT

### STANDING AT THE BRINK OF CLIMATE CALAMITY



#### WHERE WE ARE



THE WORLD WILL  
EXCEED 1.5°C BY 2035  
AND FACES A 2.5°C  
WARMING BY 2100

#### WHAT WE NEED

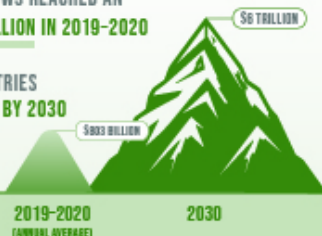


DEEP, RAPID AND  
SUSTAINED GHG  
EMISSION REDUCTIONS  
BY 43% BY 2030  
AND TO NET ZERO  
BY 2050

#### BILLIONS TO TRILLIONS:

GLOBAL CLIMATE FINANCE FLOWS REACHED AN  
ANNUAL AVERAGE OF \$803 BILLION IN 2019-2020

HOWEVER, DEVELOPING COUNTRIES  
REQUIRE NEARLY \$6 TRILLION BY 2030



THE RATE OF  
SEA-LEVEL  
RISE HAS  
**DOUBLED**  
IN THE  
LAST DECADE



#### HIGHLY VULNERABLE REGIONS

EXPERIENCE **15X HIGHER MORTALITY RATES** FROM DISASTERS  
COMPARED TO VERY LOW VULNERABILITY REGIONS (2010-2020)



## **Questions:**

### **2 Marks**

#### **BL1 (Remember)**

1. Name two key components of the environment.
2. When were the Millennium Development Goals (MDGs) established?
3. What is the purpose of the United Nations Sustainable Development Goals (UNSDGs)?
4. Which SDG focuses on climate action?
5. How does environment impact society and vice versa?
6. How does SDG 4 (Quality Education) contribute to economic growth in developing countries?

#### **BL2 (Understand)**

7. Explain the relationship between man, society, and the environment.
8. Why is sustainability important in today's world?
9. Describe briefly the transition from MDGs to SDGs.
10. How are the 17 UNSDGs interconnected and interdependent?
11. How do the SDGs address global challenges such as poverty and climate change?
12. What are the key features of SDG 9 (Industry, Innovation, and Infrastructure)?

#### **BL3 (Apply)**

13. How can the concepts of sustainability be applied to urban planning and development?
14. Apply the interrelationship of man, society, and environment to a real-world example like deforestation or pollution.
15. How can businesses integrate SDG principles into their operations to promote sustainability?
16. How can nations implement SDG 7 (Affordable and Clean Energy) to reduce their carbon footprint?
17. Interpret the meaning of net-zero emissions.
18. What are the outcomes of water and sanitation projects in improving access to clean water?

#### **BL4 (Evaluate)**

19. How do SDG 8 (Decent Work and Economic Growth) and SDG 10 (Reduced Inequalities) interact with each other?
20. How does achieving SDG 5 (Gender Equality) influence other SDGs, such as SDG 3 (Good Health and Well-being)?

### **5 Marks**

#### **BL1 (Remember)**

21. List the 17 United Nations Sustainable Development Goals (SDGs).

22. Name two key goals from the Millennium Development Goals (MDGs) and explain their focus.

**BL2 (Understand)**

23. Describe the transition from MDGs to SDGs and the main changes in focus between the two frameworks.
24. How do we know the build-up of carbon dioxide in the atmosphere is caused by humans?

**BL3 (Apply)**

25. How can local governments use the principles of sustainability to improve environmental management in urban areas?
26. How can SDG 13 (Climate Action) be effectively implemented in industries that heavily depend on fossil fuels?
27. Apply SDG 7 (Affordable and Clean Energy) in the context of an energy-scarce region.

**BL4 (Analyze)**

28. Analyze the challenges faced by developing countries in achieving SDGs, particularly SDG 2 (Zero Hunger) and SDG 6 (Clean Water and Sanitation).
29. Evaluate the progress of SDG 13 (Climate Action) in the context of global climate change mitigation efforts.
30. Compare the strategies for achieving SDG 12 (Responsible Consumption and Production) in developed and developing countries.

**BL5 (Evaluate)**

31. Evaluate the effectiveness of climate mitigation strategies in achieving the United Nations Sustainable Development Goals (UNSDGs). How can the integration of these strategies across various sectors help address both the causes and consequences of climate change?
32. Evaluate how successful have policies and programs been in reducing gender inequality in both developed and developing regions, and what barriers still persist to achieving full gender equality?

**10 Marks**

**BL2 (Understand)**

33. Discuss the background and significance of the 17 United Nations Sustainable Development Goals (SDGs). How do these goals address interconnected global challenges?
34. Describe the key targets of SDG 14 (Life Below Water) and their implications for marine ecosystems and coastal communities.

**BL3 (Apply)**

35. Apply the principles of sustainability in urban planning to reduce the environmental footprint and promote sustainable cities. How would your plan contribute to SDG 11 (Sustainable Cities and Communities)?
36. How can a local government apply SDG 11 (Sustainable Cities and Communities) to improve housing and transportation systems for its urban poor?

**BL4 (Analyze)**

37. Analyze the interrelationships between SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), and SDG 13 (Climate Action), and how achieving one goal can impact the others.
38. Analyze the role of SDG 16 (Peace, Justice, and Strong Institutions) in fostering political stability and democratic governance.

**BL5 (Evaluate)**

39. Evaluate the scientific uncertainties surrounding human-caused climate change and assess the potential consequences of these uncertainties for global policy.
40. To what extent has the global community made progress toward achieving the 17 SDGs since their adoption in 2015, and what are the most significant challenges that remain?