

Box 1: Examples of learning approaches and methods for SDG 13 'Climate Action'

- Perform a role-play to estimate and feel the impact of climate change related phenomena from different perspectives
- Analyse different climate change scenarios with regard to their assumptions, consequences and their preceding development paths
- Develop and run an action project or campaign related to climate protection
- Develop a web page or blog for group contributions related to climate change issues
- Develop climate friendly biographies
- Undertake a case study about how climate change could increase the risk of disasters in a local community
- Develop an enquiry-based project investigating the statement "Those who caused the most damage to the atmosphere should pay for it"

Source: UNESCO (2017).

Biodiversity

Relevance of the theme for sustainable development

One of the most significant consequences of human intervention in existing ecosystems is the loss of biodiversity. The worldwide Red List² contains more than 86,000 species of which about 5,200 are critically endangered. Of the 8,300 known animal breeds, 8 per cent are extinct and 22 per cent are at risk of extinction. Amphibians face the highest level of risk, with one-third being threatened with extinction.

Loss of biodiversity not only implies the loss of invaluable genetic resources, basic materials for medicine and recreational areas, but also threatens the overall existence and productivity of ecosystems as their regulation function is endangered by the loss of species. Human livelihoods depend significantly on biodiversity: for example, fish provide 20 per cent of animal protein to about 3 billion people. Ten species provide about 30 per cent of marine capture fisheries and another ten account for about 50 per cent of aquaculture production. Over 80 per cent of the human diet is provided by plants, while only three cereal crops – rice, maize and wheat – provide 60 per cent of

² See www.iucnredlist.org.

energy intake. In addition, about 80 per cent of people living in rural areas in developing countries rely on traditional plant-based medicines for basic healthcare (FAO, 2016; TEEB, 2010).

To highlight this issue, the 65th session of the United Nations General Assembly declared the period 2011-2020, the United Nations Decade on Biodiversity: 'The goal of the United Nations Decade on Biodiversity is to support the implementation of the Strategic Plan for Biodiversity and to promote its overall vision of living in harmony with nature.'³ The UN also established a Strategic Plan for Biodiversity, which envisions that: 'By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people' (Secretariat of the Convention on Biological Diversity, 2010).

Linkages with the SDGs

Biodiversity is at the core of SDG14 'Life below Water – Conserve and sustainably use the oceans, seas and marine resources for sustainable development' and SDG15 'Life on Land – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'.

SDG14 aims, inter alia, to:

- By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution;
- By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans;
- Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels;
- By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices

³ See www.cbd.int/2011-2020.

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;

- By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information;
- By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation;
- Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want.⁴

SDG15 aims to:

- 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;
- 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;
- By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world;

4 See www.un.org/sustainabledevelopment/oceans.

- By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development;
- 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;
- Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed;
- Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products;
- By 2020, introduce measures to prevent the introduction, and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species;
- By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts;
- Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems;
- 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;
- Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities.⁵

⁵ See www.un.org/sustainabledevelopment/biodiversity.

Learning objectives

In order to understand biodiversity and be able to contribute to achieving SDG14 and SDG15, learners should work towards the following objectives in the cognitive, socio-emotional and behavioural domain (see Table 2 and Table 3).

Table 2: Learning objectives for SDG14 'Life below Water'

<p>Cognitive learning objectives</p>	<ol style="list-style-type: none"> 1. The learner understands basic marine ecology, ecosystems, predator-prey relationships, etc.; 2. The learner understands the connection of many people to the sea and the life it holds, including the sea's role as a provider of food, jobs and exciting opportunities; 3. The learner knows the basic premise of climate change and the role of the oceans in moderating our climate; 4. The learner understands threats to ocean systems such as pollution and overfishing and recognizes and can explain the relative fragility of many ocean ecosystems including coral reefs and hypoxic dead zones; 5. The learner knows about opportunities for the sustainable use of living marine resources.
<p>Socio-emotional learning objectives</p>	<ol style="list-style-type: none"> 1. The learner is able to argue for sustainable fishing practices; 2. The learner is able to show people the impact humanity is having on the oceans (biomass loss, acidification, pollution, etc.) and the value of clean healthy oceans; 3. The learner is able to influence groups that engage in unsustainable production and consumption of ocean products; 4. The learner is able to reflect on their own dietary needs and question whether their dietary habits make sustainable use of limited resources of seafood; 5. The learner is able to empathize with people whose livelihoods are affected by changing fishing practices.
<p>Behavioural learning objectives</p>	<ol style="list-style-type: none"> 1. The learner is able to research their country's dependence on the sea. 2. The learner is able to debate sustainable methods such as strict fishing quotas and moratoriums on species in danger of extinction. 3. The learner is able to identify, access and buy sustainably harvested marine life, e.g. ecolabel certified products. 4. The learner is able to contact their representatives to discuss overfishing as a threat to local livelihoods. 5. The learner is able to campaign for expanding no-fish zones and marine reserves and for their protection on a scientific basis.

Source: UNESCO (2017).

Table 3: Learning objectives for SDG15 'Life on Land'

<p>Cognitive learning objectives</p>	<ol style="list-style-type: none"> 1. The learner understands basic ecology with reference to local and global ecosystems, identifying local species and understanding the measure of biodiversity. 2. The learner understands the manifold threats posed to biodiversity, including habitat loss, deforestation, fragmentation, overexploitation and invasive species, and can relate these threats to their local biodiversity. 3. The learner is able to classify the ecosystem services of local ecosystems including supporting, provisioning, regulating and cultural services and ecosystems services for disaster risk reduction. 4. The learner understands the slow regeneration of soil and the multiple threats that are destroying and removing it much faster than it can replenish itself, such as poor farming or forestry practice. 5. The learner understands that realistic conservation strategies work outside pure nature reserves to also improve legislation, restore degraded habitats and soils, connect wildlife corridors, sustainable agriculture and forestry, and redress humanity's relationship to wildlife.
<p>Socio-emotional learning objectives</p>	<ol style="list-style-type: none"> 1. The learner is able to argue against destructive environmental practices that cause biodiversity loss. 2. The learner is able to argue for the conservation of biodiversity on multiple grounds including ecosystems services and intrinsic value. 3. The learner is able to connect with their local natural areas and feel empathy with non-human life on Earth. 4. The learner is able to question the dualism of human/nature and realizes that we are a part of nature and not apart from nature. 5. The learner is able to create a vision of a life in harmony with nature.
<p>Behavioural learning objectives</p>	<ol style="list-style-type: none"> 1. The learner is able to connect with local groups working toward biodiversity conservation in their area. 2. The learner is able to effectively use their voice effectively in decision-making processes to help urban and rural areas become more permeable to wildlife through the establishment of wildlife corridors, agro-environmental schemes, restoration ecology and more. 3. The learner is able to work with policy-makers to improve legislation for biodiversity and nature conservation, and its implementation. 4. The learner is able to highlight the importance of soil as our growing material for all food and the importance of remediating or stopping the erosion of our soils. 5. The learner is able to campaign for international awareness of species exploitation and work for the implementation and development of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) regulations.

Source: UNESCO (2017).

Integrating the theme into education programmes and practice

The following learning approaches and methods can be used to facilitate learning about biodiversity, (Box 2 and Box 3).

Box 2: Examples of learning approaches and methods for SDG14 'Life Below Water'

- Develop and run a (youth) action project related to life below water
- Undertake excursions to coastal sites
- Debate sustainable use and management of fishery resources in school
- Role-play islanders relocating from their country because of sea-level rise
- Conduct a case study about cultural and subsistent relationships with the sea in different countries
- Conduct lab experiments to provide students with evidence of ocean acidification
- Develop an enquiry-based project: "Do we need the ocean or does the ocean need us?"

Source: UNESCO (2017).

Box 3: Examples of learning approaches and methods for SDG15 'Life on Land'

- Map the local area, mark areas of various wildlife populations as well as barriers, such as dispersal barriers like roads and invasive species populations
- Perform a bioblitz – an annual day when the community comes together to map as many different species in their area as possible
- Run a composting workshop and show organic material formation
- Take an excursion to a nearby parkland for cultural purposes, e.g. recreation, meditation, art
- Plant a wildlife garden for wild animals, e.g. bee-friendly flowers, insect hotels, ponds, etc. in urban areas
- Celebrate Earth Day (April 22) and/or World Environment Day (June 5)
- Develop an enquiry-based project: "Why is biodiversity important?"

Source: UNESCO (2017).