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SDG 15: Life on Land

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Introduction

Over the last century, humanity has reshaped nature in unprecedented ways and at an increasing pace. Population growth, industrialisation, urbanisation, infrastructure and agricultural expansion, all impact landscapes, affecting ecosystem resilience by reducing overall habitat size and quality and leading to ecosystem degradation. Once a habitat is too fragmented, biodiversity suffers, ultimately leading to ecological dysfunction with the possibility of species extinction (United Nations Environment Programme (UNEP) (2019). Currently, eight per cent of known animal breeds are already extinct and a further 22 per cent are at risk of extinction (UNEP, nd). Overall, the rate of species loss due to human activity is such that even conservative estimates indicate that humanity has entered the sixth mass extinction (Ceballos, Ehrlich & Raven, 2019;Saltré & Bradshaw, 2019)

Sustainable Development Goal (SDG) 15, Life on Land, aims to 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'. While at first glance primarily focused on environmental matters, this Goal is of much broader significance. Together with Goals 6, 13 and 14, it can be considered central in the architecture of the 2030 Agenda, as natural resources and their sustainable management is not only relevant to achieving all Sustainable Development Goals but necessary to avoid serious disruptions to ecosystems, society and economies (Chazdon & Brancalion, 2019). Humanity is reliant on ecosystems: more than 80 per cent of the human diet is plant based; up to 80 per cent of people in rural areas of developing countries rely on traditional plant based medicines for basic health care; around 2.6 billion people depend directly on agriculture for their livelihoods, and approximately 1.6 billion people's livelihoods depend on forests; forests cover approximately 30 per cent of the Earth's surface, and about 80 per cent of all terrestrial species of animals, plants and insects exist in forests (UNEP, nd)

Interestingly but perhaps not surprisingly, the importance of healthy ecosystems is also being recognised by commercially-oriented organisations. A recent example is the September 2020 release of a report entitled 'Biodiversity and Ecosystem Services: A business case for re/insurance' (Schelske et al., 2020). The report argues that biodiversity and ecosystems services are foundational for economic activity and that 55% of global GDP is highly or moderately dependent on biodiversity and ecosystems services. Another example is the World Economic Forum's New Nature Economy Report series which, according to its authors, aims to make a case of action from a business and economic perspective (World Economic Forum, 2020).

While the purpose of these reports is of an economic nature, they illustrate the importance of the 2030 Agenda for Sustainable Development and highlight the linkages of environmental, social and economic dimensions of sustainable development and the need for mainstreaming of environmental protection and appropriate action. As Chazdon and Brancalion (2019) argue, it is imperative to protect and restore ecosystems to mitigate the effects of climate change and biodiversity loss which impact on all aspects of life.

The UNEP's Frontiers 2016 report 'Emerging Issues of Environmental Concern' (UNEP 2016), draws out the connection between degradation of ecosystems, illegal wildlife trade and the rise of zoonotic diseases such as COVID-19. In its comments introducing the report, the UNEP states: "The risk of disease emergence and amplification increases with the intensification of human activities surrounding and encroaching into natural habitats, enabling pathogens in wildlife reservoirs to spill over to livestock and humans. The report emphasizes the critical relationship between a healthy environment and healthy people, and how human activities often undermine the long-term health and ability of ecosystems to support human well-being" (UNEP, 2020).

Ecosystems, biodiversity and health

Ecosystems

Ecosystems are defined as a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit (Convention on Biological Diversity (CBD) - Article 2. Use of Terms, n.d). Importantly, humans are considered part of ecosystems. Terrestrial ecosystems include tundra, taigas, temperate deciduous forests, tropical rainforests, grasslands, and deserts.

Ecosystems provide benefits to humanity; those benefits are commonly referred to as ecosystem services (Johnson, 2020). Ecosystems services are also sometimes referred to as 'Nature's contribution to people' (NCP), however, this is incorrect. NCP is a broader concept and includes both positive and negative contributions (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), nd). Ecosystem services can benefit people directly or as inputs into the production of other goods and services. For example, the pollination of crops contributes to food production and is thus considered an ecosystem service. Another example is mitigation of flooding through riparian zones and wetlands (Johnson, n.d). Ecosystem services are generally divided into three categories:

- provisioning services (or goods) like food, timber and fresh water
- regulating services such as carbon storage and sequestration, flood and storm protection; and pollination
- supporting services, that is processes such as nutrient cycling and primary production, and cultural services including recreation and the spiritual value of nature.

Biodiversity

Biodiversity refers the diversity of living organisms from all sources of the ecologigcal complexes they are part of, including diversity within and between species and of the ecosystems themselves. Biodiversity is important as it enhances the resilicence of ecosystems, enabling the system to respond to change and adverse events and to continue to develop.

Loss of biodiversity has the potential to affect food security, and economic and social wellbeing globally and in in particular for populations heavily depended on local ecosystem services for their livelihoods (Schultz, Tyrrell, & Ebenhard, 2016).

Further, climate change and biodiversity are interconnected. Climate change impacts on biodiversity. Biodiversity, through ecosystem services, can support climate-change mitigation and adaptation. Therefore, ensuring restoration, conservation and sustainably managing biodiversity is a significant tool to address climate change. (Secretariat of the Convention on Biological Diversity, 2003).

Biodiversity and health

Healthy ecosystems with thriving biodiversity have been linked to positive health outcomes for a number of reasons: plants play a significant role as medicines or as ingredients in medicines. The World Economic Forum's New Nature Economy Report (2020) sets out that 25 per cent of drugs used in contemporary medicine are derived from rainforest plants, and 70 per cent of cancer drugs are natural or synthetic products based on nature. Secondly, biodiversity found in protected areas has been linked to a decrease in cases of certain diseases such as Malaria and Lyme Disease in those areas (World Economic Forum, 2020).

Conversely, it has been estimated that 60 per cent of known infectious diseases and up to 75 per cent of new or emerging infectious diseases are zoonotic in origin (Salyer et al., 2017).

Human activities impact on ecosystems through deforestation, urbanisation, and habitat fragmentation. Wildlife, domesticated animals, and humas thus share an ever decreasing space, creating favourable conditions for the spread of zoonotic diseases (UNEP, 2019).

Deforestation, for instance, has been linked to outbreaks of diseases such as Ebola, and the Zika and Nipah viruses. More generally, climate change and changes in transmission patters of infectious diseases such as Zika, Malaria and Dengue fever have been identified as linked. Outbreaks of diseases can lead to human displacement which in turn then increases the displaced populations' susceptibility to illnesess such as Measles, Malaria, diarrheal diseases and acute respiratory infections (Scott, 2020).

Global Progress

Goal 15 is an ambitious goal with 12 targets. Five of Goal 15's targets, broadly related to ecosystem and biodiversity restoration and sustainable management (15.1, 15.2, 15.5, 15.8 and 15.9), are aligned with the CBD's 10-year global 'Strategic Plan for Biodiversity 2011-2020'. Therefore, these targets were supposed to be achieved by 2020. However, the assessment of progress against Goal 15 targets in the United Nations Sustainable Development Goals Report 2020 (UN 2020 report) is not encouraging. Overall, only one third of countries are on track to achieve their national biodiversity targets.

Based on 2019 progress, the UN 2020 report states that the five targets with a 2020 maturity date will not be met. Despite progress in the expansion of sustainable forest management and protected area coverage for terrestrial, freshwater and mountain areas, and the implementation of legislative, administrative and accounting principles by a number of countries to protect biodiversity and ecosystems, the conservation of ecosystems remains threatened.

The loss of forests, while slowing, has not stopped. Between 2015 and 2020, the annual rate of deforestation decreased by approximately 2 million hectares per year, from 12 million hectares in 2010 to 10 million hectares in 2015; the proportion of forested area globally has declined from 31.9 per cent in 2000 to 31.2 per cent in 2020, primarily due to agricultural expansion. The loss of forested areas impacts negatively on the livelihoods of rural communities, leads to increased carbon emissions, land degradation, currently affecting 74 per cent of the poor globally, and a loss of biodiversity. On a more positive note, the proportion of forests in protected areas, those under long-term sustainable management plans, and those forested areas important for soil and water protection has been increasing in the last decade.

The progress in protection of key biodiversity areas has slowed considerably and less than half are in protected areas—clearly defined regions or zones set aside for the purpose of conserving nature/biodiversity. Protection of key biodiversity areas in overall protected areas is important to combat habitat fragmentation, a key factor in biodiversity loss. But despite an increase of around 12 to 13 percentage points since 2000, in 2020, on average, only 44 per cent of each terrestrial and 41 per cent of each freshwater key biodiversity areas are within a protected area.

The decline in biodiversity is a factor in species extinction, leading to more fragile ecosystems, and less resistant to disruptions. Species extinction risk has worsened by about ten per cent over the last three decades globally. The Red List Index, which measures species extinction

by assigning values between 1 (no species at risk of extinction in the near future) and 0 (all species extinct), has declined from 0.82 in 1990 to 0.75 in 2015, and to 0.73 in 2020. This means that more than 31,000 species may face extinction due to agriculture, deforestation, unsustainable harvesting and trade and invasive species. The Red List Index may drop to 0.70 or even lower by 2030.

The EU's progress

The EU has been one of the main proponents of the 2030 Agenda, and sustainable development objectives have been incorporated into EU policies for decades. In 2011, the EU adopted the EU Biodiversity Strategy to 2020. The Strategy sets out six targets and 20 actions to halt the loss of biodiversity and ecosystem services in the EU by 2020. Its efficacy is currently being reviewed with the review to conclude in November 2020. However, the midterm review of the Strategy found that only one target was on track to be achieved, four targets showed some progress but at an insufficient rate and one target showed no significant progress; this led to the conclusion that the so-called headline target also showed no significant progress towards achievement (European Commission, 2016).

When the von der Leyen Commission commenced work at the end of 2019, it introduced as one of its key policy strategies the so-called 'European Green Deal' (European Commission, 2020a), a set of initiatives with the aim of achieving climate neutrality by 2050; GHG emission reduction targets for 2030; actions to move towards implementation of a circular economy, stopping climate change, addressing biodiversity loss and reducing pollution. The EU Biodversity Strategy 2030 (European Commisson, 2020b), adopted by the Commission on 20 May 2020, forms part of the European Green Deal (European Commission, 2020c).

Similar to the UN 2020 report and the IPBES report (2019), the EU's most current report on progress against the Sustainable Development Goals, 'Sustainable development in the European Union: Monitoring report on progress towards the SDGs in an EU context' is at best ambivalent about the EU's progress. The report states that progress against Goals 7, 10, 12, 15 and 17 is "mixed" (Bley et al., 2020, p. 15) and that "ecosystems and biodiversity (SDG 15) remain under pressure from human activities" (Bley et al., 2020, p. 12).

Of the six indicators selected for scrutiny, half showed a positive trend—forested areas, Natura 2000, the EU's coordinated network of protected areas of important and threatened species and habitats (European Commission, 2020d), severe soil erosion, and three showed a negative trend: soil sealing, and the common bird and buttefly indices.

The report further sets out that while the area protected under the Natura 2000 network has increased, pressures on biodiversity from human expansion, including soil sealing has continued to intensify. The resulting habitat loss is one of the reasons for the long-term declines in common birds and grassland butterflies. Development in the area of forest and water management is more positive with a decrease in pollutant concentrations in rivers, and small decrease in the area size at risk of severe soil erosion by water. While these are positive developments, the report notes its limited scope and that other assessments show less positive results and that the negative impacts of EU consumption patterns on global biodiversity are considerable.

Conclusion

Despite the foundational nature of SDG 15 which clearly shows the interdependence of the environment, and social and economic domains, progress towards the targets of SDG 15 has been slow and patchy. Given that the spread of COVID-19 is most likely associated with the decline in healthy ecosystems and the attendent rise in zoonotic diseases, striving for achievement of the SDGs is critical. More broadly it is necessary to halt and reverse the behaviours that lead to biodiversity loss and mass extinction. As the World Health Organization in its policy brief on health and ecosystem states: "Biodiversity, ecosystems and the services that they deliver are essential for all life on Earth."

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