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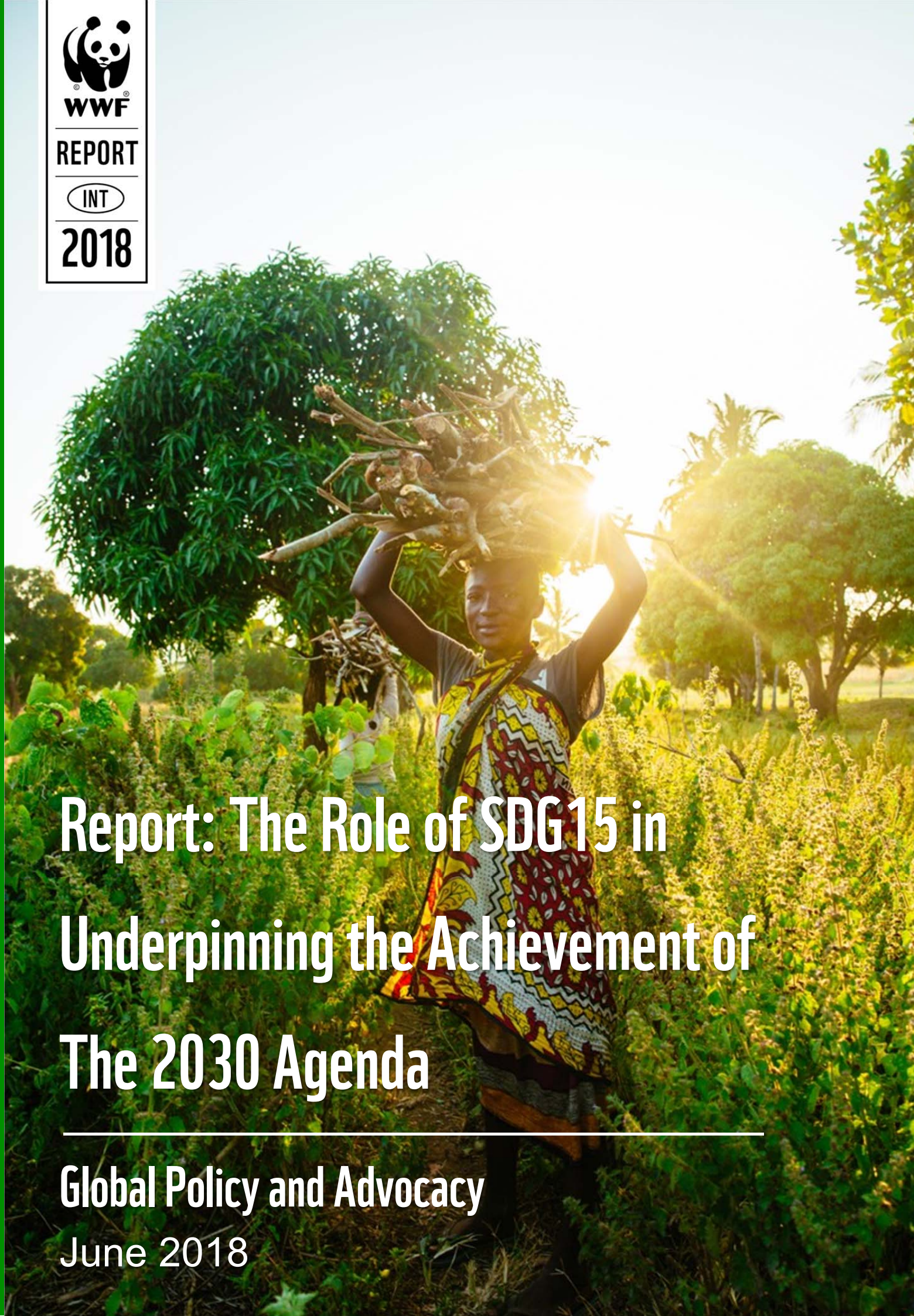

Report: The Role of SDG15 in Underpinning the Achievement of The 2030 Agenda

Global Policy and Advocacy

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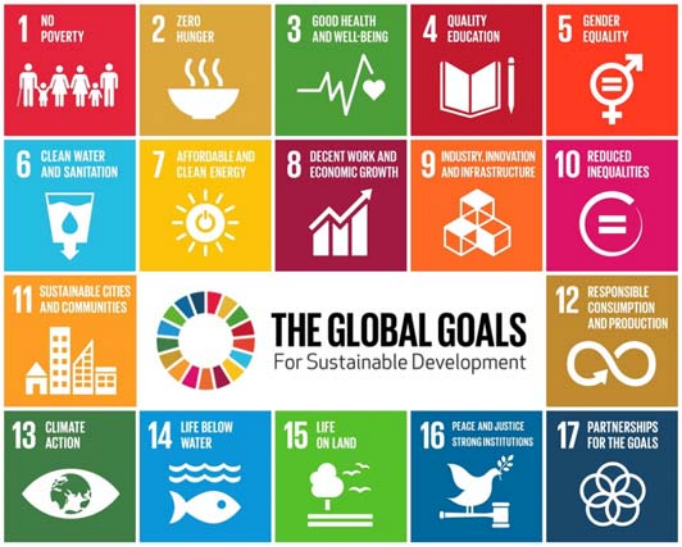
Reviewing Interlinkages of SDG 15 with SDGs under Consideration at the HLPF 2018

Background and Context

Background information compiled by Tristan Tyrrell, tristan@tentera.org, on behalf of WWF.



The importance of the natural environment, including biodiversity and ecosystem services, has been recognised in international discourse on sustainable development for many decades. Following the 1987 publication of Our Common Future, also known as the Brundtland Report [1], environmental concerns were increasingly connected to opportunities and challenges to development. The United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil in 1992 brought forward the issue of the conservation of biodiversity in this context, and its Agenda 21[2] provided a framework for local-, national- and global-level action for the United Nations (UN), other multilateral organisations, and national governments around the world. It was also the occasion for the United Nations Convention on Biological Diversity (CBD) to be opened for signature, leading to it entering into force the following year.

At the Rio+20 Conference in 2012, Member States reaffirmed that "intrinsic value of biological diversity, as well as the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its critical role in maintaining ecosystems that provide essential services, which are critical foundations for sustainable development and human well-being".[3] They also recognised "the severity of global biodiversity loss and degradation of ecosystems" and stressed the negative impact that this situation has on food security, nutrition, access to water, health of the rural poor and people worldwide. Sustainable Development Goal (SDG) 15 of the 2030 Agenda for Sustainable Development is a result of this recognition and looks 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".[4]

Forests are among the most biodiverse ecosystems, providing habitats for more than 80% of the terrestrial species of animals, plants and insects. The role that forests play in the livelihoods and

[1] http://www.un-documents.net/wced-ocf.htm
[2] https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf
[3] http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E
[4] https://sustainabledevelopment.un.org/sdg15

well-being of people, especially the rural poor, youth and women, is significant. In addition to also providing shelter, jobs and security for forest-dependent communities, approximately 1.6 billion people – including more than 2,000 indigenous cultures – depend on forests.

Forests play a major role in mitigating climate change through carbon sequestration, contribute to the balance of oxygen, carbon dioxide and humidity in the air and protect watersheds, which supply 75% of freshwater worldwide. They also reduce the risk of natural disasters, including floods, droughts, landslides and other extreme events.

SDGs under review at the HLPF 2018

The High Level Political Forum (HLPF) is the main UN platform on sustainable development and it plays a central role in the global follow-up and review of the SDGs. It meets annually, and the 2018 meeting, under the theme of "Transformation towards sustainable and resilient societies", will review: [5]

- SDG6 – Ensure availability and sustainable management of water and sanitation for all;
- SDG7 – Ensure access to affordable, reliable, sustainable and modern energy for all;
- SDG11 – Make cities and human settlements inclusive, safe, resilient and sustainable;
- SDG12 – Ensure sustainable consumption and production patterns;
- SDG15 – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
- SDG17 – Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.[6]

Importance of SDG interlinkages and recommendations

This paper examines the interlinkages between SDG15 and the other five SDGs under consideration at the HLPF 2018, as well as SDG13 (Take urgent action to combat climate change and its impacts) which will be under review in 2019 and which WWF recognises important in the context of SDG15 – not least due to the upcoming reports of the Intergovernmental Panel on Climate Change (IPCC)[7] and the role of nature conservation towards achieving the 1.5°C target of the Paris Agreement.[8] The paper considers how effective action on SDG15 can support the achievement of the other SDGs, as well as some of the challenges and trade-offs that can arise from inadequate planning and consideration.

Throughout the interlinkages explored here, the following common requirements should be considered:

- It is of utmost importance for increased communication and dialogue between sectors which is essential to foster improved co-implementation of all the SDGs, and especially those under consideration at the 2018 HLPF. This is not just between the sectors in focus – water, climate change, food, urban management, etc. – but also the related ministries or departments of planning, development, environment, forestry, agriculture, health,

[5] https://sustainabledevelopment.un.org/hlpf/2018

[6] Progress on SDG17, owing to its fundamental importance across the entire 2030 Agenda, is reviewed by the HLPF every year.

[7] http://www.ipcc.ch/activities/activities.shtml

[8] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

finance or science. Local communities and non-state actors should be involved in all stages of consultation, planning and implementation of any activities that could potentially impact on their land and livelihoods, as well as full recognition of their legal rights.

- The private sector plays an essential role in the sustainable use of natural resources, and should be consulted and brought in to support implementation where appropriate.

The interlinkages between SDG goals and targets clearly demonstrate why policy coherence is of utmost importance. Without effective policy coherence there are risks that progress in one policy area will be set back by badly thought out actions in another, thus leading to inefficiency and ineffectiveness or even long term disadvantages. On the other hand, through applying an adequate policy coherence approach, objectives in several different policy areas can be advanced simultaneously. This will support the important principle that the SDGs are a package and indivisible.

It is also worth noting that effective policy coherence and action will depend on how SDG15 will continue to be implemented beyond 2020, when five of its nine substantive targets will have passed their deadline. A meaningful enhancement of these targets through to 2030 in line with the post 2020 CBD strategic framework would be beneficial to the delivery of sustainable development to maximise the co-benefits of interlinkages between SDG15 and other SDGs.

The targets under SDG15

- 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
- 15.3 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
- 15.4 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
- 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
- 15.6 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
- 15.7 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
- 15.8 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

- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
- 15.A Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems
- 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
- 15.C 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

The Role of Life on Land (SDG15) in Providing for Clean Water & Sanitation (SDG6)

The Objectives and Trends of SDG6

The 2030 Agenda recognises the importance of water resources to sustainable development, and the vital role that improved drinking water, sanitation and hygiene fill across the sustainable development spectrum. Sustainable Development Goal (SDG) 6 is not just drinking water, sanitation and hygiene, but also considers the quality and sustainability of water resources.

"Water stress", calculated as the ratio of total fresh water withdrawn by all major sectors relative to the total renewable freshwater resources in a particular country or region, means that holistic management of the water cycle is required. Currently, water stress affects more than 2 billion people around the globe, a figure that is expected to increase. Water stress affects countries on every continent, which hinders the sustainability of natural resources, as well as economic and social development. In 2011, 41 countries experienced water stress, an increase from 36 countries in 1998. Of these, 10 countries – on the Arabian Peninsula and in Central Asia and Northern Africa – withdrew more than 100% of their renewable freshwater resources.[9]

In 2015, 6.6 billion people (91% of the global population) used an improved drinking water source, up from 82% in 2000. However, widespread inequalities persist within and among countries, and not all improved water sources are safely managed. Between 2000 and 2015, the proportion of the global population using improved sanitation increased from 59% to 68% (4.9 billion people).[9]

In most parts of the world, especially the Middle East, North Africa, Central Asia, India and China, overuse of water for agriculture has resulted in the serious depletion of rivers and aquifers, changes in hydrology, subsidence and salinization of soils. Agriculture uses 69% of freshwater. Therefore Integrated Water Resources Management (IWRM) is an important aspect of sustainable water management. In 2012, 65% of the 130 countries that responded to an IWRM survey question reported that management plans were in place at the national level, though full implementation varies across regions.[9]

Relevance and Importance of the Interlinkages between SDG15 & SDG6

As an ecosystem service, water availability and quality are derived from well-functioning ecosystems, in particular forest ecosystems, as are water storage and flow regulation, filtering and flood and drought protection, among others. Conserving and sustainably managing ecosystems is integral to effective land-use management and a sustainable and healthy food production and this in turn helps to reliably store and deliver water. Key functions inherent to forests relating to water availability and cooling include10:

[9] http://www.un.org/ga/search/view_doc.asp?symbol=E/2017/66&Lang=E
[10] Ellison *et al*. (2017) https://doi.org/10.1016/j.gloenvcha.2017.01.002

- Through evapotranspiration, trees recharge atmospheric moisture, contributing to rainfall locally and in distant locations;
- Cooling is explicitly embedded in the capacity of trees to capture and redistribute the sun's energy;
- Microbial flora and biogenic volatile organic compounds from trees can directly promote rainfall;
- Trees enhance soil infiltration and, under suitable conditions, improve groundwater recharge;
- Precipitation filtered through forested catchments delivers purified ground and surface water.

There are therefore strong links between these two SDGs, with mutual benefits or implications depending on the level of effective action. While the contribution of biodiversity to the supply of clean water is less recognised, water provision and quality play a highly important role in sustaining ecosystem health and function, which in turn are important for the delivery of ecosystem services on which we all depend.

Although SDG15 has a number of associated targets that call for effective and integrated management of natural freshwater ecosystems, corresponding targets under SDG6 do not do this to the same degree. Examining submissions of Voluntary National Reviews and National Reports to the UN Commission on Sustainable Development, it is clear that the use of well-functioning ecosystems in the management of freshwater resources is only recognised in some countries, and even then is usually specific to certain localities as opposed to a universal national approach.

Targets relevant to the interlinkages between SDG6 and SDG15

SDG6

- 6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

SDG15

- 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
- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

Potential Challenges, Risks or Trade-offs from the Interlinkages

There are a number of potential trade-offs that exist between these two SDGs. Of primary concern is to what extent policy makers recognise the value for people's livelihoods around the world of well-functioning ecosystems – like forests or wetlands – in the supply of freshwater, and the implications of downstream impacts from poor ecosystem management. Local communities living in rural areas tend to place a more direct and higher value on the associated water

provision services of adjacent ecosystems, but are also the least capable to respond to detrimental changes beyond their immediate area of influence.

In order to ensure the mutually beneficial sustainable provision of water for both humans and nature, better recognition of the fundamental basis for sustainable development that well-functioning ecosystems provide needs to be more explicitly expressed. A review of the indicators being used to track progress against SDG6 places the importance on humans as the sole beneficiaries, but fails to recognise the linkages even within the SDG itself – for instance the link between target 6.6 and the others under SDG6 is not well reflected. Related national policies that use the SDG text as a template therefore overlook this crucial role.

In addition to a more explicit recognition of the contribution of SDG6.6, the greatest opportunity for synergistic action between both SDG6 and SDG15 is the effective use of IWRM (SDG6.5), which itself is a form of the Ecosystem Approach[11]. IWRM is underpinned by the Dublin Principles[12] – derived from a statement on water and sustainable development resulting from the International Conference on Water and the Environment (ICWE) in Dublin, Ireland, in January 1992 and commended to the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, in June 1992:

- Fresh water is finite, essential to sustain life, development and the environment;
- Water development and management should be based on a participatory approach (users, planners, policy makers at all levels);
- Women play a central role in the provision, management and safeguarding of water; and
- Water is a public good and has social and economic value.

While such principles are equally recognised by the 2030 Agenda, three key points relating to policy are:

i. Economic efficiency in water use;
ii. Social equity: the basic right to water for all; and
iii. Environmental and ecological – recognise that water is a finite resource and covers all parts of the water cycle including the natural and anthropogenic interactions within it (rainfall, catchment, runoff, recharge, quality, quantity, timing, use, and supply and demand).

It therefore provides one of the best opportunities for cross-sectoral cooperation and synergistic collaboration.

The level of understanding and supporting data on the interlinkages between well-functioning ecosystems, water provision and sanitation for sustainable development is relatively high. However, the degree to which policy makers and the general public understand or recognise these connections is highly varied. While positive examples exist of effective natural water resource management – e.g. the Catskill Mountain forest area supplying New York City with sufficient water resources through programmes such as forest management planning and implementation, education and outreach for loggers, foresters and landowners, and economic

[11] https://www.iucn.org/sites/dev/files/content/documents/ecosystem_approach_and_iwrm_fact_sheet_0.pdf
[12] http://www.wmo.int/pages/prog/hwrp/documents/english/icwedece.html

development schemes for wood product-related businesses13 – a common perception of water courses is of waste removal systems, transferring the problems downstream with little consideration of the consequences of polluting rivers and oceans. This "out of sight, out of mind" attitude is hindering suitable management of the entire water cycle in synergistic policy programmes where ecosystems, and in particular forests, play a central role in water supply and management. Similarly, the construction of dams for water supply and hydropower in various watersheds can cause considerable environmental damage.

As global urban populations continue to increase at a considerable rate, the best approach is to demonstrate the potential benefits of using green-grey systems, such as upstream water provision by ecosystems flows including pollution control, recognising the value of natural wetland and other forms of floodplains in water storage, and maintaining natural riverine ecosystems throughout the watershed to use natural water filtration systems while avoiding flooding.

Recommendations for better recognition of interlinkages in policy making

The value of well-functioning ecosystems, in particular forests, in the sustainable provision of sufficient water should be recognised at all levels, and action taken to ensure that actions relating to SDG6 and SDG15 provide mutual benefits while minimising the trade-offs.

In addition to raising awareness and understanding in stakeholders at all levels, there are a number of key tools and policy planning processes that can assist:

- Effective spatial and management planning is fundamental, and tools such as Strategic Environmental Assessments (SEAs)[14], Integrating Valuation of Ecosystem Services and Tradeoffs (InVEST)[15] and Toolkit for Ecosystem Service Site-Based Assessment (TESSA)[16] allow for ecosystem services to be maps and the trade-offs from development considered;
- Apply the guidelines on IWRM[17], and recognising the Dublin Principles, throughout all projects on water supply;
- Apply the Hydropower Sustainability Assessment Protocol[18] when planning dams for renewable energy;
- Review the TEEB report on The Economics of Ecosystems and Biodiversity for Water and Wetlands[19] which details how to integrate the value of such ecosystems and services into decision making and management.

[13] Brunette, V. & Germain, R.H. 2003. *Forest Management in the New York City Watershed*. Watershed Agricultural Council, Walton NY, USA. http://www.fao.org/docrep/article/wfc/xii/0649-b3.htm
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The Role of Life on Land (SDG15) in Providing for Affordable & Clean Energy (SDG7)

The Objectives and Trends of SDG7

Sustainable development, including through poverty eradication, improved health, education, water supply, industrialisation and the mitigating climate change, all require access to affordable, reliable and sustainable energy. However, this varies widely across countries and the current rate of progress is inadequate to achieve Sustainable Development Goal (SDG) 7.

Recent progress has seen the proportion of the global population with access to electricity increasing from 79% in 2000 to 85% in 2012, and was largely driven by advancements in Southern Asia, South-Eastern Asia and sub-Saharan Africa and the vast majority (80%) are urban dwellers. Despite these improvements, over 65% of the population in sub-Saharan Africa are living without electricity.[20]

Modern renewables, which include hydropower, biofuels, wind, sun, biogas, geothermal and marine sources – but exclude solid biofuels such as wood, sawdust, grass trimmings, domestic refuse, charcoal, agricultural waste, non-food energy crops, and dried manure – grew at a rate of 4% a year between 2010 and 2012. Modern renewables accounted for 60% of all new power-generating capacity in 2014 with the largest increase from developing regions, mostly Eastern Asia. Despite this, the absolute number of people relying on polluting fuels and technologies for cooking has increased, reaching an estimated 3 billion people.[20]

Relevance and Importance of the Interlinkage between SDG15 & SDG7

Despite little explicit recognition of the positive interlinkages between these two SDGs, one potential side effect of the promotion of clean and renewable energy supply is the reduction in pollution introduced into the atmosphere and nearby land and water courses. In addition to the health and well-being benefits to humans, there are also positive impacts for biodiversity such as through clean rivers and other water sources, reduced air pollution and stable climatic conditions.

Targets relevant to the interlinkages between SDG7 and SDG15

SDG7

- 7.A By 2030, 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

SDG15

- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

[20] http://www.un.org/ga/search/view_doc.asp?symbol=E/2017/66&Lang=E

Potential Challenges, Risks or Trade-offs from the Interlinkages

There are a number of potential negative consequences to biodiversity and ecosystems from actions associated under SDG7. In the short term, it is likely that countries, in trying to achieve SDG7.1 (By 2030, ensure universal access to affordable, reliable and modern energy services), will focus on increasing traditional energy infrastructure such as fossil fuel-based systems to meet demand and targets. While positive examples of large scale non-fossil fuel use have been reported in recent years – such as 100% of Costa Rica's national power grid coming from renewable energy sources for 300 days in 2017[21] – and a general decline in the use of fossil fuels by major country users, the rate of uptake of renewable sources is slow relative to all fuel types[22].

The weak valuation of biodiversity rich habitat can lead to the degradation of ecosystems and their services. There are a number of major trade-offs for nature in the increased development of large-scale renewable energy systems. For instance, while some systems may use the by-products of existing agriculture and forestry for bioenergy production, a large number of examples exist of the explicit cultivation of non-native biofuel species for energy production. This therefore increases the pressure on available land for other purposes.

The impacts of hydro-electric infrastructure on nature have been well documented[23], and include restricting migration through river systems by dams, the placement of high-voltage electricity power lines, the loss and conversion of natural habitats from reservoir creation or expansion and the emergence of heavy metals and other pollutants from the soil, and the impacts on local communities such as the loss of land and heritage. Coupled with the need for regular maintenance to ensure the effective working order of the dam, such large industrial scale systems negatively impact freshwater biodiversity in many cases.

Solar farms – the use of industrial scale photovoltaic power stations – are an emerging trend as the emergence and cost-effectiveness of solar technology increases. While positive as a means of reducing carbon emissions from the production of electricity, there are some associated impacts that can affect biodiversity. Also, while studies have suggested a positive impact for biodiversity compared to adjacent agricultural land[24], the installation of such schemes has the potential to impinge on feeding, nesting or breeding grounds or behaviours of some faunal species, while floral species can lose out to the resultant deforestation or shading, when compared to natural habitats. Similarly, the use of former agricultural land can encourage the conversion of other land for food production, as well as the decision to not restore such land to a more natural state.[25]

Large land-based and offshore wind farms also have the potential to impact on biodiversity. The incidence of collisions between birds and bats with wind turbines has been shown to be a significant issue[26], while the impacts in marine environments can also lead to habitat loss for birds and aquatic species, deviation of the migratory routes of birds and whales, noise and

[21] http://grupoice.ticoblogger.com/2017/11/18/costa-rica-alcanza-300-dias-de-generacion-electrica-100-renovable-en-2017/

[22] https://ourworldindata.org/energy-production-and-changing-energy-sources

[23] E.g., Vukovic *et al*. (2014) https://doi.org/10.1016/j.catena.2013.07.012; Chen *et al*. (2011) https://doi.org/10.1016/j.proenv.2011.03.061; Nilsson *et al*. (2005) http://science.sciencemag.org/content/308/5720/405

[24] https://www.solar-trade.org.uk/wp-content/uploads/2016/04/The-effects-of-solar-farms-on-local-biodiversity-study.pdf

[25] Hernandez *et al*. (2014) http://dx.doi.org/10.1016/j.rser.2013.08.041; Harrison *et al*. (2016) http://publications.naturalengland.org.uk/file/6000213410447360

[26] Thaxter *et al*. (2017) http://dx.doi.org/10.1098/rspb.2017.0829

electromagnetic disturbance, and navigational hazards for ships[27]. In all cases, careful planning and management of such sites are important.

The demand for firewood to produce charcoal is one of the main causes for deforestation and biodiversity loss in a lot of countries, especially in Africa[28]. As a result energy-related initiatives need to understand and address the needs of individual households, as well as wider scale municipal and commercial clean energy production, in order to ensure that the availability and accessibility of alternative technologies are within the reach of those with lower economic means.

The essential element for better recognition of the interlinkages and the effective mutually supportive implementation of SDG7 and SDG15 is the development of clean energy technology that reduces waste and requires as few non-renewable resources as possible, and increasing investment in clean energy infrastructure. As technology in this sector advances and the use of small and local scale energy production coupled with effective storage increases, the opportunities for win-win outcomes emerge.

Recommendations for better recognition of interlinkages in policy making

Despite positive trends in the availability and use of clean energy supply technologies, their installation and use must be carefully planned and managed in order to minimise the impacts on biodiversity. A number of planning tools and guidelines exist to assist in ensuring coherent policy making and implementation:

- Apply the Hydropower Sustainability Assessment Protocol[29] when planning dams for renewable energy;
- Undertake Strategic Environmental Assessments (SEAs) [30] and use tools such as Integrating Valuation of Ecosystem Services and Tradeoffs (InVEST)[31] and Toolkit for Ecosystem Service Site-Based Assessment (TESSA) [32] to consider the impacts on ecosystems and the goods and services they provide;
- Implement the principles of New Generation Plantations (NGP)[33] that help to meet growing demand for timber, paper and fuelwood through the use of well-managed tree plantations in cooperation with local people that respects and strengthens their rights to land and resources, contributes to local livelihoods and well-being, and supports biodiversity and ecosystem function;
    - Apply techniques for more efficient charcoal making by using less wood: Support people to plant trees and use more efficient cook stoves, providing an alternative and sustainable source of energy.[34]

[27] Wilhelmsson *et al*. (2010) https://testportals.iucn.org/library/sites/library/files/documents/2010-014.pdf
[28] Sedano *et al*. (2016) https://doi.org/10.1088/1748-9326/11/9/094020
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[31] https://www.naturalcapitalproject.org/invest/
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[33] http://newgenerationplantations.org/en/ngp/
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- Consider specific guidance on the biodiversity-related risks and safeguards associated with large-scale solar[35] and wind[36] farm developments.

The accessibility of renewable power technology remains beyond the reach of many, and support should therefore be provided to aid in the sharing of emerging solutions. This may be in the form of financial assistance for purchasing, philanthropic donations or the removal of trade tariffs to help reduce the costs involved.

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[36] E.g., http://publications.naturalengland.org.uk/publication/84054

The Role of Life on Land (SDG15) in Providing for Sustainable Cities & Communities (SDG11)

The Objectives and Trends of SDG11

Over half the world's population lives in urban areas, and this is expected to rise to around 60% by 2030. However, and despite recent declines, 30% of the urban population in developing regions lived in conditions categorised as slums in 2014, with this figure rising to 55% in sub-Saharan Africa.[37]

Cities can offer more efficient economies of scale on many levels, including the provision of goods, services and transportation. However, this must be associated with effective planning and management. Urban sprawl is occurring in many regions, with Eastern Asia and Oceania experiencing the highest ratio of land conversion to population growth from 2000 to 2015. Only Latin America and the Caribbean, and Southern and Central Asia saw urban areas became more densely populated, although this could indicate a prevalence of overcrowded slums.

Ambient air pollution in both cities and rural areas is estimated to have caused 3.7 million premature deaths in 2012, and unplanned urban sprawl is associated with increased per capita emissions of carbon dioxide and hazardous pollution. In 2014, about half the urban population worldwide was exposed to air pollution levels at least 2.5 times above the safety standard set by the World Health Organization (WHO). No region had annual average mean concentrations of particulate matter below the maximum level set by WHO of 10 micrograms per cubic metre.[37]

Relevance and Importance of the Interlinkages between SDG15 & SDG11

The need for the sustainable management of urban areas is becoming increasingly recognised. Trends show an increase in urban land at a greater rate than that of urban population growth. Such spread is not sustainable and can impact on the availability of effective agricultural land, the provision of suitable water and sanitation services, as well as the knock-on impacts on biodiversity and healthy ecosystems. Within urban areas, the benefits of sound environmental management, such as the minimisation of air and water pollution, and the availability of safe green spaces, including forests, are strongly recognised as fundamental for maintaining the health of human populations. This also demonstrates the strong additional interlinkage with SDG3 (Good health and well-being).

The theme for the 2018 International Day of Forests was "Forests and Sustainable Cities".38 Raising awareness of the importance of all types of woodlands and trees, and celebrate the ways in which they sustain and protect humans, the celebration sought to highlight their role in providing local and global climate regulation, economic benefit, and health and well-being in an urban context.

Climate change will greatly impact the resilience of urban areas. Water stored in urban green spaces reduces water runoff and increases water storage, while urban wooded areas provide climate regulation through cooling and evapotranspiration. Furthermore, food security can be

[37] http://www.un.org/ga/search/view_doc.asp?symbol=E/2017/66&Lang=E
[38] http://www.un.org/en/events/forestsday/

enhanced by urban agriculture, which also supports soil conversation, urban hydrology, and urban biodiversity.

Forests and green spaces help improve air quality in urban areas. They remove a wide range of air pollutants caused by traffic and industry such as particles and carbon oxides. Trees also help tackle climate change – over one year a mature tree will take up about 22 kilograms of carbon dioxide from the atmosphere, and in exchange release oxygen. Each year, 1.3 million trees are estimated to remove more than 2,500 tonnes of pollutants from the air.[39] Trees and urban green spaces also facilitate the infiltration of rainwater into the ground, and contribute to flood management.

Having safe green spaces and the possibility to reconnect with nature has multiple mental and physical health benefits for urban residents[40]. Such health and well-being benefits, especially for older people, include[41]:

- Increased physical activity and reduced obesity;
- Reduced stress levels and improvements in mental health;
- Reductions in noise levels, which can improve mental and physical health;
- Improvements in hospital recovery times;
- Lower levels of violence and crime and improved social interactions.

SDG11 also recognises the contribution of, and negative impact on, nature in the context of urban areas. A number of the targets look to address these to a certain degree. Recognition of the link with the Sendai Framework for Disaster Risk Reduction 2015-2030[42] – which was adopted at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan, in March 2015 and aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods and health through preventing new and reducing existing disaster risks – demonstrates the need for more holistic cross-sectoral management both within and around urban areas.

Targets relevant to the interlinkages between SDG11 and SDG15

SDG11

- 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage
- 11.5 By 2030, significantly 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, with a focus on protecting the poor and people in vulnerable situations
- 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

[39] McPherson *et al.* (2005) https://www.fs.fed.us/psw/publications/documents/psw_gtr199/psw_gtr199.pdf
[40] Mitchell & Popham (2008) http://www.thelancet.com/journals/lancet/article/PIIS0140- 6736(08)61689-X/abstract
[41] WHO & EEA (2011) https://www.eea.europa.eu/publications/forests-health-and-climate-change/download
[42] https://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf

disabilities

- 11.A Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning
- 11.B By 2020, 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, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

SDG15

- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

Potential Challenges, Risks or Trade-offs from the Interlinkages

There are numerous negative implications of increasing focus on urban areas as a means to creating more sustainable societies. As inward urban migration occurs, there can be an associated loss of traditional environmental knowledge and practices. Such loss of these forms of culture can further exacerbate ineffective natural resource management in the areas left behind, as well as lower resilience to changes faced in their new urban environments. Despite the name of SDG11, the development and maintenance of a sense of community is not borne out by the associated targets.

The resulting need for intensification in agricultural production, sustainable water supply, waste management and sanitation, and fuel and building materials associated with increasing urban populations can have dramatic impacts on surrounding natural environments. While the economies of scale of a highly urbanised population may be useful and cost-saving for the provision of many goods and services, the resulting impacts on biodiversity can be highly detrimental. Ultimately it is a question of effective spatial planning and consultation.

Recommendations for better recognition of interlinkages in policy making

There must be greater emphasis placed on the value of green spaces, and in particular forests, in the urban landscape. This comes down to good communication and outreach initiatives that encourage people and communities to make use of such spaces, and for local planners to recognise their importance. Linked to this is the provision of scientifically-backed evidence for decision makers to incentivise them to appropriate action to address modern challenges in sustainable urban management. Locally-appropriate studies on the benefits of taking an ecosystem approach in this context, such as the TEEB in Local and Regional Policy and Management report,[43] are also needed to ensure that appropriate decisions are taken and management is carried out.

Toolkits and guidance are also available for local planners and decision makers to consider the options regarding urban green spaces:

[43] http://www.teebweb.org/our-publications/teeb-study-reports/local-and-regional-policy-makers/

- UN-Habitat has produced the Global Public Space Toolkit: From Global Principles to Local Policies and Practice[44] that aims to guide policies and strategies at city level that suit the specific conditions within which they exist;
- Undertake Strategic Environmental Assessments (SEAs) [45] and use tools such as Integrating Valuation of Ecosystem Services and Tradeoffs (InVEST)[46] and Toolkit for Ecosystem Service Site-Based Assessment (TESSA)[47] to recognise the goods and services provided by urban and peri-urban ecosystems.

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[44] https://unhabitat.org/wp-content/uploads/2015/10/Global%20Public%20Space%20Toolkit.pdf
[45] E.g., http://ec.europa.eu/environment/eia/pdf/2012%20SEA_Guidance_Portugal.pdf
[46] https://www.naturalcapitalproject.org/invest/
[47] http://tessa.tools/

The Role of Life on Land (SDG15) in Providing for Responsible Consumption & Production (SDG12)

The Objectives and Trends of SDG12

Sustainable Development Goal (SDG) 12 recognises that sustainable growth and development require minimising the natural resources and toxic materials used, as well as the waste and pollutants generated, throughout the entire production and consumption process. Delivering on this goal requires significant shifts in local, regional, and global markets, including rethinking how products are produced, distributed, and consumed. This includes more equitable distribution of power and wealth, and control on resource use.

The material footprint per Gross Domestic Product (GDP) of developed regions fell owing to greater efficiency in industrial processes between 2000 and 2010. Still, the GDP of developed regions remains considerably higher than that of developing regions at 23.6 kilograms per unit of GDP compared to 14.5 kilograms in 2010. However, developing regions are catching up as they continue to grow economically.[48]

In almost all developing regions, domestic material consumption per capita increased between 2000 and 2010, although sub-Saharan Africa and Oceania were either stable or declining. There was a dramatic rise in consumption per capita of raw materials in Asia, particularly Eastern Asia, primarily due to rapid industrialisation.

More than 90% of the 570 million farms worldwide are managed by an individual or a family, relying largely on family labour, and these farms produce more than 80% of the world's food (FAO 2017). These small holder farmers are part of a food system that traps many of them in poverty and powerlessness. For example, in the global cocoa value chain only eight traders and grinders control 75% of global trade. Less than 6% of the value of a chocolate bar reaches cocoa farmers. In the 1980s it was 18% (OXFAM 2018).

Proper management of biodiversity and efficient use of resources can enable farmers, especially smallholder farmers, to be more productive and is one of the most effective means of reducing poverty and achieving food security (FAO 2017). Food production practices need to balance farmer wellbeing, crop yields, biodiversity, soil health, water quality, and greenhouse gas emissions. These practices may include agro-ecological processes and diversified agriculture adapted to local environments, and should offer training, support and information provision to farmers. Offering financial incentives for farming industries to implement more sustainable practices, such as reducing synthetic fertiliser use and 'sparing' land for conservation, helps to reduce greenhouse gas reduction and increase biodiversity.[49]

Relevance and Importance of the Interlinkages between SDG15 & SDG12

Natural capital generates significant economic and environmental benefits that support healthy and resilient economies. It includes forest watersheds that sequester carbon and protect our drinking water, wetlands that moderate floods, mangroves and coral reefs that protect us from

[48] http://www.un.org/ga/search/view_doc.asp?symbol=E/2017/66&Lang=E

[49] Tanentzap AJ, Lamb A, Walker S, Farmer A (2015) Resolving Conflicts between Agriculture and the Natural Environment. PLoS Biol 13(9): e1002242. https://doi.org/10.1371/journal.pbio.1002242

coastal storms, all while providing food and livelihoods for hundreds of millions, including many of the world's poorest people. Producing better and consuming more wisely are key to establishing resilient markets that stay within our planet's safe operating space, safeguard this natural capital, and contribute to our economic and social well-being. Sustainable resource management and incorporation of the true costs of production in the value chain will encourage better choices.

However, trends in overconsumption and waster production indicate that we are dangerously threatening our natural heritage, with humans currently consuming 1.6 planets' worth of resources.[50]

To ensure our planet's future we must collectively consume less, produce better, waste less, and use resources more efficiently. By providing the key elements for a healthy workforce, as well as many basic inputs that feed into the production of goods and services, the need for sustainable consumption and production is fundamental to the effective management of the biosphere.

By jointly implementing SDG12 and SDG15, many important concerns can be addressed that would be mutually beneficial. For instance, through tackling the sources of pollution, we can support sustainable development through many of its facets including economic development, health, poverty alleviation and the conservation of nature. Such sustainable use would require effective collaboration with the private sector, as well as governments, civil society and local communities.

One of the major drivers of biodiversity loss, and in particular deforestation, is agriculture. With increasing global populations and food production systems becoming ever more industrialised, the conversion of natural habitats to productive agricultural land has seen the sector account for 70% of the projected loss of terrestrial biodiversity[51]. Commitments are being made by multiple stakeholders, such as:

- The New York Declaration on Forests[52] – targets committed by countries, sub-national governments, companies, indigenous groups, and NGOs to protect forests and stop natural forest loss by 2030, including by developing more sustainable conversion-free supply chains;
- The Consumer Goods Forum [53] – a senior corporate management-led body that collaborates with other key stakeholders drive positive change – as well as national governments;
- The Amsterdam Declarations[54] – non-legally binding political commitments made in 2015 to support the implementation of private sector commitments on deforestation and sustainable palm oil by incentivising sustainable production in producer countries.

The vision of the 2030 Agenda, where "humanity lives in harmony with nature and in which wildlife and other living species are protected"[55], cannot be realised without recognising that in order to fully achieve sustainable development, we need to ensure that action on all SDGs is

[50] WWF (2016) http://awsassets.panda.org/downloads/lpr_living_planet_report_2016.pdf
[51] CBD (2014). https://www.cbd.int/gbo/gbo4/publication/gbo4-en.pdf
[52] http://forestdeclaration.org/
[53] https://www.theconsumergoodsforum.com/
[54] https://partnershipsforforests.com/partnerships-projects/the-amsterdam-declarations/
[55] https://sustainabledevelopment.un.org/post2015/transformingourworld

undertaken in a holistic and mutually beneficial manner. This is especially true when considering the challenges relating to SDG12 and their potential impact on SDG15.

Targets relevant to the interlinkages between SDG12 and SDG15

SDG12

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources
- 12.4 By 2020, 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
- 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

SDG15

- 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
- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

Potential Challenges, Risks or Trade-offs from the Interlinkages

One major trade-off from efforts seeking to promote sustainable consumption and production is the possibility of offshoring any associated impacts. This may arise from consumer demand leading to the sourcing of products from outside the country or region, and therefore sending the problem elsewhere without solving it. Such consequences would need to be pre-emptively recognised and prevented, such as through legislative means including heavy import tariffs.

Despite more than 400 deforestation-free and conversion-free pledges had been made by companies under the New York Declaration on Forests, they have not been realised on the ground. One reason for this is the lack of an "implementation framework" that provides guidance to companies and that enables comparable, consistent and coherent actions.[56] Furthermore, Denmark, Germany, Netherlands, Norway, the United Kingdom, Italy and France signed the Amsterdam Declarations in 2015 towards Eliminating Deforestation from Agricultural Commodity Chains with European Countries. As the EU is the one of the largest importers of goods linked to deforestation in the world, EU action in this area is critical in meeting SDG15.2, as well as other associated SDGs.

Given recent trends, the need to provide food for the world's 7.4 billion people, and especially the efforts to achieve SDG2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture), could lead to one of the largest challenges with the achievement of SDG15. Protecting and sustainably managing forests and restoring degraded lands, especially in

[56] http://www.climatefocus.com/sites/default/files/20180123%20Supply%20Chain%20Efforts%20-%20Are%20We%20On%20Track.pdf.pdf

tropical forests where biodiversity is most prevalent, needs to be carefully considered, and SDG12 can help mitigate this trade-off through the implementation of sustainable production practices.

Recommendations for better recognition of interlinkages in policy making

Ensuring responsible production and consumption is a complex task that requires cooperation and action by a wider range of stakeholders. The need for effective and on-going monitoring and tracking programmes is essential to ensure that production and consumption are sustainable, and this includes species and habitat conditions, private sector activities and consumer behaviour. Communication and outreach is also very important. Consumer and producer awareness, both of the impacts as well as the sustainable alternatives, should be raised through targeted campaigns, as well as associated assessments57.

Member states, institutions and businesses should recognise and include the following elements for the full and effective implementation of SDG12 and SDG15:

Create an enabling environment for better production and consumption including strong legislative and policy frameworks that promote the circular economy, and halt deforestation, destruction and conversion of natural habitats, while ensuring the proper enforcement of existing and future laws. Set public procurement policies that include criteria to exclude all commodities contributing to deforestation, conversion and pollution of natural habitats.

- The development of an EU Action Plan on Deforestation and Degradation and legislative measures as proposed by the EU Commission in its "feasibility study on policy options to step up EU action against deforestation" should be pursued. Such plan would help make sure all agricultural products on the EU market are free from deforestation.58
- The rise in declarations and initiatives, such as the Amsterdam Declarations, and the New York Declaration on Forests, as well as the Consumer Goods Forum to achieve zero net deforestation by 2020, should be promoted, supported and joined by more actors.
- Tools such as the FAO Voluntary Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition[59], and the Accountability Framework Initiative (AFI)[60] on establishing common definitions, norms, and good practices for delivering on companies' ethical supply chain commitments, should also be considered.

Develop a new legally-binding multilateral agreement to combat plastic pollution.

Promote reforms in the private sector towards more sustainable production methods and sustainable financing through supportive regulatory frameworks, policy and incentives as well as private initiatives. Encourage the uptake of credible sustainability standards and certification as robust indicators for indicator 12.6, to support business to adopt more sustainable practices, including respecting the customary rights of local communities.

[57] E.g., http://www.teebweb.org/our-publications/teeb-study-reports/business-and-enterprise/ and http://teebweb.org/agrifood/

[58] http://www.wwf.eu/what_we_do/eu_forests/; http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0218321enn_interventions.pdf

[59] http://www.fao.org/3/a-i5248e.pdf

[60] https://accountability-framework.org/

Increase productivity, efficiency and climate protection in food production through the adoption of agro-ecological farming, making fisheries more sustainable and eliminating harmful subsidies. This should include protecting the rights and livelihoods of smallholder food producers.

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The Role of Life on Land (SDG15) in Providing for Climate Action (SDG13)

[Note: The linkage of SDG15 with SDG13 is included in this analysis, although SDG13 will be under review by the HLPF in 2019.]

The Objectives and Trends of SDG13

Climate change is recognised as the single largest threat to development, and its global effects especially impact the poorest and the most vulnerable. Sustainable Development Goal (SDG) 13 calls for urgent action not only to combat climate change, but also to build resilience in responding to climate-related hazards and natural disasters.

Greenhouse gas (GHG) emissions have been rising steadily over the past number of decades, which has resulted in increases in record-setting global temperatures. Disasters are increasing in frequency and intensity, many of which are exacerbated by climate change, and an average of 83,000 people died and 211 million were affected annually as a result of natural disasters occurring from 2000 to 2013.[61]

Countries have been paying increased attention to climate change and its impacts in recent years. SDG13 reflects the Paris Agreement where, in 2015, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed to action to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels, and strive to limit the temperature increase to 1.5 °C above pre-industrial levels.[62] It also includes addressing some issues concerning the implementation gap with commitments of a substantial increase in funding, technology transfer and capacity building.

Enhanced cooperation, capacity building and access to financial and technical support are recognised needs, and developed countries committed to mobilising $100 billion per year by 2020 in climate financing from a wide variety of sources to help address the needs of developing countries. As of 2016, its first full year in operation, the Green Climate Fund had mobilized over $10.3 billion[61] with substantial finance also being driven by private financial institutions.[63] With the aim of reducing the underlying disaster risk factors, countries are developing and implementing a variety of different mechanisms, including climate change adaptation projects and programmes, environmental impact assessments, integrated planning, Payments for Ecosystem Services (PES) schemes such as REDD+ (Reducing Emission from Deforestation and forest Degradation), and legislation for the protection of environmentally sensitive areas.

Relevance and Importance of the Interlinkages between SDG15 & SDG13

While highly impacted by climate change, biodiversity at the same time contributes to mitigating and adapting to it. Biodiversity conservation and ecosystem restoration can therefore enhance ecosystem resilience, and improve the ability of some species and habitats to remove and store

[61] http://www.un.org/ga/search/view_doc.asp?symbol=E/2017/66&Lang=E
[62] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
[63] https://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2017/

carbon dioxide from the atmosphere. Healthy ecosystems also act as buffers against natural hazards.

Changing weather patterns, rising sea levels, ocean warming and ocean acidification impact all sectors of the economy and serve to reduce socio-economic and environmental resilience. Resilience is similarly affected by a number of non-climate related factors such as pollution, inappropriate infrastructure development and over-fishing. These kinds of pressures impact negatively on biodiversity resulting in the loss of ecosystem services, leading to the increased vulnerability of humans and economies to slow and fast-onset hazards. The Paris Agreement seeks to build socio-economic and ecological resilience, including through the sustainable management of natural resources, and recognises the important carbon sequestration role of forests as sinks, and calls for policy approaches and positive incentives to reduce emissions from deforestation and forest degradation including REDD+, and to promote the sustainable management of forests.

As climate change occurs, heat waves pose particular risks for the elderly and people suffering from respiratory and cardio vascular diseases. Air quality often deteriorates during heat waves and thus aggravates health problems, with the elderly being particularly vulnerable to the health impacts of climate change. As global populations become increasingly urbanised, forests and green spaces in urban areas can help protect people from the health-related impacts of climate change. Trees and shrubs can partly reduce the negative impacts of heat waves in urban areas by cooling the surrounding areas by several mechanisms – their leaves reflect light and heat back upwards and provide shade, while transpiration releases water into the air which results in lower temperatures around them. Modelling studies for urban temperatures over the coming decades project that in urban areas where the green cover is reduced by 10%, urban temperatures could, under a high emissions scenario, increase by 8.2°C above current levels. On the other hand, increasing the urban green cover by 10% could restrict the temperature increase to only 1°C.[64]

Ecosystem-based Adaptation (EbA), which integrates the use of biodiversity and ecosystem services into an overall adaptation strategy, can be cost-effective and generate social, economic and cultural co-benefits and contribute to the conservation of biodiversity. Ecosystem-based Mitigation (EbM), i.e. the sustainable management of ecosystems to capture and store carbon, e.g. programmes such as REDD+, take advantage of the fact that terrestrial and coastal ecosystems sequester one third of fossil fuel emissions, whilst net emissions from land cover change and ecosystem degradation are responsible for about 10% of the total yearly anthropogenic carbon emissions.

While not directly considered under SDG15, coastal habitats such as mangroves are extremely important for both the maintenance of biodiversity, and for the role they play in helping to mitigate and adapt to climate change. Mangrove forests are highly productive, with carbon production rates equivalent to tropical humid forests. With limited global distribution, mangroves account for approximately 1% of carbon sequestration by the world's forests, but about 14% by the global ocean.[65] Therefore, negative impacts on mangrove habitats can result in very high GHG emissions. The impacts of land-based activities such as agriculture, land reclamation and urban development on such ecosystems demonstrate the highly linked nature between SDG13, SDG14 and SDG15, and how holistic management across all three is essential.

[64] Gill (2007) https://www.fs.usda.gov/ccrc/sites/default/files/Gill_Adapting_Cities.pdf
[65] Alongi (2014) https://doi.org/10.4155/cmt.12.20

Nature-based solutions to addressing climate change, most notably EbA, EbM and ecosystem-based approaches to disaster risk reduction (Eco-DRR) are relatively new to environment and climate change practitioners. However, the potential opportunities they provide to providing win-win scenarios are becoming increasingly recognised.

In addition to effectively managing currently healthy ecosystems, habitat restoration, especially forests, must therefore be a central component to activities relating to mitigating and adapting to climate change. The value of these natural ecosystems is becoming increasingly recognised, but more must be done to fully incorporate nature-based solutions into national planning.

Targets relevant to the interlinkages between SDG13 and SDG15

SDG13

- 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

SDG15

- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
- 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

Potential Challenges, Risks or Trade-offs from the Interlinkages

As climate change becomes one of the primary concerns for society, the demand for quick solutions can lead to an overreliance on carbon dioxide removal technologies and grey infrastructure that pose risks to biodiversity, nature and people. This is especially true in the context of addressing climate-related disasters. Such a reliance on conventional engineered approaches may provide relief in the short term, but must be considered against other options that may have more long term cost-effective result.

In addressing climate change, there are a number of possible approaches under consideration or being implemented that can negatively impact biodiversity. For instance, the use of bio-energy carbon capture and storage (BECCS) as a means to remove carbon dioxide from the atmosphere on industrial scales. This process involves growing large areas of bioenergy crops, from grasses to trees – around one-third of current total arable land globally[66] – and the impacts on other issues such as water availability and food security are still unknown. As a result, biodiversity could suffer greatly from increased land conversion, the possible introduction of invasive alien species, and competition for water resources.

[66] Williamson (2016) https://www.nature.com/news/emissions-reduction-scrutinize-co2-removal-methods-1.19318

Equally the call in the Paris Agreement for the "enhancement of forest carbon stocks in developing countries" could lead to large scale afforestation through mono-cropping of fast-growing tree species. Such homogeneity could be at the expense of biodiversity.

Ultimately, there is no risk-free approach, and safeguards must be put in place to ensure that decisions relating to EbA and EbM are taken and implemented based on the best available scientific evidence concerning ecosystem health, and the rights and livelihoods of those living in the areas concerned.[67]

Recommendations for better recognition of interlinkages in policy making

The role of nature-based solutions in addressing climate change can be difficult to understand from a policy perspective. The complexity of the concepts, the terminology and the lag times in seeing results make convincing decision makers and the general public a vital task. Further understanding of how to undertake such activities and to manage expectations, as well as to provide effective arguments to a range of audiences, are needed. Investment in research and development (R&D) on nature-based solutions for climate mitigation as viable and cost-effective alternative to BECCS should be pursued.

Reviews such as NDCs - A Force for nature?[68] demonstrate the need for integrated biodiversity and climate change policies, and provide recommendations on how this can be achieved. Integrated policy measures to manage trade-offs of demands on land use for action on climate, food security and biodiversity are key to balance and prioritise national interests.

The implementation of the Cancun Safeguards and associated standards[69] are essential in order to avoid potential social and environmental damage, and ensure the equitable sharing of social and environmental benefits from mitigation activities under REDD+. It must be ensured that all (climate-related) activities carried out on (forest-)land respect land and tenure rights, especially the rights of indigenous peoples and local communities. All decisions affecting indigenous and tribal peoples need to be guided by their free, prior and informed consent (FPIC). Likewise, quality standards have been proposed[67], and tools and examples can be found[70] that can assist in the effective implementation of EbA.

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[67] E.g., FEBA (2017) https://www.iucn.org/sites/dev/files/feba_eba_qualification_and_quality_criteria_final_en.pdf
[68] WWF (2017) http://awsassets.panda.org/downloads/NDCs_-_a_force_for_nature_(1).pdf
[69] http://www.redd-standards.org/images/site/Documents/REDDSESVtwo/REDDSES_Version_2_-_10_September_2012.pdf
[70] E.g., http://panorama.solutions/en/portal/ecosystem-based-adaptation

The Role of Life on Land (SDG15) in Providing for Partnerships for the Goals (SDG17)

The Objectives and Trends of SDG17

Governments, civil society, the private sector and other actors must work in partnership in order to achieve the SDGs. This includes mobilising funds from all sources. In 2015, official development assistance (ODA) totalled US$131.6 billion, 6.9% higher in real terms than in 2014, and represented the highest level ever reached.[71]

In 2012, the ratio of external debt service to exports was below 6% for almost all developing regions, showing a substantial decline from comparable ratios in 2000. While increased export earnings, enhanced debt management and attractive borrowing conditions in international markets helped with this improvement, the most important contributing factor for the poorest countries was outright debt relief.

Some positive trends have also been seen in trade; data, monitoring and accountability; and information and communications technology, but much more needs to be done to successfully achieve this SDG.

Relevance and Importance of the Interlinkages between SDG15 & SDG17

The links between SDG15 and SDG17 are less direct, and there is little recognition of contributions within the 2030 Agenda text. Biodiversity is a considered to be a key economic, financial, cultural and strategic asset for countries around the world. It is essential for economic and social development as well as for poverty reduction. The loss of biodiversity undermines the opportunities for sustainable development globally. While historically the contributions of biodiversity and ecosystem services to a country's Gross Domestic Product (GDP) have not been fully recognised, the evidence and consideration for the role of nature is increasing.[72] Studies have shown how nature can contribute to the achievement of all SDGs,[73] and therefore demonstrate how efforts to conserve and sustainably manage biodiversity and ecosystem services support sustainable development in general. The holistic recognition of the value and potential impacts of nature in the development and implementation of sectoral and national socio-economic planning is therefore becoming more and more commonplace.

Some Multilateral Environmental Agreements (MEAs) deal with the trade and sustainable use of wildlife and their genetic material, i.e. the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Nagoya Protocol on Access and Benefit-sharing under the CBD, focus heavily on effective management and sound governance to avoid the overexploitation of nature, and the recognition of appropriate knowledge and tenure of those resources. Their effective implementation requires inter-sectoral cooperation.

[71] http://www.un.org/ga/search/view_doc.asp?symbol=E/2017/66&Lang=E
[72] Sumaila *et al*. 2017 (https://doi.org/10.1016/j.cosust.2018.01.007)
[73] E.g., CBD 2016 (https://www.cbd.int/doc/meetings/cop/cop-13/official/cop-13-10-add1-en.pdf); CBD *et al*. 2016 (https://www.cbd.int/development/doc/biodiversity-2030-agenda-technical-note-en.pdf); Schultz *et al*. 2016 (http://swed.bio/wp-content/uploads/2016/11/The-2030-Agenda-and-Ecosystems_spread.pdf)

Likewise, the New York Declaration on Forests[74] and corporate initiatives such as the Consumer Goods Forum[75] and the Equator Principles[76] – a risk management framework for financial institutions to recognise, assess and manage environmental and social risk and to provide a minimum standard for due diligence – demonstrate efforts to engage broadly across and within non-environmental sectors in seeking to achieve effective governance of natural resources. Such initiatives place the burden of effort on governments, companies and their shareholders to identify and mitigate their impacts on the natural environment, and to work with civil society and local communities to build sustainability into their business models and practices.

The global management of forests and the trade in forest-related products provide a good example of how biodiversity and sustainable development are interlinked. The role of forests in the global carbon cycle is well documented and initiatives such as REDD+[77] and other forms of Payments for Ecosystem Services (PES) schemes demonstrate the attention given to forests in addressing climate change, thus giving an economic incentive to forest conservation. However, there is also the overexploitation of these ecosystems in order to provide land for agriculture, as a source of hardwoods and other timber, fuelwood and bushmeat, all of which are destined for local and international markets. These competing pressures require the involvement of numerous government ministries and agencies, the private sector, civil society groups, and local communities and indigenous peoples in order to develop and effectively implement management plans that ensure that livelihoods and well-being needs are met while also allowing for economic development and sustaining planetary health.

While much of the burden of nature conservation is considered to be undertaken by developing countries, there are ongoing discussions and negotiations as to how to raise their financial, capacity and technological means in order to do so. For countries facing extreme debt, as well as a desire to prioritise economic development and the well-being of their citizens, conservation is often seen as a lower priority. International biodiversity conservation is helping to improve this situation through promoting south-south and triangular capacity building and knowledge transfer[78], as well as using innovative financial mechanisms such as debt-for-nature swaps[79].

Potential Challenges, Risks or Trade-offs from the Interlinkages

Owing to the overarching mutually beneficial objectives of sound management, increasing financial resources, capacity building and policy coherence, there are limited trade-offs if both SDGs are effectively implemented. However, if for instance debt servicing is prioritised through the increased and unsustainable exploitation of natural resources in order to increase revenue in the short term, the resulting outcomes for biodiversity could be catastrophic, as well as potentially undermining the long term viability of sustainable development in general.

[74] http://forestdeclaration.org/
[75] https://www.theconsumergoodsforum.com/
[76] http://equator-principles.com/
[77] http://www.un-redd.org/
[78] https://www.cbd.int/biobridge/
[79] http://www.undp.org/content/sdfinance/en/home/solutions/debt-for-nature-swaps.html

Targets relevant to the interlinkages between SDG17 and SDG15

SDG17

- 17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress
- 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, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism
- 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
- 17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation
- 17.14 Enhance policy coherence for sustainable development
- 17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries

SDG15

- 15.6 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
- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
- 15.A Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems
- 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
- 15.C 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

The issue of effective governance is fundamental to the achievement of both SDG15 and SDG17, with mismanagement and inefficient policy processes hampering the potential positive outcomes of many capacity building and other development and conservation programmes. Despite concerted efforts by the conservation community to mainstream biodiversity and ecosystem services into other sectors with varying success, it can be argued that efforts to achieve SDG17 should promote and support good governance that will in turn foster positive action on SDG15.

Recommendations for better recognition of interlinkages in policy making

The mutually supportive achievement of both SDG15 and SDG17, and by extension all other SDGs, requires collaboration and positive action from all stakeholders. Linked to this is the need for financing, and appropriate financial flows remains a concern. Efforts to incorporate the natural environment into national financial planning are on-going, with an ever-increasing number of assessments80 on the values of biodiversity and ecosystem services supporting such mainstreaming activities.

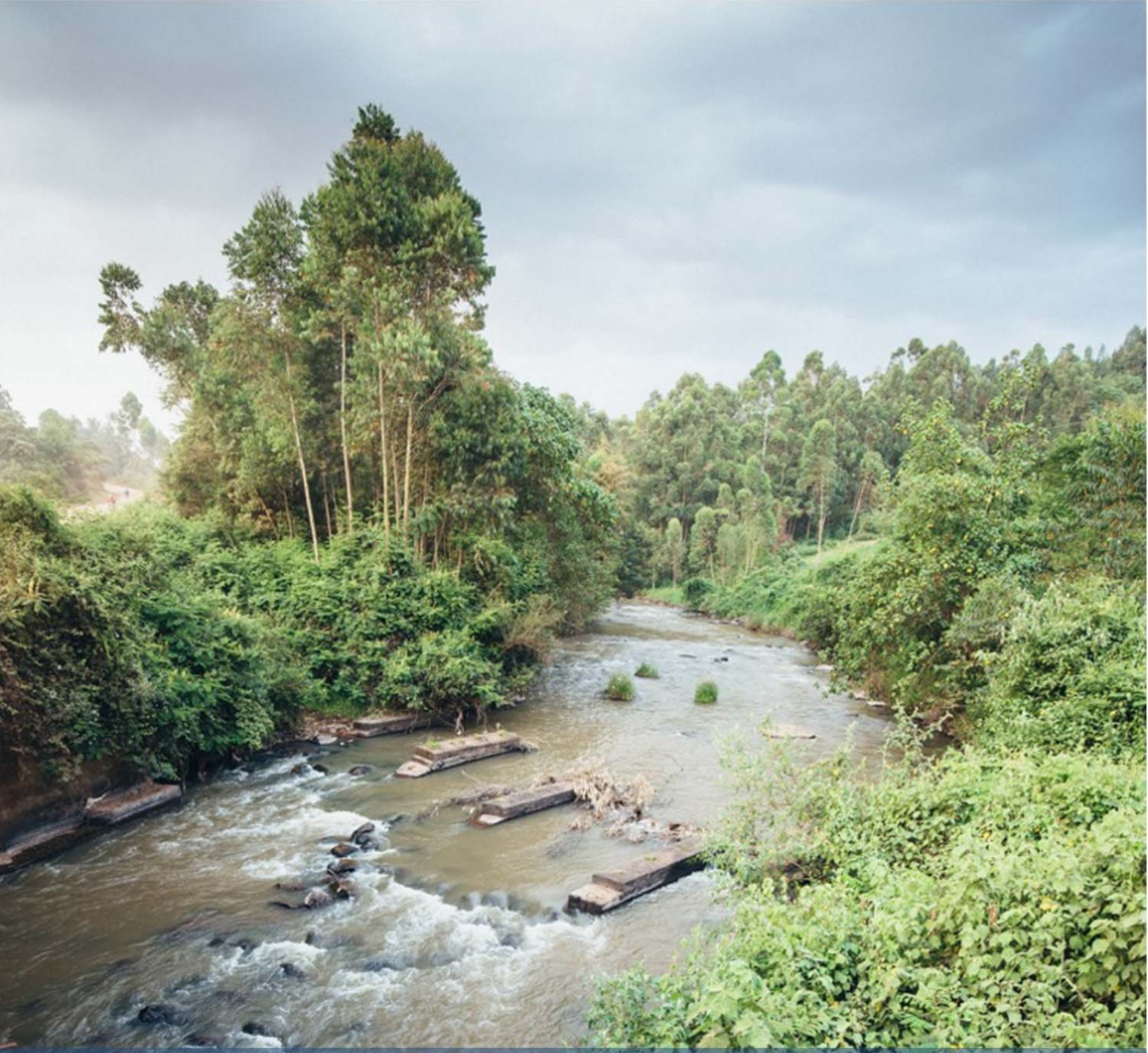
The financial sector plays a major role in incentivising cross-sectoral actions, and the Equator Principles76 demonstrate efforts in that regard. However, governments should also use their convening, fiscal and legislative capabilities to also drive sustainable actions and effective partnerships.

Essential to the effecting of joint implementation of SDG15 and SDG17 is the need for further capacity development, including through south-south and triangular cooperation and the associated sharing of knowledge, expertise, technology and financial resources. While progress is being made on monitoring and evaluation systems, data collection and availability remain challenges. Such analytical information supports the justifications and adaptive management required for successful policy coherence.

Key References

https://sustainabledevelopment.un.org/sdg17
https://unstats.un.org/sdgs/report/2017/Goal-17/
https://www.cbd.int/idb/2015/goals/sdg17/

[80] E.g., http://www.teebweb.org/areas-of-work/advancing-natural-capital-accounting/, http://biodiversityfinance.net/ and https://www.wavespartnership.org/



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