

TST Issues Brief: Biodiversity¹

1. STOCK-TAKING

The critical role of biodiversity in sustainable development was recognized in the Rio+20 outcome, “The Future we want”. While biodiversity will be addressed explicitly at the 8th session of the Open Working Group (OWG) on sustainable development goals (SDGs), it has also been discussed in every session of the OWG to date in relation to many issues critical to development, such as: poverty and hunger eradication; water; food security and nutrition; health; disaster risk reduction; employment; equity and governance.

Why Biodiversity is crucial for Sustainable Development

Biodiversity, the variety of life on Earth, contributes directly to human well-being in many ways, and is also a critical foundation of the Earth’s life support system on which the welfare of current and future generations depend. Biodiversity (i) provides basic goods such as food, fiber, fuel, and medicine; (ii) underpins ecosystem functions and the provision of benefits to people (services), such as water purification and supply, pollination, regulation of pests and diseases, soil nutrient cycling and fertility; (iii) provides ecosystem resilience and contributes to the ability to respond to unpredictable global changes and natural disasters; (iv) includes genetic diversity essential for the adaptation of species and ecosystems to meet current and future challenges; and (v) finally, biodiversity is valued for cultural, spiritual, and religious reasons, and provides opportunities for research and education. Some of these benefits can be realized in the short term but others can take longer periods spanning multiple human generations.

The benefits provided by biodiversity are important to all people. Some benefits of biodiversity are especially important to indigenous peoples, the poor and vulnerable groups. These groups, including the rural poor, are in many cases most directly dependent on biodiversity and ecosystems. To them, the goods and services provided by ecosystems underpinned by biodiversity often constitute social safety nets. Women and men may utilise ecosystem goods and services in different ways. Examples of the benefits of biodiversity include:²

- Almost one billion people in developing countries depend on fish for their primary source of animal protein.³
- As many as 80 per cent of people living in rural areas in developing countries rely on traditional plant-based medicines for basic healthcare.⁴
- Large populations in South and East Asia are dependent on complex rice-fish agro-ecosystems, where fish and other aquatic animals, serve as a source of nutrition to local communities, and provide essential services for rice productivity in the flooded fields.

¹ The Technical Support Team (TST) is co-chaired by the Department of Economic and Social Affairs and the United Nations Development Programme. Preparation of the brief has been co-led by the CBD Secretariat, FAO, UNEP, UNDP and the World Bank, with contributions from ESCAP, UNFF, UNESCO, UN Women and WMO, and other biodiversity-related conventions (CITES, CMS, ITPGR and Ramsar).

² Some references to examples provided here and in subsequent paragraphs can be found in the Global Biodiversity Outlook-3 and The Economics of Ecosystem and Biodiversity (TEEB) report.

³ FAO (2000) *The State of World Fisheries and Aquaculture 2000*. FAO, Rome, Italy.

⁴ Bannerman, RB, Buton J and Wen-Chich C (1983). Traditional medicine and health care coverage. World Health Organization, 9-13.

- A range of ecosystems act as buffers against natural hazards, providing valuable yet under-utilized approaches for climate change adaptation, enhancing natural resilience and reducing the vulnerability of people, for example to floods and the effects of land degradation. These ecosystem services improve the sustainability and economic efficiency of built infrastructure, and are critical for sustainable and resilient urban areas.
- Access to green space is an important determinant of physical and mental health for many urban dwellers.

Many economic sectors depend on biodiversity and ecosystems services, including water supply, agriculture, fisheries, forestry, health, nutrition, energy, transport and tourism. For example,

- Three-quarters of the top ranking global prescription drugs (on a commercial scale), contain components derived from plant extracts.
- Genetic diversity is central to the seed industry. Its 10 top companies had commercial seed sales of US \$15 billion in 2006.
- Insects and other animals that carry pollen between crops, especially fruit and vegetables, are estimated to be worth more than US\$200 billion per year to the global food economy.
- The world's fisheries employ approximately 200 million people, provide about 16 per cent of the protein consumed worldwide and have a value estimated at US\$80 billion.
- Ecotourism generates significant employment and is now worth around US\$100 billion/year.

Ultimately, the loss and degradation of biodiversity impact negatively on all people. However, the impacts are particularly severe, and more immediate on the poor and vulnerable, women, children and indigenous peoples. Biodiversity is threatened by land use change and land degradation, overexploitation, pollution, invasive alien species, climate change and ocean acidification. As biodiversity is lost, ecosystem services are compromised, and, in some cases, there is a risk that some thresholds will be passed, undermining the functioning of the Earth's support system.

The conservation, restoration and sustainable use of biodiversity can provide solutions to a range of societal challenges. For example, protecting ecosystems and ensuring access to ecosystem services by poor and vulnerable groups are an essential part of poverty eradication. Reducing deforestation and forest degradation and enhancing carbon stocks in forests, drylands, rangelands and croplands, is not only a cost effective way to mitigate climate change but it also generates other social and economic benefits. There are major opportunities for many sectors to invest in the restoration of degraded ecosystems. The Working for Water Programme in South Africa, for instance, illustrates how public works programs can achieve a range of conservation and restoration goals, while generating sustainable, inclusive and decent jobs that help to alleviate poverty. Other examples include the Socio Bosques Programme of Ecuador and the Climate, Community and Biodiversity Alliance for the reforestation of degraded lands in India.

Biodiversity is an essential element of Earth's life support system. A truly *sustainable* development framework must not only acknowledge the role of biodiversity for development, it must also provide the enabling conditions for its conservation and sustainable use, for more equitable sharing of benefits, and for the drivers of biodiversity loss to be reduced. To do this, the post-2015 development agenda needs to promote transformational change in economies and societies.

Existing Globally Agreed Goals and Targets related to Biodiversity

The Millennium Development Goal (MDG) framework includes the biodiversity target to “reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss”,⁵ under Goal 7 “ensuring environmental sustainability”. The target originates from the “2010 biodiversity target”. It was adopted, in 2002, by the Conference of the Parties to the Convention on Biological Diversity and also by the World Summit on Sustainable Development, as part of the Johannesburg Plan of Implementation. Thus biodiversity and environmental sustainability more generally, was included in the MDG framework, but in the implementation of the framework, the importance of biodiversity for the achievement of the other MDGs (including the high-profile goals on poverty, food, and health) has not been sufficiently recognized and promoted. Despite many actions in support of biodiversity, the 2010 biodiversity target was not fully met because the actions were not taken on sufficient scale and because the underlying drivers of loss were not addressed significantly. In the post-2015 UN development agenda, biodiversity needs to be more integrated into broader development objectives.

The Strategic Plan for Biodiversity 2011-2020 and its twenty Aichi Targets provide an agreed overarching framework for action on biodiversity and a foundation for sustainable development for all stakeholders, including agencies across the UN system. The Strategic Plan was adopted at the 10th meeting of the Conference of the Parties to the Convention on Biological Diversity and has been recognized or supported by the governing bodies of other biodiversity-related conventions, including the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on the Conservation of Migratory Species of Wild Animals, the Convention on Wetlands of International Importance, the International Treaty on Plant Genetic Resources for Food and Agriculture and the World Heritage Convention, as well as the UN General Assembly.⁶ Governments at Rio+20 affirmed the importance of the Strategic Plan for Biodiversity 2011-2020 and achieving the Aichi Biodiversity Targets, emphasizing the role that the Strategic Plan plays for the United Nations system, the international community and civil society worldwide to achieve the world we want. It is primarily implemented by countries through national biodiversity strategies and action plans, with Parties encouraged to set their own national targets within the framework of the Aichi Biodiversity Targets. The UN General Assembly has encouraged Parties and all stakeholders, institutions and organizations concerned to consider the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, in the elaboration of the post-2015 UN development agenda, taking into account the three dimensions of sustainable development⁷.

The Strategic Plan for Biodiversity 2011-2020 includes a vision for 2050, five strategic goals⁸ and twenty Aichi Biodiversity Targets, mostly to be achieved by 2020. These are measurable, have already been agreed by the international community, and comprise potential elements for future Goals, targets and indicators for the post-2015 UN development agenda. The 2050 Vision stresses the role of biodiversity for human well-being: *“biodiversity to be valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy Planet and delivering benefits essential for all people”*. The Strategic Plan also includes means of implementation, monitoring, review and evaluation as well as support mechanisms (strategy for resource mobilization, capacity building, technical and scientific cooperation).

2. OVERVIEW OF PROPOSALS

⁵ <http://www.un.org/millenniumgoals/environ.shtml>

⁶ CMS Resolution 10.18; CITES Resolution 16.4; Ramsar Resolution XI.6; ITPGRFA Resolution 8/2011; WHC Decision: 37 COM 5A; General Assembly Resolution 65/161 of 11 March 2011.

⁷ General Assembly Resolution 67/212 (A/RES/67/212).

⁸ The five goals include: to protect nature (Goal C), to maximize the benefits for all people (Goal D), to reduce pressures on biodiversity (Goal B), to address the underlying causes of loss (Goal A), and Goal E provides for enabling activities.

The importance of biodiversity for sustainable development has featured prominently in the national and international consultation processes for the post-2015 UN development agenda. At the MDG Summit in 2010 and at the Rio+20 Conference in 2012, UN Member States set out the process for preparing for the post-2015 UN development agenda and the new SDGs. Environmental issues have featured strongly throughout this process, including issues related to biodiversity. National consultations identified food security and sustainable agriculture, followed by water and sanitation, energy, education and poverty eradication, as priority issues for SDGs. Biodiversity was also explicitly included in the top twenty priorities and sustainable use of natural resource assets as one of twelve proposed SDGs by the High-Level Panel of Eminent Persons.

The Sustainable Development Goals will address various aspects of human well-being and be accompanied by targets and indicators. The process for the development of the SDGs is at an early stage, and the outcome of this process cannot be prejudged. However, a number of potential goals have been discussed in the various sessions of the Open Working Group on SDGs. In addition, the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda (HLP), in follow up to the 2015 MDGs and The Leadership Council of the Sustainable Development Solutions Network have made proposals.⁹ On the basis of these proposals and for the purposes of considering how biodiversity may be integrated into the SDGs, the following “types” of SDGs may be identified:

- A first type are overarching goals that encompass multiple dimensions of sustainable development such as poverty eradication.
- A second type of goals relates to issues such as food security and nutrition (“nutritious food for all”), “a water secure world”, universal clean energy and access to medicines. These are constituents and determinants of human well-being that both directly depend on, and directly impact biodiversity and ecosystems, or have a direct and two-way link to biodiversity.
- A third type of goals may relate to the underlying global “life support systems” such as protection of ecosystems, including land, forests and oceans.
- Finally some goals may relate to less tangible, but no less important aspects, which refer to those “enabling factors” that do not have a “biophysical” relation with biodiversity but impact (both positively and negatively) the utilization and conservation of biodiversity to achieve sustainable development. Examples include education, equality, gender equity, governance, participation and human rights.

These types of goals are closely interrelated as biodiversity intersects in many sectors, and for each goal, the link to biodiversity can be realized at the appropriate level within the SDG process. The HLP report, for example, includes a biodiversity-related target, namely to “adopt sustainable agricultural, ocean, and freshwater fishery practices and rebuild designated fish stocks to sustainable levels” in an indicative goal on “Ensure Food Security and Good Nutrition”. The HLP report also suggested an indicative goal - to “Manage Natural Resource Assets Sustainably” with targets to “a) Publish and use economic, social and environmental accounts in all governments and major companies; b) Increase consideration of sustainability in x% of government procurements; c) Safeguard ecosystems, species and genetic diversity; d) Reduce deforestation by x% and increase reforestation by y%; e) Improve soil quality, reduce soil erosion by x tonnes and combat desertification.” The report prepared by the Sustainable Development Solutions Network for the UN Secretary General “An Action Agenda for Sustainable Development”, includes Goal 9 “Secure ecosystem services and biodiversity, and ensure good management of water and other natural

⁹ Reports by the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda (2013) “A New Global Partnership: eradicate poverty and transform economies through sustainable development” (HLP); Leadership Council of the Sustainable Development Solutions Network (SDSN) “An Action Agenda for Sustainable Development” (2013).

resources.” The results of the Global Thematic Consultation on Environmental Sustainability presented in the report “Breaking Down the Silos” also depicts examples of integrated development solutions, drawing on the contributions that the Strategic Plan for Biodiversity and its Aichi Targets can provide. Many of the goals and targets proposed and emerging out of the consultation processes can be aligned and further supported by existing targets and indicators adopted at UN conferences. Suggestions for how to integrate biodiversity into the various types of goals are outlined below.

3. WAY FORWARD

The key challenge at the global level is to set goals and targets which can be measured, easily communicated and help guide the transformative actions required by countries, individually and collectively. Four complementary recommendations on how biodiversity could be fully integrated into these Goals are set out below. The 2050 Vision of the Strategic Plan for Biodiversity can help shape a shared vision for action towards sustainable development, poverty eradication and universal human development, while the Aichi Biodiversity Targets and associated indicators can provide specific inputs for the SDGs, potential sub-targets and indicators. In addition, the Strategic Plan also contains elements for the means of implementation.

(1) Biodiversity should be integrated into overarching goals addressing broad concepts such as poverty eradication, an inclusive “green economy”, human well-being, and sustainable development. This could be achieved by the development and use of comprehensive indicators of progress towards sustainable development, as alternatives to GDP. It is increasingly recognized that GDP (or GNP) is too narrow an indicator of human progress. Broader indicators would focus on wealth (stocks), rather than income (a flow), and account not only for manufactured and financial assets (physical capital), but also natural, human and social capital. In most countries, assessments of natural capital are currently limited to mineral reserves, timber stocks and fish stocks. However, methods are available to also measure the status of ecosystems, taking into account both the extent of healthy ecosystem assets and the extent of their degradation, such as pollution levels. The system for environmental-economic accounting normalized by the UN Statistical Commission and implemented by initiatives such as the World Bank-led Wealth Accounting and Valuation Ecosystem Services (WAVES) partnership can provide integrated measurement frameworks to inform the post-2015 development agenda and SDGs monitoring process. Aichi Biodiversity Target 2 calls for the biodiversity values to be integrated into such national accounting systems, as well as into national and local development and poverty reduction strategies and planning processes. Strategic environmental assessment is a useful approach in this regard. Reform of incentives (Aichi Target 3) is another.

(2) Specific biodiversity related targets and indicators should be integrated into Goals on food security and nutrition, water and health. Such goals – dealing with the physical constituents and determinants of human well-being – directly depend on, and directly impact, biodiversity and ecosystems. Since biodiversity is essential to the continued provision of food and is an important determinant of its quality, targets and indicators under a Goal for food security and nutrition should relate not only to production, but also to its sustainability. This might include for example, targets and/or indicators on genetic diversity in crop systems, pollinators, soil biodiversity (or soil health and carbon content, a proxy that also reflects climate mitigation benefits), as well as indicators of the overall health of agricultural ecosystems such as farmland birds. It could also include targets and indicators on the efficiency of use of water and soil nutrients, particularly where these are underpinned by restoring ecosystem services, on land-use change, land degradation, and better practices for use of pesticides and fertilizer. For fisheries, targets and/or indicators might relate to the status of fish stocks and catch per unit effort. Targets and indicators should also relate to the contribution of biodiversity and dietary diversity to nutritional quality, as well as to access to wild biodiversity-based foods

(such as non-timber forest products, bushmeat and fisheries), especially by indigenous peoples, the poor and vulnerable groups. Essential parameters for measuring progress on this type of Goal can draw from a combination of Aichi Biodiversity Targets; for example, on habitat loss (Target 5); fisheries (Target 6); sustainable management of agriculture, aquaculture and forestry (Target 7); limiting pollution (Target 8) managing invasive alien species (Target 9); genetic resources for food and agriculture (Target 13); safeguarding essential ecosystems (Target 14); and restoring degraded ecosystems and addressing climate change (Target 15). On a Goal for “water secure world”, biodiversity related targets and/or indicators could address the impacts of water use on biodiversity and the role of biodiversity and ecosystems in underpinning sustainable water supply and its quality. For a “health” Goal, a biodiversity target could focus on the maintenance of diverse natural ecosystems to reduce the burden of vector-borne and parasitic diseases.

(3) Biodiversity should also be included as a central component of goals for global “life support systems” such as goals relating to the protection of ecosystems, including land, forests and oceans, and their natural resources. The 2050 Vision of the Strategic Plan on Biodiversity could be the entry point for a goal such as “healthy and productive ecosystems”, building coherence among other proposals to the Open Working Group on SDGs related to various ecosystems (i.e. land, forests, water, and oceans). This Goal could include targets to ensure that globally or regionally-significant ecosystem tipping points are not breached. Among the Aichi Biodiversity Targets, the following quantitative targets are particularly relevant: by 2020, at least halving deforestation and the loss of other natural habitats (Target 5), protecting at least 17% of land and 10% of oceans through protected areas (Target 11), and restoring at least 15% of degraded lands (Target 15). Target 14, which addresses the contributions from ecosystems to health, livelihoods and well-being is also particularly relevant. Possible indicators could include trends in the provision of ecosystem services, as well as trends in the extent of biomes or ecosystems such as forest and wetlands, trends in the quality of ecosystems such as coral reefs, and the extent of protected areas. Elements from other internationally agreed instruments could also be reflected, such as the non-legally binding instrument on all types of forests and its Global Objectives.

(4) The SDG framework should provide the enabling conditions for the conservation and sustainable use of biodiversity, and for the underlying drivers of biodiversity loss to be addressed. This implies Goals for improved governance, and institutions, at appropriate scales (from local to global), for the management of risks and the negotiation of trade-offs among stakeholder groups, where they exist, as well as for behavioural change, and for building human capabilities through access to education and health care. These goals do not depend directly on biodiversity, nor does their achievement directly involve the utilization of biodiversity. However, the achievement of SDGs of this type is necessary for the achievement of other SDGs. In addition, an understanding of the role of biodiversity and the ecosystems services it underpins may inform these goals and the targets and indicators under them (e.g. the role of biodiversity in food security and income generation for women). Aichi Target 1 on building awareness of the values of biodiversity and the actions needed to conserve and sustainably use biodiversity is relevant to this type of goal.

To develop a coherent post-2015 UN development agenda, each potential SDG should be examined for possible impacts on other dimensions of sustainable development. Does each proposed Goal contribute to sustainable development in a sustained way? Collectively, do the Goals provide for the transformative change needed? Does each proposed Goal enhance, or undermine, the other proposed Goals, including the Goals for “life support systems”? The potential Goals should be revised in light of the answers to these questions and alternative pathways for the achievement of the Goals considered. Specifically it should be considered how targets, sub-targets and/or indicators could be included under each proposed Goal to promote more sustainable pathways, *i.e.* to ensure that the pathway towards the Goal accentuates the positive impacts on biodiversity and on other Goals, and minimizes the negative impact.

The integration of biodiversity into the SDG framework would be facilitated by improved data, and the identification of suitable metrics, indicators and targets that link biodiversity to the various Goals of the framework. Three improvements are required in this regard: First, greater investment is needed to gather and analyse robust and regular data on the status and trends of ecosystems, associated ecosystem services, and underlying biodiversity. Second, further work is required to develop practical indicators to link biodiversity and the other dimensions of sustainable development (for example for biodiversity-related aspects of food security as explored under recommendation 2, above). Thirdly, to promote mainstreaming, targets and indicators for the integration of natural capital and biodiversity related data in decision-making on policies and investments for sustainable development as called for in Aichi Biodiversity Target 2 could be adopted.

The post-2015 UN development agenda should be applicable at the national level and must include robust and adequate means for implementation, including technical and scientific cooperation among countries, the mobilization of financial resources and support for capacity building. The Strategic Plan for Biodiversity 2011-2020 includes such means for implementation which could provide useful lessons-learned for the post-2015 UN development agenda. Initiatives on the mobilization of resources carried out by other UN entities, and across the Intergovernmental Committee of Experts on Sustainable Development Financing could also provide solid means to generate additional resources for biodiversity.

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