Human Development and Planetary Health: The Role of Nature-based Solutions

A Guidance Note for National Human Development Report Teams

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The views expressed in this paper are the authors’ own and do not necessarily reflect the views of the United Nations Development Programme (UNDP).
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ABSTRACT

UNDP has been involved in producing about 800 National Human Development Reports (NHDRs) since 1992. While UNDP’s Global Human Development Report is well known, there is much less awareness of these NHDRs. These reports, which are country-led and country-owned, have applied the human development lens to a variety of challenges that span economic, social and environmental development challenges and recommended actions and policies to tackle them.

This paper is intended to offer guidance – and inspiration - to NHDR teams interested in preparing a national report on how nature-based solutions can achieve national-scale human development.
Introduction

Human development and biodiversity are inextricably linked. The degradation of our environment, coupled with significant declines in biodiversity, is very much a human development problem. Meanwhile many of the threats to biodiversity, from habitat destruction, ecosystem degradation to climate change, are a direct result of economic or social ‘development’.

In other words, there are key linkages, in both directions, between human development and biodiversity loss and it makes no sense to consider human development or natural systems in isolation. This guidance note will provide advice on how national human development reports can help countries to identify and develop nature-based solutions for human development.

II. Objectives of the Guidance Note

Promoting nature-based solutions for a sustainable planet is one of the Signature Solutions that UNDP is offering to the world in supporting achievement of the Sustainable Development Goals (SDGs). This guidance note will provide direction on how to prepare a national human development report focusing on “nature based-solutions”. The primary audience are UNDP country offices and the guidance note will seek to inspire offices to prepare a high-quality human development report that advocates the power of nature-based solutions to development challenges and provide concrete suggestions on what countries can do to harness the power of nature for accelerating progress towards achieving SDG targets.

The note will:

1. Demonstrate why healthy biodiversity, ecosystems and ecosystem services are fundamental to many aspects of human development and achievement of the SDGs.

2. Suggest - in key areas and with practical examples – win-win policies and ideas that can both improve human development and protect biodiversity/ecosystems.

3. Provide a framework for preparing national human development reports focused on nature-based solutions.

4. Provide a range of resources which can be useful for developing national reports.
III. Why A Nature-Based Human Development Report?

Here are just three of many reasons why a human development report focusing on nature is important.

First, biodiversity, which provides the natural capital upon which human development depends, is in crisis. The contribution of biodiversity and ecosystems to the world are profound, estimated at between $125-145 trillion in 2011. This contribution is almost twice as large as the Gross World Product of the entire planet that year, or about US$ 78 trillion. But the world is facing unprecedented biodiversity loss. Populations of mammals, birds, fish, reptiles, and amphibians have, on average, declined by 60% between 1970 and 2014. The Earth is estimated to have lost about half of its shallow water corals in the past 30 years. A fifth of the Amazon has disappeared in just 50 years, and 2018 marked the worst level of deforestation in history.

Maintaining healthy ecosystems not only benefits the wildlife and people living within the habitat and close to nature: the services that ecosystems provide enable people from entire regions and even around the globe to benefit from clean water and air, food security, medicine, energy, resilient livelihoods and safety from extreme weather events and more.

The impact on people’s lives is already apparent. For example, forest loss, conversion of wetlands, unsustainable water withdrawals, and inadequate treatment of waste have resulted in 3.6 billion people facing water scarcity at least one month a year, and 3.1 billion people drinking water with a risk of contamination, with cascading impacts on gender equality, health and employment. The 2019 Global Risks Report from the World Economic Forum identified “Major biodiversity loss and ecosystem collapse (terrestrial or marine)” as both one of the most likely and most serious global risks with “irreversible consequences for the environment, resulting in severely depleted resources for humankind as well as industries.”

Not only do billions rely directly on biodiversity for their livelihoods but we each depend on biodiversity: we eat the fruit and vegetables pollinated by bees, birds and bats; we breathe oxygen produced – via

2 HDRO calculations based on https://data.worldbank.org/indicator/NY.GDP.DEFL.KD.ZG
5 https://www.weforum.org/reports/the-global-risks-report-2019
photosynthesis – by the plants and trees on the land, or plankton in the ocean. And healthy ecosystems are vital for ensuring water quality and helping prevent disasters (coral reefs and mangrove forests can prevent flooding for example).

Second, the principle of equity is at the heart of human development. Environmental concerns often hit the poorest the hardest. Not only are poor communities most vulnerable to crop failure or flooding, because of climate change for example, but they are also less resilient – or unable to recover from – such natural disasters. Moreover, protecting nature is of critical concern to those who care about equity between generations, and it is clear from the data that the challenges faced by the current generation dwarf in comparison to those that the next generation will face if most environmental indicators continue their current trajectory.  

Third, one of the greatest strengths of the human development approach is its emphasis on viewing the world – and people’s lives – as complex, interconnected systems in which, to paraphrase the former Norwegian Prime Minister Gro Harlem Brundtland, “everything is connected to everything.” Recognizing that many major challenges are messy and multifaceted complicates the work of those who seek to fix them, requiring more collaboration between disciplines and line ministries. Linear problems are so much simpler. But ultimately recognizing the underlying complexity is an investment that will lead to solutions that work. And yet development thinking does not always recognize the interdependencies of human and natural systems.

Poor people, especially those living in areas with low agricultural productivity, depend heavily and directly on biodiversity to support their livelihoods. This support includes contributions to health and nutrition, income, crops and reduced vulnerability to climate variability and natural disasters. And so, biodiversity loss undermines efforts to reduce poverty and can be a cause of greater impoverishment. While wealthy societies may be able to replace ecosystem services with engineered solutions, the loss of ecosystem services will make poor communities more vulnerable to the impacts of climate change, with enormous attendant social welfare costs. Moreover, unlike the rich, the poor are unable to replace

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6 http://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html
8 One study from India showed that ecosystem services contribute up to 57 percent of the GDP of the poor. See http://www.ejolt.org/2013/05/gdp-of-the-poor/
ecosystem services with built infrastructure (for example, by building flood control infrastructure once natural flood defenses provided by forests and wetlands have been lost).

In a vicious cycle, poverty may also lead to biodiversity loss. The poor are often unable to go without using natural resources if there are no alternatives available. Part of the problem is that the benefits provided by ‘intact’ ecosystems tend to be shared and occur over the long term; the costs of managing ecosystems and the opportunity costs of foregoing resource use must, on the other hand, be borne immediately.\(^9\)

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\(^9\)See the Annual Global Performance Report, 2008-09, from UNDP’s Global Environmental Finance Biodiversity Portfolio.
shortsightedness of considering human development in a vacuum without thinking about ecosystems and biodiversity. If one takes any one environmental concern, it does not take long to list its importance to multiple aspects of human development.

**IV. How We Can Harness the Power of Nature**

There are many examples of how interventions aimed at conserving biodiversity and ecosystems can also yield multiple impacts for human development. This section will introduce a variety of such approaches and – using case studies from the UNDP portfolio around the world - demonstrate their human development benefits as well as showing how they can help achieve the SDGs.

In this section, we cover six major nature-based development themes: climate change; freshwater management; marine ecosystem protection; land cover and vegetation management; biodiversity and protected areas; and the bio-economy.

**Climate Change**

The links between climate change and human development are manifold.

The effects of climate change threaten aspects of human development just about everywhere, including changing weather patterns that can severely affect agriculture and the availability of food, the spread of tropical diseases into temperate zones, sea level rise that threatens the lives and livelihoods of a billion people living near the coast, and increasing people’s exposure to extreme weather events.
Yet, of course, global greenhouse gas emissions are often caused by economic activity that is contributing to human development. And so the need to both tackle climate change and sustain human development is one of the world’s greatest and most pressing challenges today.

Global warming is also a critical threat to biodiversity worldwide, already causing shifts in the behaviour and distribution of many species. While many of the actions that contribute to global warming – such as forest clearance – are also a direct threat to biodiversity.

Nature-based solutions counteract the pressures of climate change, helping the poorest communities and most fragile ecosystems to build resilience and cope with unprecedented change and volatility.

**Case Study: Solving climate issues in Eastern and Central Europe**

The Clima East program focused on finding nature-based solutions to climate issues while also supporting local economic development. Funded by the EC, UNDP and the Global Environment Facility (GEF), the program operated in Belarus, Moldova, Ukraine, Russia, Azerbaijan, Armenia, and Georgia. It worked on improving the quality of soil and vegetation in agricultural lands, forests, peatlands, permafrost to both prevent greenhouse gases emissions and help the land to be more resilient in the face of a changing climate. It also created new jobs and businesses.

The program was a success. It triggered additional income generation for over 65,000 people, and reversed the degradation of – and carbon emissions from - over 70,000 ha of land. As a result almost 200,000 people in the seven countries are less vulnerable to the impacts of climate change. And better protection of peatlands, pastures, forests and permafrost means that some 132 million tonnes of CO₂ emissions are projected to be sequestered or avoided during the 20-years after the Clima East Pilot Project ended.

Moreover, the improved monitoring of GHG emissions from the land has helped advance international climate science around permafrost and peatlands. Almost 850,000 hectares of land in the seven countries are now covered by carbon cycle estimates, based on data from pilot project field monitoring.

**For more information see:** [http://www.climaeast.eu/clima-east-activities/policy](http://www.climaeast.eu/clima-east-activities/policy).

**Freshwater Management**

While 70% of the Earth is covered by the oceans, only 3% is freshwater. And people are consuming freshwater more quickly than the planet can replace it.

Decades of poor management, pollution and overconsumption have thrown our water systems out of balance. And climate change is exacerbating the problem. At the current rate of water use, by 2050,
more than half of the world’s population will be at risk of water shortages.\textsuperscript{10} And this has severe implication of human development: freshwater is vital for people’s daily life and health, for agriculture and for biodiversity. Scarcity of it often leads to conflicts.

But nature-based approaches offer the potential around the world to ensure that water sources are sustainable for both people and planet over the long term. In particular forests play a key role in sustaining freshwater sources for cities and rural areas. Forests are the planet’s rainmakers: some forty percent of our planet’s annual rainfall come from evapotranspiration, which happens when trees “exhale” moisture through their leaves. So protecting forests can help protect the plants and animals that live within them, as well as freshwater stocks much further afield.

**Case Study: Securing water resources through improved management of water catchment Tanzania**

One of Dar es Salaam’s major water sources is the Ruvu River Catchment, an 18,000 square-kilometer river basin that provides water for six million Tanzanians, and for livestock, irrigation, industry and wildlife. For decades, Dar es Salaam has faced annual shortages from the huge seasonal fluctuations in the River Ruvu’s flow. These shortages are compounded by climate change. In recent years there has been significant forest loss across 10 percent of the entire watershed, and the catchment has faced intense pressure from deforestation, bush fires, land degradation, unsustainable grazing practices, and upstream gold mining.

Earlier efforts to sustain the catchment’s water were unsuccessful, in part because rivers or catchments often extend beyond administrative boundaries which complicates governance. A new partnership between the Global Environment Facility, Tanzania’s Ministry of Water and Irrigation, and UNDP is securing watershed services by promoting sustainable land management, including forestry, grazing and farming. The project has been working to help both the watershed and the people that live there. Poverty, for example, drives some of the unsustainable practices, so the project includes measures to enhance alternative livelihoods, such as providing hundreds of beehives to local villagers.

Together these efforts will increase water quantity and quality by ten percent by 2020, an improvement that will be felt across the entire catchment, and will catalyze a cascade of sustainable development benefits for people and nature.

\textsuperscript{10}https://sustainabledevelopment.un.org/content/documents/17825HLPW_Outcome.pdf
For more information see:
www.tz.undp.org/content/tanzania/en/home/presscenter/articles/2017/08/24/conserving-ruvu-water-catchments-to-enhance-water-availability.html

Seas and Oceans

Our marine ecosystems are also fundamental to the human development of hundreds of millions of people who rely on the oceans for their livelihood, and businesses that rely on the seas generate more than $500 billion.\(^1\) And data from the United Nations Food and Agriculture Organization show that around a billion people – mainly in developing countries - rely on fish in their diet,\(^2\) and fisheries and aquaculture employ 60 million people worldwide and provide over 200 million jobs directly or indirectly connected with the fisheries sector. Yet nearly 90% of the world’s marine fish stocks are now fully exploited, overexploited or depleted.\(^3\)

Oceans are vital to everyone, even those living far from the coast. The planet’s seas play a critical role in regulating the water cycle and the climate, both by absorbing heat from the sun and redistributing it via oceanic currents. And the oceans absorb carbon dioxide from the atmosphere, helping to slow down climate change.

Marine and coastal ecosystems such as coral reefs and mangroves provide essential services for people near the coast: buffering against storm surges, stabilizing coastal and nearshore areas against erosion, serving as nursery habitats for commercially important fish species and supporting the economy.

And yet, despite our reliance on them, humanity has long viewed the ocean as a near infinite source of food and a near infinite dumping ground for waste. There are now many signs that these ecosystems are in danger of collapse and there is an urgent need for development solutions.

Case Study: Enhancing marine natural resource base for livelihoods and economy in the Maldives

The Maldives’ coral reefs are home to some of the planet’s richest marine biodiversity, including over 1,000 species of fish. The atolls themselves seem to play a significant role in the distribution and maintenance of coral reef biodiversity throughout the Indian Ocean. But they are threatened by climate change along with unsustainable coastal development, overexploitation of marine resources and

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improper wastewater disposal. The country’s two main economic activities, tourism and fishing, are directly affected.

The “Atoll Ecosystem-based Conservation” (AEC) project piloted a system for conservation and sustainable development on Baa Atoll, where biodiversity-based activity represent around one half of business earnings and employment, providing average yearly earnings of $7,000 per household. Drawing on science, community consultations and a strong relationship with the private sector, the project worked “in the water” and “on the ground” to establish additional protected areas and manage them through national-local and public-private partnerships. There have been many benefits.

The increase in protected areas, covering 11,500 hectares or almost 10% of the atoll, helps sustain the biodiversity that local livelihoods reply on. By supporting coral reef conservation, it protects the coastline from waves and storms, limiting coastal erosion and avoiding the costs – of around $2-$3 billion – of replacing reefs with artificial breakwaters.

The AEC strengthened locals’ capacity to better manage their resources through the establishment of a conservation fund and an annual biodiversity monitoring programme that helps regulate fishing. It has relieved fishing-pressure by including other sustainable livelihood development strategies in the atoll’s planning, including creating handicrafts and traditional medicine businesses.

The project led to Baa Atoll being recognized as a UNESCO Biosphere Reserve, with greater awareness nationally on the value of the atoll’s biodiversity. By presenting evidence that coastal biodiversity plays a key role in the economy and the development of the country, the project has strengthened the links between government institutions concerned with economic development and environment conservation, while raising the profile of biodiversity conservation among economic and financial planners.


Sustainable Land Management

Land degradation now affects about one quarter of the world’s land area, with direct impacts on the human development (especially health and livelihoods) of an estimated 3.2 billion people – many of whom are poor and directly dependent on nature to meet their daily subsistence and livelihood needs.14

Land degradation also leads to loss of biological diversity, which, itself, holds enormous value for all societies. Estimates of the current global cost of land degradation range up to USD$10 trillion a year; much higher than the cost of action to prevent it.\(^5\)

Historically, many rural communities have evolved traditional systems of land stewardship that are sensitive to the environment. But balancing consumption of natural resources with the capacity of the Earth to provide them is growing increasingly difficult – especially as changing lifestyles, altered market forces, and pervasive poverty drives people to adopt coping responses that cause biodiversity loss and damage to ecosystems, and deplete the productive capacity of land.

Land degradation is a barrier to sustainable human development. Food shortages destabilize communities and leave people vulnerable to environmental and economic shocks, including those caused by climate change. Land degradation is also a driver of conflict and forced migration, when people abandon lands that have become unproductive. In turn, it is worsened by large-scale movement of people fleeing natural and social disasters, such as famine, floods and civil war.

Despite concerted efforts by the international community and national governments, degradation of the world’s ecosystems continues apace and there is an urgent need to scale-up corrective action and make it more effective. Sustainable Land Management (SLM) offers a comprehensive approach to the management and governance of land resources: it makes significant and lasting differences in the near future and over the long term. SLM provides practical tools for managing soil, water, vegetation and animal resources in ways that are ecologically sound, socially and culturally sensitive, and cost-effective. It also promotes a land stewardship mindset that can integrate people’s co-existence with nature over the long term.

**Case Study: Combating land degradation to secure local livelihood in Western Mongolia**

With a land area of some 1,500 million km\(^2\); and a population a little over three million people, Mongolia is the world’s most sparsely populated country. The climate is extreme: long cold winters, short hot summers, and unpredictable rainfall. About 40 percent of Mongolia’s population is rural, made up of traditional herders who still follow nomadic lifestyles.

Despite the low population pressure, more than 70 percent of Mongolia is affected by land degradation. This has been caused by a combination of natural factors (extreme weather, skeletal soils, and climate

change), and human-induced impacts such as overgrazing and, increasingly, mining. Over the past decade, rapidly intensifying land degradation and desertification is placing the future of traditional herders – and the integrity of the land that supports them – at risk in many areas. Vast mineral deposits mean that mining is increasing rapidly, restricting the land available for herders and affecting water supplies. This, coupled with climate change, increased herd sizes, changed grazing regimes, and land tenure arrangements, is leading to overcrowding and overgrazing. This is threatening livestock and wildlife and damaging water sources.

UNDP is helping the Government of Mongolia to implement the GEF-financed ‘Land Degradation Offset’ Project, to address the negative impacts of mining on rangelands in the west of the country, and test new approaches to overcome the conflicts that have arisen between mining and traditional land uses, such as livestock herding. It brings together government, mining companies, NGOs, pasture user groups, and others to tackle land degradation. The project also seeks to promote sustainable consumption and production, protect the livelihoods of local communities, and ensure equitable access to adequate water and land resources for all.

Exploitation of mineral resources is essential for sustaining the type of economic growth that Mongolia aspires to. But, a balance needs to be struck between this and other land uses to manage Mongolia’s unique ecosystems sustainably and so the government has embraced the concept of a green development programme. The programme includes measures to rehabilitate degraded land and water resources, reduce future degradation, and offset the negative impacts of mining operations. Mining companies are working alongside pasture user groups to do this, and to support alternative income generating activities, such as sustainable wildlife management and use, and harvesting natural products like sea-buckthorn (a wild berry).


Case Study: Improving land management for resilient society and economy in Lebanon

The Bekaa Valley, in the east of Lebanon, is a wide sweep of fertile land running between the Mount Lebanon and Anti-Lebanon mountain ranges. These mountains are important ‘water towers’, and much of the country’s remaining forest is found on their slopes. The Bekaa is also Lebanon’s agricultural heartland, hosting both large-scale commercial farms and subsistence agriculture. In the north – which is drier – traditional nomadic, small-stock farming is the main livelihood of the rural poor.
In recent years, nearly 400,000 displaced people have settled in the Bekaa Valley – many in the Qaraoun catchment – placing increasing pressure on already-stretched land resources, and leading to conflicts between land users. Where conflict and poverty prevail, people are seeking to meet their short-term needs for food and safety, without consideration for the sustainability of their land-use practices.

To address both the drivers and effects of land degradation in the Qaraoun catchment, the Government of Lebanon has partnered with UNDP to implement a GEF-financed sustainable land management project. This initiative is an integral part of the national stabilization and development agenda, and supports efforts to strengthen the resilience of Lebanon to socio-economic and climatic shocks and disturbances.

One root cause of land degradation here has been the lack of integrated land-use planning and management. The policies in place have a narrow sectoral focus, and do not specifically think about land degradation. And weak co-ordination and overlapping mandates across government have also complicated the application and enforcement of national plans and policies for land use. The project provides an integrated landscape approach to address these challenges by strengthening ‘master planning’, integrating sustainable land management principles into land-use planning, determining land productivity values, and identifying how they can best be protected.


**Biodiversity and Protected Areas**

This guidance note has already discussed the many ways in which human development depends upon biodiversity and healthy ecosystems, through the services they provide that maintain the life support system on Earth. Yet, in recent decades, the world has experienced unprecedented biodiversity loss and ecosystem degradation, undermining the very foundations of life on Earth. This is a crisis – perhaps one of the biggest crises threatening humankind - that is often described as the “Sixth Mass Extinction”.\(^{16}\) A recent study estimated that humanity has destroyed over 80% of all wildlife and half of all wildlife has been lost in the past 50 years.\(^{17}\)

\(^{16}\) [http://www.pnas.org/content/114/30/E6089](http://www.pnas.org/content/114/30/E6089)

\(^{17}\) [https://www.theguardian.com/environment/2018/may/21/human-race-just-001-of-all-life-but-has-destroyed-over-80-of-wild-mammals-study](https://www.theguardian.com/environment/2018/may/21/human-race-just-001-of-all-life-but-has-destroyed-over-80-of-wild-mammals-study)
The nature-based solutions outlined so far all seek to help important aspects of human development, while safeguarding nature. But, beyond the ecosystem services that are supplied, biodiversity can also bring direct economic benefits to people, often in poor rural communities.

The world’s protected areas (national parks and so on) are, in most countries, a cornerstone of biodiversity conservation efforts. Protected areas are repositories of species and genetic diversity, and provides essential food, housing and medicinal materials, jobs and livelihoods for local communities. They are sources of scientific discovery and inspiration, recreational and tourism assets. A third of the world’s largest cities depend heavily on forested protected areas for their primary water source.18 Forest protected areas store carbon, regulate climate and control floods and landslides. And the dollars generated from wildlife-based tourism, and well-regulated trophy hunting, can provide livelihoods for people and can be reinvested to protect nature as the case study from Namibia demonstrates. Marine protected areas can maintain and increase fish stocks and other marine species and genetic varieties for human use. They can buffer communities from storms and their impacts, and provide a significant economic opportunities through tourism.

**Case study: Strengthening the Protected Areas System for Rural and National Development in Namibia**

Namibia has some of the world’s most spectacular national parks and wildlife. Indeed, one half of the country falls within national protected areas or communal or private conservancies. But protected areas often struggle to receive adequate funding, often because there is an under-valuation of their economic benefits, resulting in under-investment by the government.

Work supported by UNDP and the GEF is assisting the Namibian Government to identify, combine and sequence funding from different sources to finance protected area management. UNDP’s economic analysis indicated that the protected area (PA) system contributed up to 6 percent of Namibia’s GDP, counting park-based tourism only without including the value of other ecosystem services. The economic rate of return on the government investment over 20 years was as much as 23 percent. The study showed that further investment in PAs could lead PAs to contribute up to 15 percent of GDP in the medium term.

These figures were used by Namibia’s Ministry of Environment and Tourism to negotiate an increase in the state budget for park management and development by 310 percent in the last four years and in

18 [http://wwf.panda.org/78443/Running-Pure-The-importance-of-forest-protected-areas-to-drinking-water](http://wwf.panda.org/78443/Running-Pure-The-importance-of-forest-protected-areas-to-drinking-water)
addition, to earmark 25 percent of park entrance revenues for reinvestment in the PA system through a trust fund, providing up to US$2 million additional financing per year.

Working with UNDP, the government has strengthened the national park system in several ways. Between 2004 and 2012, the first protected area project, Strengthening the Protected Area Network (SPAN), laid many foundations for a protected area system which would be key both to conserving the country’s biodiversity and serving as the engine for rural development.

The SPAN project developed some important national policies. For example, the Human-Wildlife Conflict Management Policy and the Parks and Neighbours Policy, which provide guidance on how to deal with human-wildlife issues. But perhaps the most important policy was the Tourism and Wildlife Concessions Policy, regarded as one of the world’s best models for protected area concessions, and probably the only one with such a strong emphasis on, and provision for, supporting the livelihoods of rural people living inside and close to protected areas. Indeed, the government’s strategy is very much to ensure that protected areas deliver direct benefits to communities living within and around them. In return communities become custodians of protected landscapes. A bonus of this concession system is that it provides extra revenue which is reinvested in maintaining the protected area network.

UNDP is implementing similar initiatives across the world.


**Bioeconomy**

Biodiversity can also have other direct financial (and health) benefits, including the search for new medicines. The so-called ‘bioeconomy’ comprises “those parts of the economy that use renewable biological resources from land and sea – such as crops, forests, fish, animals and micro-organisms – to produce food, materials and energy.” Genetic resources are accelerators of the 2030 Agenda for Sustainable Development. Genetic resources are contributing to poverty alleviation (SDG 1), food security (SDG 2), good health and wellbeing (SDG 3), gender equality (SDG 5), innovation (SDG 9) and life on land (SDG 15), just to name a few. Several projects are underway around the world that benefit both the economy and biodiversity.

[19](https://ec.europa.eu/research/bioeconomy/index.cfm)
Case studies from Bhutan and Colombia show two approaches.

**Case study: Conserving genetic diversity for community development in Bhutan**

Bhutan’s villagers probably know more than anyone else about the 200 species of medicinal plants living in the Himalayan kingdom. This knowledge is critically important and so UNDP and others have been working with the Bhutanese Government on a project to implement the Nagoya Protocol on accessing genetic resources and sharing their benefits. The Access and Benefit Sharing (ABS) project creates incentives to conserve and sustainably use genetic resources, preserving biodiversity and simultaneously enhancing development and human well-being.

The ABS project is supporting collaborations among government agencies, a private entity and local communities. Benefits are coming in the form of business, employment, research, technology transfer, and capacity development. Three pilot ABS partnerships are working to support three indigenous villages to preserve their ecosystems’ genetic resources, and the traditional knowledge based upon them. Through an established ABS framework that ensures benefits are ploughed back into communities, the project promotes people-centric conservation by incentivizing the communities to conserve and sustainably use their natural resources.

The samples collected via the process of documenting traditional knowledge undergo a series of rigorous tests at a bioprospecting lab in the capital Thimphu. Bioprospecting is a systematic search for and development of new sources of chemical compounds, genes, micro-organisms, macro-organisms, and other valuable products from nature. The tests are designed to offer information on these potentially valuable (both economically and medically) natural resources.

Through the project, government are also working with villagers in an area well suited for commercial cultivation of mountain ginger. This is one of the remotest and poorest areas in the district and the villagers’ cash crops such as cardamom, ginger, and mandarin oranges have experienced volatile market prices which is a challenge for these isolated farmers. But mountain ginger grows well in the fertile soil and yields a stable market price, with possibilities for increased demand.

Training provided by the project also ensures that local communities can participate proactively in conservation activities, thereby ensuring sustainable use of Bhutan’s rich biological and genetic resources. To date, project activities have involved over 11,000 participants (with almost equal

participation by men and women), including farmers, officers/researchers in regional and national organisations, parliamentarians, academics and business people.

For more information see: https://undp-biodiversity.exposure.co/a-path-to-the-modern-economy

**Case Study: Development and production of a blue dye from a Colombian tree.**
Although not a large country, Colombia shelters more than 10% of the planet’s biodiversity, living in more than 300 types of ecosystems from desert to the high Andes. A Colombian Company, Ecoflora Cares, developed the economic potential using blue dye from the fruit of the Jagua Tree (Genipa americana). This new dye has important qualities which make it, for many purposes, better than chemical based dye.

The benefits are being shared with both the Colombian state and the Afro-Colombian communities in the Chocó region. Although traditional knowledge was not used to develop the dye, local communities supply the fruit from which the dye was developed. And so the Jagua Fruit, a resource that used to have no economic use, began to generate income and improved livelihoods for local communities

A local company, Planeta, was created to sell the jagua fruit and other non-timber forest products. this company. Planeta has worked with small-holder farmers who hitherto had no access to regional or national markets. Meanwhile Fundación Espave, a local NGO specializing in finding development alternatives derived from the rainforest, has helped strengthen the capacities of local communities to ensure the sustainable harvesting and supply of Jagua Fruit into the future.

For more information see: http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/abs-is-genetic-resources-for-sustainable-development.html

**V. Analytical Frameworks and Tools for Country Specific Analysis**

This note has explained some of the many ways in which nature-based solutions can help sustainable human development around the world. This section runs through a step by step guide of how one might prepare a concept note for a National Human Development Report focusing on nature-based solutions in your own country.

One way to begin thinking about structuring a report and its analysis is to consider the following three steps.
First, identifying particular environmental-human-development challenges in your country and selecting those you wish to address.

Second, investigating the root causes of those challenges. Have they arisen because of the market has failed to adequately value natural resources? Because new policies are needed? Or because more effective governance is required to support existing policies?

Third, analysing potential nature-based solutions that can tackle the environmental challenges and also help human development.

**Step 1: Identifying Challenges**

There are many different types of environmental challenge that can affect various aspects of human development. A useful place to begin a report would be to investigate what the key challenges are in a particular country or region. This might involved meeting with government (the Ministry of the Environment) for example, with academics, with NGOs (such as the World Wide Fund for Nature) among others.

To make the process more tractable it can help to brainstorm possible challenges by working through those that might (primarily) affect the land, fresh water, marine ecosystems, atmosphere or biodiversity. Many challenges will affect more than one of these at once. For example, loss of forest cover can lead to soil degradation (affecting land) which in turn runs off into rivers (affecting freshwater) and hence to the sea (marine ecosystems). It can also lead to loss of biodiversity and increased greenhouse gas emissions.

It will also be important to frame one’s thinking – as this is a national human development report – around the impacts each environmental challenge might have on people’s lives. You might consider thinking about questions such as.

Is the current state of the carrying capacity of organic soils, vegetation and water resources in the country adequate to support the government vision for agricultural development (arable lands, lands under livestock) and food security?

Are there threats to the nation’s freshwater ecosystems that threaten supplies of drinking water, or water for agriculture or other industries?

Are there threats to the health of marine ecosystems that threaten the livelihoods – and food security – of those who reply on the seas?
What will be the impact on people’s lives and livelihoods from declines in biodiversity and a loss of the ecosystem services the plants, animals and micro-organisms provide?

In each case it is important to consider the distributional impacts on people. How do they effect men and women? Are the impacts particularly severe in certain parts of the country on certain age groups or socio-economic groups? Very often it is the poorest and most disadvantaged who are hit most badly by environmental challenges.

**Step 2: Identifying the underlying causes and how they can be addressed**

Before discussing potential solutions, one needs first to understand the underlying causes of each challenge. People have – by and large – lived alongside nature, and within planetary boundaries, for tens of thousands of years. Why have the challenges you have identified only now emerged as pressing?

These issues are often complex and the political-economy of tackling them can be challenging. For example, there is often a mismatch over time between the incidence of the costs and benefits of ecosystem management: the costs need to be borne now, while the benefits may not be fully realized for several years.

A further challenge often arises when the poor receive only a fraction of the benefits derived from the extraction of natural resources. For example, the price poor fishermen are paid for fish, or the price poor forest communities obtain for timber are typically very low. This may mean that the poor must harvest natural resources beyond a sustainable level to meet their target incomes. The distribution of land and natural resources may also be a problem: if these resources are controlled by a few, the poor may not have alternative means of eking out an existence other than to encroach on natural ecosystems. This is a problem for the landless poor, and in many parts of the world is directly leading to ecosystem conversion to permanent agriculture and other forms of degradation.21

A useful taxonomy to guide the analysis here is to consider what failed - in the social, economic or political systems of a nation – to lead to the environmental problem in the first place. There are three broad types of failure: market; policy or governance.22

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21 See the Annual Global Performance Report, 2008-09, from UNDP’s Global Environmental Finance Biodiversity Portfolio.

Market Failures

A market (economic) failure occurs when the allocation of goods and services in the market is inefficient and leads to a net loss in people’s welfare. And it is a key factor in the determination of the success or failure of environmental management.

International trade is an important source of some forms of economic progress, but it can accelerate degradation of ecosystem services in exporting countries if their policy, regulatory, and management systems are inadequate.

In this context, market failure arises when the many values of ecosystem goods and services are not accounted for – or are undervalued – in market transactions, whether local, domestic or international. Short-sighted accounting often leads to the conversion of ecosystems to farm land (the former has no “market value” while the latter does) or to the overharvesting of economically important components of ecosystems (such as fish) without consideration of the damage to the broader ecosystem that is being done.

There are various reasons why the market might fail to protect the environment but common reasons are that market prices do not reflect the true cost of the impacts that production or consumption have on ecosystems. For example, a company might be able to discharge pollutants in a river without paying for the damage done to freshwater ecosystems, drinking water and so on. The company might be making a net profit, while the nation is taking a loss.

There are various ways to correct market failure. For example one might recommend to transform supply chains to avoid deforestation, facilitate access to markets for carbon and ecosystem services, or apply natural capital accounting to correctly value the “true” cost of natural resources.

Policy Failures

Whether or how a policy fails can be difficult to define and often depends on who you are asking. But, in a general sense one we might consider whether government policies are leading to, or not preventing, unsustainable environmental practices. If so there has been a “policy failure”. For example, there may be a law that encourages total clearance of forests on agricultural concession lands. Or there may be a fishery subsidy that encourages over exploitation of fish stocks.

There are many ways in which policy failures can be addressed, such as integrating natural capital into fiscal, development and sectoral policies and planning; reforming tax, incentive and subsidy schemes; and forging public private partnerships for creating environmentally positive incentives.
Governance Failures
A third class of “failures” are failures of governance. In these cases, the rules, practices or processes that affect nature and ecosystems are inadequate or ineffective. For example, biodiversity and natural resources on community lands would likely be overexploited if people in the community do not have the right to manage - and benefit from - the resources. Fish stocks may be over-exploited and depleted in the absence of a resource conservation regime with clear rules and enforcement mechanisms.

Examples of how to address this include transforming governance systems to secure tenure and rights, supporting community-based management, and tackling corruption and illegal activities such as poaching.

Step 3: Analysing Potential Nature-based Solutions
Once one has a set of key challenges, and an understanding of what has led to them, attention can be turned to prioritizing them, and identifying and analyzing potential solutions.

Several points should be borne in mind.

Nature-based solutions need to tackle the underlying root causes: they should (at least in part) tackle the market, governance or policy failure that led to the problem in the first place. In this way, the analysis and development of solutions will be more systemic and systematic than those focusing only on one locale or issue (such solutions have little no potential for the large scale and fundamental changes that are needed).

For some potential solutions there will likely be winners and losers, at least in the short term. And so, it will be useful to understand who will benefit and who might bear the cost of implementing the solution. This is not always straightforward and will often involve widespread consultation with a broad cross section of those who might be impacted. It will always be important too to look at the distributional impacts: what socio-economic groups will benefit most, or has the most to lose, and at what time scale.

Consideration should also be given to the political economy of what is proposed. Who has the power to put what is recommended into place? And what are the institutions, laws, norms and other facts that influence how they act?

Consideration must also be given to the evidence-base. What evidence is available to assess the feasibility and likely impact of a particular solution? And how can one measure the impact?
There is, of course, much more to policy design, including the availability of financial resources, capacity and timing. But these first questions are a prompt to help think through which areas might be most fruitful for report’s analysis and recommendations.

To support the development of a nature-based solution NHDR, Appendix 1 gives an example of the chapter outline.

**Resources for NHDR Teams**

**Human Development Report Office (HDRO)**

Anyone wishing to prepare a regional or national report on human development and nature-based solutions might also wish to make use of some other resources, beyond this paper, that HDRO maintain.

The Report Preparation Toolkit (online at [http://dev-hdr.pantheonsite.io/en/country-reports](http://dev-hdr.pantheonsite.io/en/country-reports)) was written for anyone involved in writing a national or regional human development report. It offers a concise, step by step overview of the whole reporting process, from theme selection, through report preparation and project oversight, to a communication strategy.

A range of other resources for report teams, ranging from guidance on statistical methodology through to concept note templates and terms of reference for members of a project team are available here [http://dev-hdr.pantheonsite.io/en/search-resources](http://dev-hdr.pantheonsite.io/en/search-resources).

HDRO also manage UNDP-wide support for national and regional reports. We are, subject to resources, able to offer advise on every aspect of report preparation including reviewing draft material and statistical calculations. HDRP have run many national or regional workshops discussing human development reporting for both the users and producers of reports.

Every report is different and country offices are best placed to decide many issues, and UNDP’s guidelines for quality assuring national and regional reports reflect this. It is important, however, for any team to familiarise themselves with the guidelines to ensure reports are of high quality and meet UNDP’s core standards. The latest guidelines are here (only accessible by UNDP staff) [https://intranet.undp.org/global/popp/rma/Pages/Quality-Assurance-for-National-Human-Development-Reports.aspx](https://intranet.undp.org/global/popp/rma/Pages/Quality-Assurance-for-National-Human-Development-Reports.aspx)

The guidelines, as at 1 January 2019, are at Appendix 2.
Global Policy Network (GPN) By the Bureau of Policy and Programme Support (BPPS) and the Crisis Bureau

In February 2019, BPPS and CB launched the GPN with a vision of becoming the cutting-edge provider of timely development advice; providing support to Country Offices and programme countries in an integrated and coherent manner—to instantly connect countries to the world of knowledge, resources and networks of best practice they need to achieve development breakthroughs. The nature-based solution provides a wide range of internal and external resources for nature-based solutions.

GPN also launched the Communities of Practice (COPs) for each of the six UNDP Signature Programmes. It is encouraged to join The Environment, Nature Based Solutions for Sustainable Development COP to support countries to build their capacities to promote resilient livelihoods, and to ensure natural capital is well conserved, managed and used to promote climate change mitigation and adaptation, economic recovery and sustainable development for all.

GPN Environment, Nature Based Solutions for Sustainable Development Community of Practice: https://undp.sharepoint.com/sites/copenvironment/SitePages/home.aspx?web=1
Appendix 1 - Sample Structure of an NHDR About Nature-Based Solutions

There is no one way to write a national human development report and anyone preparing a report should look for innovative ways to structure it. One possible structure for a nature-based report might run as follows.

1. Foreword: signed by a government minister or national personality.

2. Short (8 pages maximum) Executive Summary

3. Introduction: outlining the purpose of the report and where the idea first began.

4. The State of Human Development: giving an overview of key human development trends and challenges in the country or region with analyses by population subgroup and/or geographic area if appropriate.

5. Human Development and Nature: a detailed discussion of one or more key environmental challenges and their links to human development. Analysis of what has led to the environmental concerns in the first place and how different groups are affected.

6. Nature-based Solutions: a discussion of what nature-based solutions are, and which solutions could address the challenge(s) outlined in 4. What would the human development benefits look like?

7. Recommendations: A relatively few focused recommendations (likely primarily policy-related) based on the analysis in the report, as well guidance on their relative importance, together with their priority and other advice for their introduction.

8. Brief Conclusions.
Appendix 2 - Quality Assurance for National Human Development Reports (at 1 January 2019)

To ensure that National HDRs are of high quality the following four core standards are recommended for all National HDRs that will carry the “Human Development” brand name. The following also refers equally (with appropriate modifications) to sub-national HDRs, though for brevity we discuss only national reports.

National Ownership

National HDRs are country-based, country-driven and engage people beyond the government across various sections in the country. They focus on national perspectives on human development, addressing priority themes, emerging trends, opportunities and challenges. They promote national policy dialogue among a variety of national perspectives based on the identification and analysis of development alternatives. Although NHDRs are not a consensus document, they serve to inform policymaking and build shared visions. When appropriate, NHDRs can focus on sub-national areas such as states, regions, districts, or even cities.

NHDR teams rely primarily on national expertise. The capacity of national experts (from academia, civil society, think tanks and other national institutions) to apply the human development approach is fundamental to ensuring the report has an influence on development debate and policy. NHDRs require up-to-date and reliable data, which are obtained from, or at least used in partnership and consultation with, national statistical agencies.

Integrity and quality of analysis

If the HDR carries the UNDP logo, it is UNDP responsibility to ensure integrity and impartiality of the analysis. NHDRs promote the HD approach but are non-partisan; they rely on authoritative data and analysis, rather than serving to justify specific positions or a policy of a government or any other constituency.

To add value NHDRs may challenge existing policies based on sound evidence. They consider a multiplicity of perspectives besides those of the authors, policy-makers, and UNDP. Reports are encouraged to innovate in what they measure and how they measure it, so long as the measurements are sound.
NHDRs are about human development and they should be distinct from other technical/sectorial reports:

- The NHDRs apply key principles of the human development approach. Human development concepts underpin the analysis and the identification of main messages. Because human development is an open-ended perspective and its conceptualization keeps evolving, it is important that the principle authors are familiar with current human development literature.\(^{23}\)

- The NHDR findings are robust enough to serve as a sound basis for the formulation of recommendations. When urgent action is required, or consensus is already emerging, implementation strategies and plans of action can accompany a report’s recommendations.

- The credibility of data and analysis presented in the NHDRs is crucial for their influence in the policy debate and for the overall reputation of the HDRs and UNDP.

- The NHDRs monitor trends and challenges in human development by providing data that illustrate critical dimensions of human development (e.g. health, knowledge, a decent standard of living, security, sustainability, equity, empowerment, etc.) as well as the flagship human development index (HDI).

- NHDRs use data to identify critical disparities among geographic, religious, racial, ethnic, gender, economic, and other socio-economic groups.

Special attention goes to the collection and presentation of data and the use of indicators in a manner that facilitates comparisons within and between countries and the analysis of changes over time. For cross-country comparisons, NHDRs should use internationally standardized data as in the global HDR. For within-country comparisons, national statistics are often more appropriate.

Technical notes, definitions of statistical terms and methodologies, and other references and materials that are relevant to the analysis are made publicly available (including to the peer

\(^{23}\) For example, it is recommended that HDR authors get familiar with the inception global HDRs (e.g. **HDR 1990** and **HDR 1994**) and with the most recent global HDRs and other literature as appropriate.
reviewers) either in the report or elsewhere. A description of the preparation process and its methodology also belongs in the report. Report teams are the custodians of data they collect, not the owners. Data collected by NHDRs are made available – where appropriate and subject to appropriate safeguards around privacy and so on – to the national statistical office and international organisations.

**Stakeholder engagement and inclusive preparation**

Achieving human development depends on a wide range of actors. To be influential, NHDRs need to reflect a variety of national perspectives, so the NHDR process is inclusive. Broad consultative processes, when properly documented and reflected in the analysis, increase the legitimacy and credibility of the report.

NHDRs are expected to fully engage governments and government-sponsored institutions, as the main architects of public policy. As a minimum, the government discuss the NHDR project document and concept note and have the possibility to review a final draft of the report, without necessarily having to clear it. National statistics are discussed and presented in collaboration with national statistical agencies. The participation of other stakeholders—academia, the private sector, labour, the media and civil society including, where possible, local communities—is equally important for the report’s legitimacy, for a full consideration of policy issues and for the implementation of recommendations.

**Ensuring an Influence**

NHDRs aim to stimulate public debate and to create an environment for policy reform and resource mobilization. They also steer action within UNDP and among partners and stakeholders. A report is only truly successful if it has an influence and generates positive change. Although this cannot be demonstrated before the report is launched, two aspects of quality which are necessary (if not sufficient) for ensuring an influence can be assessed. These are the level of strategic presentation within a report; and whether there are plans for sustained advocacy and follow up.

- **Strategic Presentation** – NHDRs that are readily accessible to a variety of audiences, including policy makers and media, are more likely to have an impact. Clear key messages and good editorial practices (including graphs, figures, boxes and pictures) are combined with approaches that resonate with local experience to reach a diverse set of audiences. TV, radio, social media, and a variety of web-based and printed formats can help reach different constituencies.
· **Sustained Advocacy and Follow-Up** implies work beyond simply launching the reports. Planning and funding for advocacy and follow-up begin at the onset of the report preparation and inform the entire process. Opportunities to link with initiatives by other development actors can generate synergies and expand audiences. Associating the launch with well-publicized, high-profile events involving prominent government officials, high-level UNDP representatives, civil society, donors, and other stakeholders also add value. After the launch, the more broadly the report is distributed the better (distribution could include through online and multi-media platforms). Getting a sense of the uptake of the report in the media and its possible influence on national policy is important.

**HQ Review of National HDRs**

The Resident Representative has the ultimate responsibility to ensure the quality of national Human Development Reports (NHDRs) that bear UNDP’s logo. If the Resident Representative determines that the content, topic or messaging of a NHDR includes potential sensitivities, the report should be forwarded to the Regional Bureau for review. The Resident Representative, in consultation with the bureau’s senior management and the Executive Office, will decide if the report should be submitted for the Administrator/Associate Administrator’s perusal.

HDRO will try -- subject to workload and sufficient notice -- to support the review process when requested from the Executive Office or beyond; HDRO would focus their comments on the quality of data and analysis and the application of the human development approach. Early submissions of concept notes and outlines will facilitate quality control.

Enough time should be built into report production schedules to accommodate an iterative process of reviews. HDRO needs at least two weeks for a thorough review, and the report production schedule should be flexible enough to accommodate adjustments. The Office of Communications should also receive advance notice of relevant launches. It is good practice for a report team to respond to all peer review comments explaining which have been taken on board and why other comments haven’t and offer an opportunity for further discussion.

**NHDR Quality Assurance**

The responsibility for the publication of an NHDR rests with the Country Office Resident Representative, although each report should be submitted to the Regional Bureau director for her/his perusal. The guidance above suggests principles for arriving at analytically sound and relevant reports.

A quality assurance process includes:
1. Appropriate training for key UNDP stakeholders and the report team on the human development approach and applying it to policy questions.

2. A review mechanism, comprising consultations with, and feedback from, relevant national institutions, UNDP colleagues (e.g. from the Regional Bureaus), and international experts as appropriate is an important part of every report.

   a. HDRO will maintain a list of potential reviewers and supporting material, but it is for the country office, in consultation with the Regional Bureau and other stakeholders, to organise the review.

   b. It is important to include people with data and communication skills among the reviewers, as well as those who are expert in the subject of the report.

   c. Peer reviewers should also have an opportunity to comment on the initial concept note and the proposals for communicating and disseminating the report.

3. A national advisory committee composed of prominent national experts with the mandate to assess quality of analysis, reliability and accurateness of data, and soundness of recommendations.

4. Consultation with the National Statistical Agency on data use, and HDRO on the use of internationally standardized data and methodologies for composite indices.

5. The Resident Representative should review the report according to the quality standards listed above. Namely:

   - Is the report relevant, and does it have sufficient supporters across the nation? Is the report relevant, and does it have sufficient supporters across the nation?

   - Has the analysis and presentation been undertaken with as the analysis and presentation been undertaken with integrity and to a high quality?

   - Does it raise and address sensitive issues without a reputational risk to the organisation?

   - Was the report prepared with broad stakeholder engagement in an inclusive way?

   - Potential for influence: are a supporting communication and outreach strategy and other follow-up initiatives planned?
• Once the Resident Representative is satisfied the report is of high quality it goes to the regional bureau director for their perusal.

6. It is good practice for a report team to respond to all review comments explaining which have been taken on board and why other comments haven’t and offer an opportunity for further discussion. The report can be launched once the Resident Representative is satisfied that it is ready.

7. A copy of the final report should be sent to the HDRO on – or preferably before – the release date in order that HDRO can help promote the report within and outside UNDP.
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