HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT

HLPF 2020 Session: Protecting the Planet and Building Resilience

(Most closely related to SDG 12, SDG 13, SDG 14 and SDG 15)

8 July 2020, 2:00 PM – 3:00 PM

Background Note[1]

1. Executive summary

1. Human development and well-being are intrinsically related to nature and a healthy planet. Poverty eradication and social and economic development depend on addressing climate change, the conservation and sustainable management of the planet's natural resources, and a systemic approach to managing risk.
2. The 2030 Agenda is the world's roadmap for advancing human progress and protecting the planet. But the world is not on track for meeting the SDG targets related to the environment and will fail to meet most of the 17 SDGs unless the degradation of the environment is halted. The post-2020 Global Biodiversity Framework will provide guidance for the implementation of biodiversity-related SDGs and the Agenda as a whole, and the Sendai Framework for Disaster Risk Reduction offers insights on addressing risk and building resilience in all areas of development.
3. The COVID-19 pandemic has revealed the systemic nature of risk and the severe and cascading impact of disasters across society. It has also shown that safeguarding nature is critical for protecting human health. "Building back better and greener" needs to be at the center of the COVID-19 response, and mainstreaming nature into our decision making will be critical to support people's lives and livelihoods; manage risks and build resilience; addresses climate change, biodiversity loss and pollution; and ensure that human rights are upheld and no one is left behind
4. Integrated approaches to transforming the economic system are crucial: sustainable production and consumption including structural changes in energy production, resource efficiency, risk-informed investment, and circular economy approaches will be key for getting back on track to achieve the SDGs and protect the planet.
5. Unsustainable natural resource management practices are drivers of climate change, desertification, deforestation and other terrestrial and marine ecosystem degradation leading to increased disaster risks and socio-economic losses. Conversely, conservation, restoration and sustainable use of ecosystems and their landscapes and seascapes offer cost-effective solutions for disaster risk reduction. By working with nature and using nature-based solutions, we can not only conserve nature but also benefit from nature's capacity to help us address many inter-connected challenges
6. Transforming food systems and agricultural practices is critical for improving the health of the planet and the people who inhabit it. Risk-informed, sustainable and equitable approaches to

[1] This background note has been drafted by the Secretariat of the Convention on Biological Diversity, UN Department of Economic and Social Affairs, UN Environment Program and the UN Office for Disaster Risk Reduction, and it benefitted from the knowledge and expertise of other UN agencies and outside experts, as listed on the HLPF website.

agriculture have a positive impact on poverty eradication, rural livelihoods, climate change, disaster risk reduction, resilience building, pollution prevention, biodiversity conservation, sustainable forest management, and land and sea restoration.

7. Good governance, effective implementation of policies and enforcement of environmental laws and regulations, reliable and predictable access to financial resources, and science, technology and innovation are critical elements in reshaping the relationship between humans and nature, protecting and restoring the planet, managing risk, and building resilience. Green measures in post COVID-19 fiscal stimulus packages could target job creation with lasting benefits for climate and nature, while redirecting harmful subsidies to catalyze greener economic growth, avoiding environmental de-regulation, and addressing the drivers of disaster risk.
8. Whole of society approaches, including transformations in individual and collective action, will be needed to ensure that changes are sustainable and lasting. The private sector plays a fundamental role and needs to assume greater responsibility for protecting the planet, reducing disaster risk, and building resilience including through green investments.

The UN 2030 Agenda for Sustainable Development is rooted in the fact that human development and wellbeing cannot be achieved without simultaneously safeguarding and investing in nature.[2] Without a systemic approach that manages multiple risks and opportunities and leverages solutions from the environment while protecting the planet for future generations, our development gains will be short lived and unequally distributed. This year, the COVID-19 pandemic has brought unforeseen challenges, but we hope and believe that recovery from this crisis can help make 2020 a turning point for our relationship with nature.

The COVID-19 crisis has laid bare the systemic nature of risk and the cascading impact of disasters across the Sustainable Development Goals (SDGs), reinforcing one of the tenets of the 2030 Agenda—there is an urgent need for transformative change in the means of achieving human welfare. In this transformative process we have the responsibility to "leave no one behind" and promote risk-informed recovery policies, investments and actions that also protect and restore nature and promote resource efficiency. In this moment of crisis, when millions of people around the world have lost employment, and governments are developing large scale stimulus and support plans, there may be unprecedented policy space to invest in a just transition to a decarbonized world.

Advancing the human right to a safe, clean, healthy and sustainable environment, as highlighted in the Secretary-General's Call to Action for Human Rights, will be a critical enabler of the 2030 Agenda. Through measures to prevent the creation of new and reduce existing risk, ecosystem-based approaches and low carbon, resilient, sustainable consumption and production practices, as well as green technologies that support sustainable development, we can better account for the multiple values of nature, integrate disaster risk reduction into development, and advance inclusive and equitable economic, cultural, political and social development.

The current paper was prepared as a background document for "Protecting the Planet and Building Resilience," a session of the 2020 High Level Political Forum on Sustainable Development, and is based on a virtual consultation process held in May and June 2020 with approximately 50 experts from within and outside the UN system. The first section offers a status update on the SDGs considered for this session, while acknowledging that all 17 goals are

[2] Folke C, Biggs R, Norström A V., Reyers B & Rockström J (2016) Social-ecological resilience and biosphere-based sustainability science. Ecol Soc 21:art41.

crucial in the efforts to rebalance the relationship between people and planet. The following section addresses the COVID-19 crisis and early lessons on the inter-related challenges and available guidance to prevent future zoonosis diseases. Opportunities are then presented in three highly inter-related areas: the economy, natural resource use, and food systems. The last section addresses the means of implementation, including mechanisms and partnerships to accelerate progress, drawing from the "levers" for change presented in the 2019 Global Sustainable Development Report: governance, economy and finance, science and technology, and individual and collective action.[3]

Developments since the paper's original release

On 2 December 2020, in his State of the Planet Address at Columbia University, UN Secretary-General António Guterres, said, "Making peace with nature is the defining task of the 21st century. It must be the top, top priority for everyone, everywhere. In this context, the recovery from the pandemic is an opportunity." With this statement, the Secretary-General articulated the central challenge of the current period: while the world's governments are focused on fighting the Covid-19 virus and recovering from the pandemic and all its social and economic fallout, they cannot lose sight of the existential planetary crises of climate change, biodiversity loss and pollution.

Since the current paper was originally released in July 2020, different regions and countries have suffered through the Covid pandemic with different trajectories and degrees of severity. In all cases, though, it has been clear that the broken relationship between human society and nature was central to this outbreak, and if it is not repaired, additional zoonotic disease crises will follow.

Governments around the world have made significant carbon neutrality pledges over the past year, and by March 2021, 124 countries had committed to achieve net-zero carbon emissions, though the end point and degree of specificity varied widely. These countries represent 61% of global emissions, 68% of global GDP and 56% of the world's population. In addition, many cities and businesses have pledged to work toward net-zero emissions. The impact of these pledges will depend on a number of factors including the degree to which the government or business relies on purchasing carbon offsets rather than cutting emissions, but the quantity and scale of these pledges is an important development.[4]

In the climate context and beyond, there has been growing recognition that placing a value on nature and accounting for the negative externalities of human activity will help to drive the transformations that are needed to "make peace with nature." According to a recent IMF report, for instance, investments in renewable energy infrastructure and resources and in biodiversity conservation will benefit a country's GDP more than fossil fuel investments or other spending on development that harms ecosystems.[5] At the One Planet Summit in January 2021, the international community built momentum toward the Taskforce on Nature-related Financial Disclosure, which will elaborate an approach to accounting for the impacts on

[3] https://sustainabledevelopment.un.org/globalsdreport/2019

[4] https://eciu.net/analysis/reports/2021/taking-stock-assessment-net-zero-targets; https://www.nature.com/articles/d41586-021-00864-9

[5] https://www.imf.org/en/Publications/WP/Issues/2021/03/19/Building-Back-Better-How-Big-Are-Green-Spending-Multipliers-50264

biodiversity—negative and positive—of economic activities. This complements the work of the Taskforce on Climate-related Financial Disclosures discussed below, and will provide information to investors, lenders, insurers and others active in financial markets.[6]

From the outset, the Covid pandemic highlighted the cascading nature of disaster risk defined broadly, and the importance of integrating biological hazards into DRR policies and strategies. As regions, countries and communities that lacked resilience before the virus struck suffered disproportionate harm, the international community sought ways to address these inequities. National governments, sub-national and municipal authorities, the private sector and other stakeholders continued to pursue areas for collaboration, including through the UNFCCC Marrakesh Partnership on Global Climate Action.[7] The period from 2020-2021 saw activities including the Race to Resilience and the Regional Resilience Dialogues, where Parties and non-Party stakeholders came together to promote new commitments to enhance the resilience of developing countries and vulnerable communities. Initiatives addressed issues including water and agricultural resilience, disaster risk reduction, finance and insurance, and nature-based solutions.[8]

Decision makers have emphasized the co-benefits of actions to build resilience—protecting the planet and also bolstering human society against zoonotic disease. A recent report of assessing pandemic prevention efforts found that cutting deforestation in half would significantly reduce the risk of zoonotic disease spillover while also saving $4 billion in avoided GHG emissions.[9] Studies found that policy makers and the business sector should take the spillover risk of zoonotic disease into account when making disaster risk assessments related to converting forests to agricultural land.[10] Such integrated approaches to agricultural policy will feature prominently in the upcoming Food Systems Summit.[11]

While it is self-evident that the Covid virus know no borders, its impact was not felt equally across the world. In the year since this report was originally released, the pandemic continued to both expose and magnify existing inequalities between and within countries. Government and non-government actors have recognized and articulated the need for inclusive policy making based on a diverse base of knowledge, including scientific research tailored to specific communities and regions, high quality disaggregated data, and local and indigenous knowledge. Farmers, rural communities, youth, people with disabilities, women and other vulnerable groups are change agents and have valuable knowledge and expertise that will be crucial to re-imagine the relationship between nature and human society. The Covid19 Agri-information Hub, an initiative by the Climakers alliance of the World Farmer's Organization, is an example of the kind of grassroots effort that will be critical in the fight to make the transformations needed to avoid future zoonotic pandemics and mitigate a wide variety disaster risks.[12]

In the face of the severe inequalities across society that Covid revealed, many civil society organizations and other stakeholders emphasized that it is important not to allow the urgency

[6] https://www.oneplanetsummit.fr/en/coalitions-82/taskforce-nature-related-financial-disclosure-tnfd-192
[77] https://unfccc.int/sites/default/files/resource/MP_achievements_progress_April2021.pdf
[8] https://racetozero.unfccc.int/race-to-resilience-action-dialogues-meet-the-initiatives-mobilizing-action/
[9] Wu, T. The socioeconomic and environmental drivers of the COVID-19 pandemic: A review. *Ambio* **50,** 822–833 (2021). https://doi.org/10.1007/s13280-020-01497-4
[10] IPBES, 2020
[11] https://www.un.org/en/food-systems-summit
[12] https://www.wfo-oma.org/covid-19-agri-information-hub/

of the pandemic recovery to undermine human rights obligations. [13] The Special Rapporteur on Human Rights and the Environment framed the human rights issues around climate change in terms of the human right to health, underscoring the inextricable relationship between human health and planetary health—a relationship made terribly clear through the Covid pandemic.[14]

Young people suffered from education inequalities in countries and communities around the world over the last year. As school moved online, access to the internet and computers shaped children's ability to learn and achieve, and as governments invest in education to address these inequalities, there are opportunities to strengthen education particularly in sustainability and climate issues.

The past year also saw the international community continue to negotiate the post-2020 global biodiversity framework, looking ahead to the UN Biodiversity Conference that will take place in Kunming, China, later this year. Though the negotiations and the process of updating of the Aichi Biodiversity Targets is ongoing, the Global Biodiversity Outlook 5 already provided some useful guidance. The Outlook, launched in September 2020, identifies eight areas for crucial transition: land and forests (conserving and restoring terrestrial ecosystems), sustainable agriculture (using agroecology and other approaches to increase productivity while decreasing environmental harm), food systems (healthier and more sustainable diets and decreased food waste), fisheries and oceans (protect and restore marine and coastal ecosystems and rebuilding fisheries), cities and infrastructure (reducing environmental footprint of cities and improving quality of urban life), freshwater (protecting and restoring freshwater sources and ecosystems), climate action (phase out of fossil fuels and scale up of nature-based solutions), and the One Health approach. The past year has proven that a healthy people and healthy society will be possible only with healthy ecosystems, and the urgency to act has never been greater.[15]

2. Stocktaking and challenges

The SDGs explicitly under consideration in "Protecting the Planet and Building Resilience" reflect the fundamental need to protect the planet from different angles. We will be able to safeguard marine (SDG 14) and terrestrial (SDG 15) biodiversity and resources only if we change the ways we produce and consume (SDG 12). Meaningful climate action (SDG 13) will likewise only be accomplished through shifts in consumption and production and decisive changes in our approach to management and conservation of agricultural land, forests, lakes, rivers, seas and other natural areas. Without progress to reduce emissions and run-off pollutants including carbon, nitrogen, and phosphorous compounds, pollution levels will continue to contribute to climate change and the collapse of terrestrial and marine biodiversity.

[13] The Guiding Principles on Human Rights Impact Assessment of Economic Reforms are important in this context https://www.ohchr.org/EN/Issues/Development/IEDebt/Pages/DebtAndimpactassessments.aspx
[14] https://reliefweb.int/sites/reliefweb.int/files/resources/Safe_Climate_Report.pdf
[15] https://www.cbd.int/gbo/gbo5/publication/gbo-5-en.pdf

It is also clear that it will be impossible to protect the planet without simultaneous progress across the entire 2030 Agenda, and the management of risk in the implementation of all SDGs.[16] We will only be able to overcome poverty, hunger, inequity and disease in the context of a healthy and sustainable planet, and we will only be able to make sustainable changes in the way we treat the planet if we ensure that human wellbeing, life and livelihoods are simultaneously supported.

a) Snapshot of SDGs 12, 13, 14 and 15, from the Secretary-General's 2020 SDG Progress Report [17]

Goal 12. Ensure sustainable consumption and production patterns

While an increasing number of countries report that they have enacted sustainable consumption and production policies, from 2010-2017, global domestic material consumption (DMC) per capita rose by 7%, and the DMC per capita in Europe and North America is 40% higher than the global average. In addition, by 2017 the global material footprint had risen 17.4% (from 73.2 billion metric tons to 85.9 billion metric tons) since 2010 and a full 66.5% since 2000. The benefits of this type of resource use remain limited to a few. Overall, high-income countries maintain levels of per capita material footprint consumption that are 60% higher than upper-middle income countries and more than 13 times the level of consumption of low-income countries. At the same time, global material productivity has not improved since 2000 and the extraction of global resources is set to reach 192 billion tonnes per year by 2060, if current practices are maintained.[18]

Goal 13. Take urgent action to combat climate change and its impacts

Currently, 186 Parties have communicated their first nationally determined contribution (NDC) to the UN Framework Convention on Climate Change (UNFCCC), while five Parties have communicated their second or updated NDCs. The commitments included in the NDCs as a whole currently do not put the world on track to keep global climate change below 2 degrees. Over 100 developing countries have undertaken activities to formulate and implement National Adaptation Plans. From 2013–2014 to 2015-2016, global climate finance rose by 17% ($584 billion to $681 billion), but this investment is still dwarfed by investment related to fossil fuels in the energy sector alone ($781 billion in 2016). The total financing needs for climate adaptation in agriculture, a highly climate-sensitive sector, has been estimated at a cumulative $225 billion up to 2050.[19] To date, 85 countries have reported having a national disaster risk reduction strategy (DRR) aligned to the Sendai Framework for Disaster Risk Reduction since its adoption in 2015. Few countries have adopted disaster risk reduction financing strategies.

[16] Despite concrete evidence that investment in risk prevention and reduction pays off well, risk is not yet fully integrated in the implementation of the SDGs, and risk is increasing at a faster rate than it is reduced, leading to loss of lives and livelihoods and erasing hard-earned development progress as well as damaging natural ecosystems

[17] https://sustainabledevelopment.un.org/content/documents/26158Final_SG_SDG_Progress_Report_14052020.pdf

[18] IRP (2019). Global Resources Outlook 2019: Natural Resources for the Future We Want.

[19] (Lobell et al. 2013).

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development[20]

Despite increased momentum to protect key marine environments and sustainably use marine resources, the marine environment continues to deteriorate: with most of the ocean (60%) experiencing increased multiple human impacts over the past decades, in particular due to climate change, fishing, land-based pollution and shipping.[21] The variability in pH and the acidity of the oceans has risen by 10-30% over 2015-2019. Only 65.8 percent of fish stocks were within biologically sustainable levels in 2017 (down from 90% in 1974): generally intensively managed fisheries have seen improved stock abundance, with some reaching biologically sustainable levels, while fisheries with less-developed management are in poor shape.[22] The IPCC report on Oceans and Cryosphere (2019) documented high vulnerability of marine and coastal ecosystems to climate change, including tropical coral reef, kelp forests, seagrass beds.[23] These ecosystems store and sequester carbon. Their degradation also leads to accelerated emission of carbon from these systems and increased disaster risks. In 2020, approximately 100-300 million people are at increased risk of floods and hurricanes because of loss of coastal ecosystems providing coast-line protection.

Marine protected areas (MPAs), accepted as a mainstream tool for conserving marine biodiversity, are advanced under several global and regional instruments. There has been a significant increase in waters under protection (more than doubling) since 2010, but slow progress in areas beyond national jurisdiction (below 2%). However, despite this progress, the contribution of MPAs and Other Effective Area Based Conservation Measures' (OECMs) to biodiversity conservation is complex and difficult to monitor. This is further complicated by increasing climate change pressures and lack of cross-institutional connections among management authorities.

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Recent years have seen improvements in sustainable forest management, gains in protected area coverage for terrestrial, freshwater and mountain areas and in implementing programs, legislation and accounting principles to protect biodiversity and ecosystems. In 2020, on average, 44% of each terrestrial, 41% of each freshwater, and 41% of each mountain Key Biodiversity Area (KBA) were within protected areas, an increase of around 12-13 percentage points since 2000. However, overall progress to protect biodiversity has been insufficient. Forest area fell from 31.9% of total land area in 2000 to 31.2% in 2020, representing a net loss of almost 100 million hectares of the world's forests. Land degradation has reduced the productivity of 23% of the global land surface. Up to US$577 billion in annual global crops are at risk from pollinator loss. In addition, the risk of species extinction has worsened by about 10% over the last three decades, with the Red List Index (from a value of 1 indicating no threat to extinction to a value of 0 indicating all species are extinct) declining from 0.82 in 1990 to 0.75 in 2015, and to 0.73 in 2020. These include species that are essential to food production and agriculture, and

[20] See also IPCC report on Oceans and Cryosphere (2019)

[21] Halpern BS, Frazier M, Afflerbach J, Lowndes JS, Micheli F, O'Hara C, Scarborough C & Selkoe KA (2019) Recent pace of change in human impact on the world's ocean. Sci Rep 9:1–8.

[22] Hilborn, R. et al. Effective fisheries management instrumental in improving fish stock status. Proc. Natl. Acad. Sci. U. S. A. 117, 2218–2224 (2020).

[23] https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf

whose decrease threatens food security and people's livelihoods. Approximately one third of reporting Parties are on track to achieving their national biodiversity targets as reported in national reports under the Convention on Biological Diversity.

In terms of inland fisheries, some of the world's largest come from basins or river systems that are facing severe threats from anthropogenic and natural environmental pressures. However, there is limited or no routine monitoring of the status of capture fisheries in most of these basins.[24]

Links with the Agenda as a whole

Recent assessments have predicted a poor prognosis for 80 per cent (35 out of 44) of the targets within the SDGs related to poverty, hunger, health, water, cities, climate, oceans and land unless the degradation of the environment is halted.[25] Of the 21 SDGs targets set to expire in 2020, 12 focus on the environment and fall within five SDG areas - SDG 2 (Food Security), SDG 6 (Water and Sanitation), SDG 12 (Consumption and Production), SDG 14 (Life in Water) and SDG 15 (Life on Land). A target on climate finance under SDG 13 (Climate Action) was also meant to mature in 2020. Many of these targets relate to biodiversity targets associated with the Strategic Plan on Biodiversity 2011-2020 and were discussed at COP14[26]. The post 2020 Global Biodiversity Framework, under discussion for adoption at the 15th Conference of the Parties to the Convention on Biological Diversity, in Kunming, China, will provide further guidance for the implementation of global biodiversity goals beyond 2020.

3. COVID-19 crisis: impacts and recovery

The UN Secretary-General has called the COVID-19 pandemic "an unprecedented wake-up call … to protect our planet," and has proposed "six climate-related actions to shape the recovery and work ahead."[27]

There is a large and growing body of evidence showing that the rate of emerging zoonotic infectious diseases has been accelerating over the past half-century, and that they are very often associated with human activities such as deforestation; expansion of intensive agriculture; increased harvesting, trading and consumption of wildlife; and close contact between humans and wild and domestic animals.[28] Tropical rain forests are rich sources of biodiversity—and of viruses—and when tropical forests undergo land use change near high-density human populations, including for monoculture agriculture and industrial livestock production, the risks of spillover are great.[29] Extractive industries including mining, logging, oil exploration and drilling, and commercial wild meat hunting and wildlife trade also contribute to

[24] FAO. 2020. The State of World Fisheries and Aquaculture 2020. Sustainability in action. Rome

[25] IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany

[26] COP14 Decision 14/34, Paragraph 15.

[27] 1) Invest in a clean, green transition;2) tie investment in rescuing businesses to green jobs and sustainable growth; 3) use fiscal firepower to drive a shift from the grey to green economy; 4) end fossil fuel subsidies and ensure that polluters pay; 5) incorporate climate risks and opportunities into the financial system, public policy and infrastructure; 6) work together as an international community.

[28] MacDonald and Mordecai (2019) doi:10.1073/pnas.1905315116;
Burkett-Cadena and Vittor (2018) doi: 10.1016/j.baae.2017.09.012

[29] https://www.nature.com/articles/s41467-017-00923-8

the spread of disease, since these industries heighten exposure when they bring people into wilderness areas, increasing risk of infection via vectors (mosquitoes, ticks) or when they interact with or consume wildlife products. Furthermore, biodiversity loss is a multilayered threat: nature and the diversity of microorganisms, flora and fauna is the source of medicine and antibiotics for treatment, therefore its loss limits discovery of potential treatments for many diseases and health problems.

The pandemic demonstrates how unmanaged risks can ricochet across systems in a disaster event, amplifying crises.[30] What began as a health crisis has now had severe effects on economic and social systems and food security, hindering the achievement of multiple SDGs and highlighting the need to identify and prevent the creation of, and reduce existing, risk. A successful recovery will require multi-disciplinary research on zoonotic diseases, combining animal and human pathogen surveillance with detailed ecological data on natural and anthropogenic systems, and insights from medical and veterinary doctors, social scientists, land and ocean managers, ecologists and epidemiologists as well as local, traditional and indigenous knowledge. It will be important to collect information on the differentiated impacts on vulnerable groups, including how vulnerabilities magnify when they intersect. This is not the first such crisis--AIDS, SARS, MERS and Ebola are also zoonotic diseases—and it will likely not be the last, but the 2030 Agenda offers a clear roadmap on holistically managing the risk of future crises.[31]

The cascading impacts of the COVID-19 crisis on efforts to implement the SDGs has been severe, but the crisis moment can create space for innovative and transformative policies, investments and behaviors. COVID-19 recovery efforts must "build back better,"[32] prioritizing green, blue, and climate smart infrastructure. Government stimulus must include incentives to accelerate the transition to low carbon economies that protect biodiversity and ecosystem services and promote resource efficiency and social inclusion. For instance, as policy makers consider blanket bans of the trade, farming and consumption of wild species, or control of wildlife markets, they must also address the economic and social impacts of such action on vulnerable populations. Governments should also support small and medium enterprises and rural and smallholder populations, which have been hard hit by the crisis. In addition, recovery efforts should bolster human rights, and should not present an excuse to undermine enforcement of environmental laws and policies or to delay action on top priorities like climate change mitigation and adaptation and biodiversity conservation and sustainable use.

So far, the spending for the recovery has not prioritized climate friendly or nature positive actions[33], but there are signs that some governments, particularly in Europe, are folding climate

[30] Disaster risk is defined in A/71/644 (Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction, endorsed by the UNGA in A/RES/71/276 as "The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity"

[31] https://www.worldbank.org/en/news/immersive-story/2020/05/21/investing-in-nature-pays-off-for-people-and-biodiversity

[32] Build back better is defined in A/71/644 (Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction), endorsed by the UNGA in A/RES/71/276 as "The use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies and the environment."

[33] Bloomberg Green calculated that by 9 June 2020 only 0.2 percent of stimulus spending by the top 50 economies in the world could be classified as "green"

action into future COVID-19 recovery stimulus spending.[34] (see Annex 1 for good practice examples.)

4. Policies and actions to maximize synergies, mitigate trade-offs and drive transformation

The current pandemic will reshape the broader sustainable and human development landscape—in some cases creating opportunities to make changes that before may not have been politically viable, and in others erecting new roadblocks and challenges. Actions to protect the planet and build resilience can be considered in a number of categories, keeping in mind that all policies should take a systems approach, ensuring that synergies are amplified and potential trade-offs anticipated and minimized, and that the risks stemming from them are managed. Below is a brief overview of three such (extremely interrelated) categories, with recommendations for transformative policies and approaches. Examples of good practices already underway can be found in Annex 1.

a) Economic system

An economic system governed only by metrics of GDP and growth rates is not compatible with a sustainable and nature-positive and climate friendly model of development. It fails to reflect the multiple monetary and non-monetary values of ecosystem services, the global public goods that sustain life on earth, and the fact that investments in risk reduction pays off.

A true measure of a nation's wealth must include its natural capital as well as human or produced capital. This rings alarm bells because natural capital per capita has declined by 40 percent from 1992-2014.[35] Transforming the economic system is therefore needed to arrest climate change and safeguard the planet, but at the same time, climate action and other nature-positive and risk preventing and reducing changes are fundamental to maintaining a nation's wealth and economic development over the long term. For instance, the ocean economy generated $US1.5 trillion in 2010 and could potentially reach an output of US$3 trillion in 2030 if it is able to develop along a more sustainable pathway[36]. A stable climate that remains within the 2-degree scenario, and healthy natural ecosystems, should be considered investible productive assets and a human necessity with incalculable sources of wealth rather than simply costs to manage. Developing adequate national metrics such as a natural capital index or gross ecosystem product will enable countries to go beyond GDP and track progress on the SDGs by assessing and accounting for their impacts and dependencies on nature.

Structural changes will be needed, including decarbonizing the energy system and reforming the market so it accurately prices negative and positive environmental externalities. Governments will need to remove harmful subsidies and redirect incentives toward the conservation, restoration and sustainable use of biodiversity as well as low carbon and climate resilient sectors, mainstreaming a risk management dimension and ensuring that investment is risk informed. As they take steps to fundamentally restructure the economy, governments will need to support a just transition for those who may lose livelihoods or suffer other economic hardship as a result—

[34] https://www.bloomberg.com/features/2020-green-stimulus-clean-energy-future/
[35] Inclusive Wealth Report 2018: https://www.unenvironment.org/resources/report/inclusive-wealth-report-2018
[36] High-Level Panel on Sustainable Ocean Economy and OECD

i.e. for those employed in fossil fuel industries, or those who had relied on the short-term benefits of fossil fuel subsidies.

As the engine of the global economy, the private sector must make fundamental changes in support of more sustainable ways to live, work, produce, eat, travel, consume and interact. Protecting the planet requires inclusion of meaningful Environmental, Social and Governance (ESG) priorities in company decision making. The B-Corporation movement, which currently includes over 2,500 companies in more than 50 countries, holds its members to a commitment to consider the impact of all business decisions not only on revenue but also on their workers, customers, suppliers, community, and the environment. Likewise, the "Principles for Responsible Banking" provide guidelines for a sustainable banking system, and "Principles for Responsible Investment" provide guidelines for investments considering ESG concerns. In addition, a Task Force on Climate Related Financial Disclosures has catalysed significant changes in disclosure of climate risks, and there is now interest in developing a Task Force on Nature-related Financial Disclosure.[37]

b) Land, marine and freshwater resource systems

Closely tied to changes in the economic incentives and structures are necessary transformations in land, ocean and other resource use. The ocean is a source of solutions for climate change mitigation and for many dimensions of a sustainable economy and human wellbeing, including the future of food and human health. On land, forests cover one third of the global area, sustaining human well-being, economies and livelihoods and harboring most of Earth's terrestrial biodiversity. The natural environment is humanity's first line of defense against many hazards.

Although there have been some positive steps in addressing deforestation and improving ocean health, generally the world is not using these valuable resources sustainably. Land-use change related to extractive activities, infrastructure development, unsustainable industrial farming, and urbanization have amplified exposure and vulnerability to shocks and stressors, triggered biodiversity loss, pollution and ecosystem degradation , and climate change.[38] In addition, human pressure on the world's oceans accelerated sharply at the start of the 21st century and shows no sign of slowing.[39]

Governments, business, and other stakeholders must shift their approaches to natural resources management if we are to prevent and reduce risk and address climate change and biodiversity loss and pollution. The conservation, restoration and sustainable management of ecosystems, especially connected landscapes and seascapes, have proven to be a cost-effective, safe and immediately available means of sequestering carbon and preventing the emission of greenhouse gases, preserving biodiversity, and reducing vulnerability and exposure to disaster. Long term actions to halt and reverse the loss of forests and their biodiversity, integrated drylands management, and safeguarding ocean sustainability will require transdisciplinary efforts. Emerging marine based industries including marine genetic resources, energy, and minerals have the potential to generate employment and sustainable economic stability as long as they are guided by governance mechanisms that build on norms of equity, conservation and sustainable use. Mitigating impacts from land-based human activities and pollution (e.g. nutrients, marine

[37] https://www.unepfi.org/banking/bankingprinciples/; https://www.unpri.org/; https://www.fsb-tcfd.org/

[38] Between 4 and 20 trillion dollars of ecosystem services is lost annually due to land cover change, and degraded land costs the world USD 6 -11 trillion annually in lost services, goods and livelihoods. (OECD 2019)

[39] Jouffray J, Blasiak R, Norström A V., Österblom H & Nyström M (2020) The Blue Acceleration: The Trajectory of Human Expansion into the Ocean. One Earth 2:43–54.

litter, micro-plastic and wastewater) on coastal and marine environments is also an essential step in ensuring well-functioning and productive oceans and livelihoods. In addition, biodiversity in areas beyond national jurisdiction (international waters) is critical as the common heritage of mankind.

Nature-based Solutions (NbS) arise from the conservation, sustainable management and restoration of natural ecosystems to reduce vulnerability and exposure and help societies build resilience. NbS for climate adaptation are already showing potential to reduce people's vulnerability to a range of climate change impacts and provide significant co-benefits for people and biodiversity. NbS for adaptation are increasingly prominent in climate change policy, especially in developing nations: for example, NbS are currently included in the NDCs of 66% of Paris Agreement signatories. Delivering NbS has the potential to lift a billion people out of poverty, create over 70 million jobs and add US$2.3 trillion in productive growth to the global economy while reducing disaster risk and supporting vital biodiversity and ecosystem functions and services such as clean air, clean and plentiful freshwater, pollination services, and control of pests and diseases.[40]

Community-based and participatory approaches are critical frameworks to shape the needed transformations in all of these areas, especially because the loss of biodiversity and ecosystem functions and services often leads to disproportionate harm to small-scale farmers and indigenous peoples and local communities as well as women, who in fact constitute the majority of farmers in many of the regions most severely affected by desertification, land degradation and drought.[41] Indigenous peoples are gatekeepers of cultural diversity and unique biodiversity and are custodians of 80 percent of the world's remaining biodiversity[42], their territories often coinciding with the best- managed areas. [43] [44] Governments should ensure rights-based approaches, with tenure rights and equal benefit sharing for all vulnerable groups.[45]

Almost 70% of the world's population is projected to live in cities by 2050, so sustainable urban development will be critical to protecting the world's natural resources. Resilient and sustainable urban development will require dense, multi-use urban spaces served by multi-modal transport and by nearby sources of sustainably-produced food. A decrease in waste production (including food waste), shift to sustainable consumption and production, and risk-informed critical infrastructure will also be needed.[46]

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[40] https://newclimateeconomy.report/2018/food-and-land-use/

[41] Drylands cover 41% of the Earth's surface, and 2 billion people live in drylands, 90% of which are in developing countries

[42] Garnett et al. 2018: A spatial overview of the global importance of Indigenous lands for conservation. Nature Sustainability (1), 369–374

[43] IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany

[44] CDB defines traditional knowledge as "knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity" (article 8 j)

[45] This commitment is brought to life in the discourse about Indigenous Peoples and Local Communities (IPLC) in the IPBES processes., and the Convention on Biological Diversity efforts through its Working Group on Article 8(j).

[46] IRP (2018). The Weight of Cities: Resource Requirements of Future Urbanization. Swilling, M., Hajer, M., Baynes, T., Bergesen, J., Labbé, F., Musango, J.K., Ramaswami, A., Robinson, B., Salat, S., Suh, S., Currie, P., Fang, A., Hanson, A. Kruit, K., Reiner, M., Smit, S., Tabory, S. A Report by the International Resource Panel. United Nations Environment Programme, Nairobi, Kenya. IRP (2020). Resource Efficiency and Climate Change: Material Efficiency Strategies for a Low-Carbon Future. Hertwich, E., Lifset, R., Pauliuk, S., Heeren, N. A report of the International Resource Panel. United Nations Environment Programme, Nairobi, Kenya;

c) Food systems

Resource use for agriculture and fisheries is shaping the natural environment as well as our changing climate in particularly profound ways. Resource intensive, monoculture farming causes severe damage to the natural environment and accelerates climate change, and the skyrocketing demand for fish worldwide has led to severe over-exploitation of many fisheries.[47] Food systems create a range of challenges from inputs management (that can lead to severe pollution) to production and consumption patterns to food loss and waste. Agriculture sectors (including crop, livestock, forestry and fisheries) represent more than 26% of the total of costs of damages and losses from climate related disasters (including 80% of costs for drought).[48]

Low carbon, risk-informed, resilient, regenerative and sustainable agricultural practices, including agroecology and agroforestry, which applies ecological principles to food systems, and agro-silvo-pastoral systems, which combine forestry with cattle and agricultural production, amongst others, can help regenerate farmland and ecosystem functions, and promote agricultural biodiversity, building resilience and reducing disaster risk. Transforming food systems is among the main climate solutions today, since agroecological models can capture more than 30% of the global greenhouse gas emissions.[49] Disaster risk reduction and climate adaptation should be mainstreamed, in a collaborative and coordinated manner, into agricultural sector planning and investments, informed by national and local disaster risk reduction strategies and plans. Moreover, agroecology places a strong emphasis on human and social values such as dignity, equity, gender equality and women's empowerment, inclusion and justice, all contributing to the 2030 Agenda as a whole.

Moving away from resource and carbon-intensive products will have positive impacts for human health and the environment by increasing agrobiodiversity, which is critical now as global diets have become more homogeneous, dominated by staple crops rich in energy but poor in nutrients.[50] In agricultural production, biodiversity supports long-term productivity, boosting yields in quality and quantity, increasing soil and water quality, and reducing the need for synthetic fertilizers. It also makes farmers' livelihoods more resilient, reducing yield losses due to disasters, climate change and pest damage. Agricultural biodiversity also keeps open options for unknown future needs, when conserved in genebanks and on farms.[51]

Governments and other stakeholders should take the most appropriate, context specific approaches in transforming the food system. Reducing per-capita consumption of animal protein in high-income countries would reduce the pressure to convert biodiverse tropical forest systems for agricultural production—with positive outcomes for nature and for preventing future zoonotic outbreaks.[52] Regulations and market tools such as organic and fair-trade standards can

[47] FAO, 2018

[48] http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/1106859/

[49] World Economic Forum, https://www.weforum.org/reports/incentivizing-food-systems-transformation

[50] 75% of the world's food is generated from only 9 plants and 5 animal species and rice, wheat and maize alone provide more than 50% of the world's plant-derived calories

[51] Bioversity International, 2017. Mainstreaming Agrobiodiversity in Sustainable Food Systems: Scientic Foundations for an Agrobiodiversity Index. Bioversity International, Rome, Italy. Available at: https://www.bioversityinternational.org/fileadmin/user_upload/online_library/Mainstreaming_Agrobiodiversity/Mainstreaming_Agrobiodiversity_Sustainable_Food_Systems_WEB.pdf

[5252] (Tilman and Clark 2014). Rohr, J.R., Barrett, C.B., Civitello, D.J. et al. Emerging human infectious diseases and the links to global food production. Nature Sustainability 2, 445–456 (2019). https://doi.org/10.1038/s41893-019-0293-3. Tilman, D., Clark, M. Global diets link environmental sustainability and human health. Nature 515, 518–522 (2014

encourage consumer shifts in these same economies. [53] Increasing consumer awareness on the benefits of nutrient-rich and diverse diets will be important in some countries, and in others government-backed food security policies and investments can support peoples' attachment to traditional food cultures and sustainably managed varieties. Governments should also take note of the gender dimension, and support women's agricultural activities, since women comprise about 43 per cent of the agricultural labour force globally and half or more in many African and Asian countries. Women also tend to grow traditional varieties of vegetables, herbs, spices used for medicinal and culinary purposes, which contributes to agrobiodiversity. Closing the gender gap in land and other productive resources can provide a triple dividend: gender equality, food security, and climate change and disaster risk management.

5. Means of implementation and the global partnership: mechanisms and partnerships to accelerate progress

Protecting the planet and building resilience will require good governance that includes effective—and enforced—policies at the global, regional, national, subnational and local levels; strategic and robust finance; science and environmentally sound technologies; and individual and collective action. To make each of these levers work, efforts should prioritize biodiversity and address climate change, build resilience, and advance social equity issues to ensure that no one is left behind.

a) Governance

Environmental and disaster risk governance is a key driver for the achievement of sustainable development. Since the adoption of the 1972 Stockholm Declaration on the Human Environment, environmental laws and institutions at all levels including subnational and local, have expanded dramatically across the globe. The Sendai Framework makes it one of the four priorities. This progress is accompanied, however, by a considerable implementation gap, in developed and developing countries alike, between the requirements of environmental laws and the Sendai Framework provisions and their implementation and enforcement. Despite the importance of mainstreaming nature considerations in national SDG implementation processes, only half of the countries analyzed in a new study have reported on how they integrated biodiversity into their Voluntary National Reviews (VNRs).[54] The number of countries utilizing the VNR process to promote policy coherence between the Sendai Framework and the 2030 Agenda increased by 24 per cent between 2017 and 2019. Weak governance increases disaster risk[55] the risk of illicit exploitation of natural and wildlife resources and damage to the natural environment, as well as risks across the entire 2030 Agenda. The impact of this most severely affects the vulnerable countries and communities.

Institutions will be effective only if they are equitable and participatory, with mechanisms for inclusion that go beyond "consultation" into joint decision-making and collaborative action and monitoring and reviews. In accordance with the Sendai Framework, it is important to promote the coherence and development of national and local frameworks of laws, regulations and public policies to guide the public and private sectors in preventing and reducing disaster risk, including

[53] UNEP (2016) Food Systems and Natural Resources. A Report of the Working Group on Food Systems of the International Resource Panel.
[54] UNEP-WCMC "Integrating biodiversity into the Sustainable Development Agenda - An analysis of Voluntary National Reviews", June 2020.
[55] https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_Full_Report-1.pdf

through national and local DRR strategies. Women's participation and role in natural resources decision-making processes are critical, and children and youth should be recognized as the authors of tomorrow's solutions. The development of legal and policy frameworks to guarantee the human right to a safe, clean, healthy and sustainable environment is also critical.

In the context of the COVID-19 pandemic, many UN agencies, including WHO, FAO, the World Organization for Animal Health, UNEP and CBD stress the importance of the "One Health" approach, which promotes multi-sectoral responses to food safety hazards, risks from zoonoses, and other public health threats at the human-animal-ecosystem interface and provides guidance on how to reduce these risks.

The COVID-19 recovery period can provide an opportunity to deepen democracy, strengthen local organizations, expand citizen participation in decision making, and reinforce the implementation of environmental rule of law and good governance. A wide range of capacity building activities can be promoted, including around accountability, transparency, multi-stakeholder participation and the rule of law, as well as monitoring, statistics, coordination, fundraising, and aligning spending and regulations to the SDGs.[56] Good governance will be essential to effective recovery efforts, and all stakeholders should remain vigilant during the crisis and in its aftermath in protecting human rights and guarding against threats to the principles of rule of law, democracy and fundamental rights arising from the adoption of emergency measures.

Strong institutions at all levels are required if we are to achieve climate change and environment-related goals and find success in scaling up the kinds of good practices found in the Annex to this report. South-South, North-South, and triangular cooperation can play an important part in scaling up of good practices and implementation of innovative strategies and solutions.

b) Economy and finance

As stressed in the Financing for Development Declaration adopted in April 2020[57], bold and concerted global action will be needed to address the immediate social and economic impacts of the COVID-19 pandemic and achieve a quick, inclusive and resilient recovery, while keeping in sight the achievement of the SDGs.

While financing is available for sustainable development, with global financial assets estimated at over $200 trillion, these resources are not being channeled towards sustainable development and climate action at the scale and speed necessary to achieve the SDGs and the objectives of the Paris Agreement. Even before the COVID-19 pandemic, the investment levels were far from the scale needed. Figures for biodiversity finance needs vary significantly but are conservatively thought to be in the low hundreds of billions USD, while actual expenditures on global biodiversity finance is around $78 – 91 billion per year (2015-2017 average). On the other hand, it is estimated that governments spend at least five times more, or approximately $500 billion per year, on support that is potentially harmful to biodiversity. A critical step is to increase transparency and consistent approaches to measuring and reporting both biodiversity finance and spending that is explicitly harmful to biodiversity.[58]

[56] Elder et al. 2016.

[57] https://www.un.org/development/desa/financing/sites/www.un.org.development.desa.financing/files/2020-05/Final-draft-FFD-Outcome-2020.pdf

[58] OECD, A Comprehensive Overview of Global Biodiversity Finance, 2020

Investments in multi-hazard risk prevention, reduction and resilience building is cost-effective and save money. There is a vast literature of cost-benefit analysis for investing in disaster risk reduction and resilience versus response, and the benefits of avoided and reduced losses are typically four to five times greater that the costs.[59] The aforementioned Financing for Development Declaration adopted in April 2020 encourages the development of disaster risk reduction financing strategies and financial instruments, which are essential for improving the preparedness for response to future shocks and reducing current levels of disaster risk. As noted above, it will be important to integrate risk into all sectors of recovery and re-direct public funding away from harmful subsidies and to promote innovative financial solutions such as green financing, large public funds and blended finance schemes to finance nature including nature-based solutions. In partnership with banking and financial institutions, governments can offer green finance instruments, such as the successful Green Sukuk Bond in Indonesia, while adopting progressive income and wealth taxes to increase national green budgets. Governments should also place a tax on carbon. In addition, governments can provide debt guarantees and other incentives to sustainable industries and infrastructure, and can require banks to disclose the climate and biodiversity impacts of their portfolio.

The private sector is a critical partner in all of these solutions. Private sector businesses are crucially needed actors to achieve the SDGs, and the case has been made that it is also in their best bottom line interest to align their operations with the objectives of the 2030 Agenda.[60] Tools such as the SDG Compass are available to all companies to guide their efforts in putting sustainability at the heart of their organizational strategy and maximize their contribution to the SDGs.[61]

The UN system is also an important source of innovative financing. The Global Environment Facility (GEF) and the Green Climate Fund (GCF) have instituted environment and social safeguards for their accredited entities, and FAO provides financing for climate smart agro-forestry production and multifunctional systems.

Regardless of the source of the financing, it is imperative to include women, indigenous peoples, and local communities—whether farmers, smallholders, fisherfolk, forest communities, or others—in the strategic planning of investments and the definition of suitable and flexible evaluation criteria. So far, the world is falling short in this regard, and for women leaders of environmental initiatives at the local level, financial support is often difficult to access.[62]

c) The role of Science, Technology and Innovation (STI)

Technological advances and scientific and traditional knowledge of sustainable practices and management will be important elements in reshaping the relationship between humans and nature, reducing disaster risk and building resilience.

Countries need integrated analyses of biodiversity and ecosystem functions and services, including carbon sequestration. Often the first step is collecting the necessary data. For 68% of the 93 environment-related SDG indicators there is not enough data to assess progress, and more

[59] ODI, 2015: Triple Dividend.
[60] Business and Sustainable Development Commission (2017). *Better Business, Better World.* (available at: http://report.businesscommission.org/report)
[61] https://sdgcompass.org/
[62] https://climatefundsupdate.org/wp-content/uploads/2018/11/CFF10-2018-ENG-DIGITAL.pdf

than 30 per cent of the environment related SDGs indicators still do not have an agreed methodology.

In this respect, satellite applications and technologies, hand in hand with on the ground data collection, are key tools to provide global, uniform data, sustained over years and regularly repeated. Hard to secure data can be collected through geospatial monitoring tools such as Nature Map[63], which could help to prioritize areas for protection and restoration while achieving biodiversity and climate targets. Other innovative approaches, including data collected by citizens and their cell phones, can complement traditional data collection efforts. Frontier technologies such as artificial intelligence (AI), internet of things (IoT), blockchain, satellite remote sensing, quick response (QR) codes, radio-frequency identification chips (RFID), can complementarily be paired with each other to improve tracking, monitoring, and verification of environmental data, and help manage natural resources sustainably.

With high-quality, disaggregated data, including by sex, gender, age, and disability, governments and other stakeholders can embrace Science-Based Targets (SBTs) for all the SDGs. SBTs have been developed for carbon emissions to reduce climate change (SDG 13) through the Science-Based Targets Initiative (SBTi), and are under development for nature (SDGs 6, 14, 15) through the Science-Based Targets Network (SBTN) and Earth Commission.

Regular scientific assessments are also critical resources, and they are most valuable when they include local, lay, indigenous and traditional knowledge.[64] Knowledge of the ocean biome, including ocean-atmosphere interactions, the land-sea interface and human interactions, is also essential. Existing gaps in knowledge, weak capacity for ocean science amongst many countries, and uneven access to technology and data all hinder our ability to ensure that the ocean contributes to sustainable and equitable economic development and human wellbeing.[65]

Science and technology are critical to build resilience to shocks and stressors, including for the implementation of Sendai Framework Target G (the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030). To help countries better manage disaster response activities, the International Telecommunication Union (ITU) launched new guidelines for the development and implementation of National Emergency Telecommunication Plans.

d) Individual and collective action

All of society will need to be involved and take responsibility to achieve sustainable development. Economic and governance systems will need to transform, but individuals and communities will also need to make consumption and behavioral decisions that advance sustainability. The COVID-19 crisis has pushed some people to change their behavior in a number of nature-positive ways, including reduced travel and consumption and increased telecommuting. At the same time, there are many people for whom telecommuting was not an option, and who lost livelihoods and businesses, and there are many countries facing a devastating backslide in poverty alleviation. The challenge now will be to address the hardships while encouraging any positive changes to become permanent, balanced and equitable to ensure that the changes do not exacerbate existing inequalities that the COVID-19 pandemic has exposed.

[63] Available at https://naturemap.earth/

[64] Global Land Programme of Future Earth is a good practice example in this regard

[65] The Decade for Ocean Science for Sustainable Development and the UN Decade for Ecosystem Restoration are important initiatives to raise awareness of these issues.

Individual and collective action is essential to drive demand for risk-informed and sustainable policies, investments, and products. The aggregate power of individual consumers can influence risk-informed production, for example stimulating demand for products that do not drive risk creation and that are produced in places where worker's health and safety is prioritized.

To help develop a well informed and committed population, education and life-long learning systems from elementary to university levels should actively integrate sustainability into curricula. Community awareness campaigns should be strengthened to build public knowledge of the multiple values of nature, the importance of climate action and adaptation, the role of biodiversity and ecosystems for societies, and the co-benefits of common action on biodiversity, ecosystems, disaster risk reduction and climate change.

Annex 1

Good practices from "COVID-19 crisis: impacts and recovery"

- Leaders from 40 cities in Africa, Europe, and the US have formed a taskforce through the C40 network, seeking to coordinate a low-carbon, sustainable recovery from the crisis.[66]
- The G20 final communiqué and Annexes from the G20 Finance Ministers meeting which took place on 15 April also noted the G20 commitment to support an environmentally sustainable and inclusive recovery consistent with the 2030 Agenda for Sustainable Development and including climate action. And the T20 under the G20 identified increased access to clean water and sanitation for all as crucial to combating the coronavirus.
- Pakistan's government is offering tens of thousands of labourers, who are out of work due to the coronavirus lockdown, a chance to earn money by planting trees. The project is part of Pakistan's existing initiative to plant billions of trees to counter the effects of climate change.

Good practices from "Economic System"

- Governments including New Zealand, Scotland, and Iceland are recasting their entire economic framework to officially prioritize human wellbeing and planetary health above GDP. New Zealand in particular uses its "Living Standards Framework," to set its budget, and Bhutan shapes policy to advance its "GHI" (Gross Happiness Indicator).
- In Fiji, the Ministry of Rural and Maritime Development formally adopted risk screening into its standard operating procedures, making it an ongoing requirement that eventually helped transform the national public sector investment programme managed by the Ministry of Economy. In Tonga, the Ministry of Finance and National Planning is piloting risk screening of development projects that are funded through the national budget.
- The Myanmar government developed its Green Economy Policy Framework to guide national development planning; natural capital assessment was undertaken and provided analysis that informed this Framework.
- The Coastal Zone Management Authority and Institute of Belize quantifies the ecosystem services provided by corals, mangroves, and seagrasses to inform the country's coastal zone management plan, which also includes benchmarks for infrastructure, water and

[66] https://www.c40.org/

food supplies, risk management for coastal hazards, and tourism. The quantification is based on a holistic Ecosystem Services Valuation, Marine Spatial Planning and Scenario Planning to develop a coastal zone plan that supports and bolsters economic development but allows for the long-term viability of ecosystem function

- The Government of the United Kingdom has passed an agriculture bill that includes the "Principle of Public Money for Public Goods," and has commissioned an independent review on the "Economics of Biodiversity." The Review's Interim Report[67] finds that we are failing to manage our assets efficiently and have underinvested in natural capital in comparison to produced and human capital.
- The world's largest sovereign wealth fund—Norway's Government Pension Fund—has divested from 32 companies involved in unsustainable palm oil production since deforestation became an ethical criterion in 2012 (https://www.nbim.no).
- An alliance of Central Banks and Supervisors Network for Greening the Financial System (NGFS), formed during the One Planet Summit in 2017 to explore the role of and possibilities for central banks to use their mandate to incentivize economies to transition to more sustainable pathways[68]
- The One Planet Business and Biodiversity (OP2B) initiative brings together over 20 companies that are scaling up regenerative agricultural practices, boosting cultivated biodiversity and diets through product portfolios as well as by eliminating deforestation and enhancing the management, restoration and protection high-value natural ecosystems.
- The Enterprise Risk Management and Dynamic Risk Assessment (WBCSD, 2017, 2020b) incorporates ESG factors into investment decisions, thereby giving investors and the capital markets a full picture of a company's risks and dependencies on nature.
- The European Climate Pact, part of the European Green Deal, encourages decisive action on climate change mitigation. Through the Pact, the European Commission encourages climate pledges and offers targeted support for initiatives around buildings, public transport infrastructure, and nature regeneration including tree planting[69].

Good practices from "Land, marine and freshwater resource systems"

- Community-based forestry (CBF) is gaining momentum, including in Mexico, Guatemala, Bolivia, Peru, Nepal, India, China, Vietnam, Philippines, Papua New Guinea, Cameroon, the Congo region, and Tanzania, among others. CBF models often include local organizations that create networks and facilitate technical support to their members. Government support to CBF and small-medium forest enterprises (SMFEs), which worldwide may contribute $125-130 billion of gross value-added, will be critical. This can include securing land tenure and access rights, promoting appropriate legal frameworks and sustainable financial solutions for SMFEs, and providing forest communities and smallholders—particularly women's collective microenterprises--with technical support and simplified bureaucratic procedures. In this regard, the Community Based REDD+ Programme of UNREDD and GEF supports more than 100 communities in 9 countries.

[67] The Dasgupta Review – Independent Review on the Economics of Biodiversity Interim Report (April 2020): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882222/The_Economics_of_Biodiversity_The_Dasgupta_Review_Interim_Report.pdf

[68] https://www.mainstreamingclimate.org/ngfs/ (2019).

[69] https://ec.europa.eu/clima/policies/eu-climate-action/pact_en

- Agroecological systems contribute to ecosystem protection and restoration and the corresponding ecosystem functions. This is the case of the watershed Los Sainos (391 hectares) in the Municipality of El Dovio, Valle del Cauca, Colombia, where the community Bellavista implemented agroecological agroforestry and silvo-pastoral systems in the high and medium zones of the watershed. In doing so, they restored forest, replenished underground water, reduced soil erosion and secured biologically-diversified production systems for sale and self-consumption[70]

- The Great Green Wall initiative of the African Union is a nature-based solution to preserve the dry lands of Africa in the face of climate change. The initiative promotes agro-silvo-pastoral systems, which combine forestry with cattle and agricultural production, and the goods and revenues produced provide for local needs and alleviate the pressure on natural forests.

- The UNESCO network of designated sites includes transboundary biosphere reserves, world heritage sites and First Nations sites such as Tsa Tue in Canada, which is designed and managed by the self-government of Dene and included the 8th largest fresh water lake of the World Great Bear

- Puerto Pizarro Bay, located in the Puyango Tumbes Binational Transboundary Basin in Peru, is exposed to multiple hazards including torrential rains, which can trigger flooding and landslides, anomalous waves, and the threat of tsunamis. The municipal government, together with partners, has reduced the city's risk and built resilience by restoring mangroves that had been destroyed through shrimp companies' operations. This approach was complemented by school and community-based disaster risk reduction measures and workshops focused on raising awareness of the importance of the mangrove system to reduce the city's exposure and vulnerability to hazards. [71]

- The NDCs of several Arab countries (Bahrain, Egypt, Saudi Arabia, UAE) include mangrove protection and wetlands conservation commitments and demonstrate support for the role that ecosystem services play in achieving adaptation and mitigation co-benefits

- Multi-stakeholder initiatives play a central role in accelerating action, such as the Coalition for Disaster Resilient Infrastructure (CDRI), which aims to promote the resilience of new and existing infrastructure systems to climate change and disaster risks, thereby ensuring sustainable development. This was launched by the Government of India, in partnership with the UN Office for Disaster Risk Reduction, and in collaboration with the World Bank, the UN Development Programme and the Global Commission on Adaptation, in 2019 at the Climate Action Summit

- The governments of Costa Rica and Malawi have prioritized policies that ensure that women and men have equal participation in the environment and natural resource sector

[70] Giraldo, J. (2016), Communal process of the micro-watershed "Los Saínos": Experience of the ecological restoration and production conversion" [in Spanish]. II International Course on Agroecology and Ecological Restoration: Sustainable and Resilient Agricultural Landscapes", Organized by CIPAV-SOCLA-ELTI Univ. of Yale. Valle del Cauca, Colombia, 2016

[71] (Garcia & Alcocer, 2018).

and climate mitigation and adaptation efforts, and have collected data to help illuminate women and men's roles and contributions to the conservation of nature, and to map priority areas for ecosystem restoration to benefit women and men

- The sustainable management of areas beyond national jurisdiction (ABNJ) is showing positive results. Between 2014–2019, the Common Oceans ABNJ Program, funded by the GEF and coordinated by FAO with UNEP and World Bank, has made significant strides in improving tuna fisheries; tackling illegal, unreported and unregulated fishing; protecting marine life; and, safeguarding vulnerable ecosystems. Among its successes are the reduction of tuna stocks experiencing overfishing from thirteen to five; reduction of bycatch and marine pollution; and greater protection of deep-sea habitats and species following the designation of 18 new Vulnerable Marine Ecosystems.[72]

- African coastal waters contain some of the world's richest fisheries and have great aquaculture potential. In West Africa, up to one-quarter of jobs are linked to fisheries and up to two-thirds of all animal protein in its coastal states come from fish and seafood. Artisanal fishers are linked to consumers through a vast intraregional trading network, in which women play a central role. Through the Coastal Fisheries Initiative, a GEF-funded project implemented by FAO in Cabo Verde, Côte d'Ivoire and Senegal in collaboration with UNEP and the national administrations, technical assistance is provided to stakeholders to improve fisheries governance and management and value-chain performance through implementation of the ecosystem approach to fisheries and other relevant guidelines of the Code of Conduct for Responsible Fisheries.[73]

- The RegionsAdapt initiative, which gathers over 71 regions from 5 continents representing over 270 million citizens, is the first global initiative that supports the acceleration of climate change adaptation by subnational governments. The initiative inspires and supports subnational governments to: 1) develop ambitious climate change strategies, 2) implement concrete adaptation actions, and 3) transparently report on progress, while 4) actively contributing to UNFCCC processes. While adapting to climate change at subnational level is crucial, transnational adaptation governance not only helps to promote adaptation measures but also improves the process of tracking the progress of such action, its visibility and its aggregation

- Quebec is taking action in a broad range of areas of intervention to find practical, innovative solutions to meet the challenge of adaptation. Created in 2001, Ouranos, the Consortium on Regional Climatology and Adaptation to Climate Change, has contributed significantly to the advancement of knowledge on climate science and adaptation. The Government Strategy for Climate Change Adaptation and the 2013-2020 Climate Change Action Plan provide for concrete actions, such as mitigating the impacts of coastal erosion, improving urban planning, reducing heat islands in cities, improving agricultural and forestry practices, monitoring biodiversity, and improving water management. Quebec has launched the Climate Municipalities Program, which supports municipal organizations

[72] Common Oceans ABNJ Programme: http://www.fao.org/in-action/commonoceans/en/ and http://www.fao.org/fao-stories/article/en/c/1258280/

[7373] SOFIA 2020: FAO. 2020. The State of World Fisheries and Aquaculture 2020. Sustainability in action. Rome.

in implementing innovative pilot projects, including those focusing on adaptation. An online interactive Atlas of the Vulnerability of the Québec Population to Climate Hazards allows Quebecers to gain an understanding of the Québec population's geographic vulnerability to heatwaves and floods.

- Resource efficiency targets can help policymakers monitor progress on natural resource management. Austria, Estonia, France, Germany, Hungary, Latvia, Portugal and Slovenia have all adopted national resource efficiency frameworks with resource productivity targets. These targets, in most cases, are formulated by the ratio of Gross Domestic Product to Domestic Material Consumption, which is the main productivity indicator in the European Union. For example, France has a two-fold goal to have a 30 per cent increase in resource productivity (GDP/DMC) along with a decrease in per person DMC between 2010 and 2030.[74]

- China adopted a programme entitled "Circular Transformation of Industrial Parks (CTIP)" to promote large-scale resource efficiency during the production phase. The programme promotes Industrial Parks (IPs) that follow circular economy principles (e.g. "reduce", "reuse" and "recycle"). The parks optimize spatial layout, adjust industrial structure, develop key technologies for linking various components of a circular economy, extend the industrial chain appropriately and link its various parts into a circular loop. They further build infrastructure and public service platforms, and renovate organizational and administrative mechanisms to implement an efficient and circular utilization of resources and "zero discharge" of wastes, thereby continuously strengthen the Industrial Park's capacity for sustainable development.[75]

- A transit-oriented development (TOD) approach in the transportation sector can help maximize and equally distribute the social and environmental benefits of transport infrastructure investments. One of these TODs are the bus rapid transit (BRT) systems. They have been implemented in about 160 cities including Brazil, Colombia and Mexico. Investments in greener transport technologies and infrastructure are also important. Curitiba's system makes use of cleaner vehicles and fuels, and infrastructure arrangements such as "passing lanes at stations to increase capacity and improve commercial speeds". The local government also had a significant role in setting out the long-term vision for the new urban developments, and using the BRT system as a means to channel growth along well-defined linear corridors. In Curitiba, the local government mandated that all medium- and large-scale urban development be sited along a BRT corridor", and was proactive in leveraging the benefits of TOD, with additional supporting policies including "zoning reforms, pro-development tax policies, assistance with land assemblage, and supportive infrastructure investments.[76].

- The Japanese Eco-Town Programme established 26 eco-towns across Japan. The aim of this programme was to reduce the high levels of waste going to landfill sites and to

[74] IRP (2019). Global Resources Outlook 2019: Natural Resources for the Future We Want. Report of the International Resource Panel. United Nations Environment Programme. Nairobi, Kenya.
[75] IRP (2019). Global Resources Outlook 2019: Natural Resources for the Future We Want. Report of the International Resource Panel. United Nations Environment Programme. Nairobi, Kenya.
[76]IRP(2018). Resource Efficiency for Sustainable Development: Key Messages for the Group of 20. Think piece of the International Resource Panel. United Nations Environment Programme. Nairobi, Kenya.

regenerate local industries. For example, the Kawasaki eco-town uses residential, commercial and industrial waste generated in the city to recycle these into raw materials like cement or steel that can be used by industries in the same city. In addition to reducing material waste, it is estimated that the industrial symbiosis strategy in Kawasaki reduced life-cycle carbon emissions by 13.77 percent. As a result of government subsidies, 61 recycling facilities have been established across the 26 eco-towns, with a combined capacity of nearly 2 million tonnes of waste per year. For every government-subsidized recycling plant, a further 1.5 unsubsidized plants were built by the private sector, showing that government action can act as a springboard for further private sector-led development of environmental industries.

- Green Mortgages Mexico is an initiative managed and funded by the Institute for the National Workers' Housing Fund (Infonavit). Infonavit is a public social financial institution, in charge of managing the National Housing Fund ("Fondo Nacional para la Vivienda"). The Green Mortgages scheme granted more than 900,000 green mortgages, benefiting more than 3 million people, between 2007 and 2012. Credits targeted primarily towards low-income households have low interest rates (4–10 percent, depending on their income level), which are cross-subsidized by higher income households. Developers build houses with energy-saving materials and use eco-efficient technologies to improve the service quality of water, electricity and gas. Households enjoy a higher quality of life and save about USD 17 on their monthly bills, while spending USD 6 more compared to conventional mortgages. On average, water use decreased by 60 percent, gas by 50 percent and electricity by 40 percent, bringing about reductions of 0.75 tonnes of carbon emissions per household per year.[77]

Good practices from "Food systems"

- The "Kihamba" agroforestry system covers 120 000 hectares of Mount Kilimanjaro's southern slopes in Tanzania. The 800-year-old system is one of the most sustainable forms of upland farming. Without undermining sustainability, it has been able to support one of the highest rural population densities in Africa, providing livelihoods to an estimated one million people. This agroforestry system has a multi-layered vegetation structure, which is similar to a tropical mountain forest that maximizes the use of limited land, provides a large variety of foods all year round and offers substantive environmental services beyond the areas where it is practiced. The trees and dense vegetation help to ensure that Mount Kilimanjaro can remain the 'water tower' for the region while producing coffee, an ecologically compatible cash crop.[78]

- In India, Zero Budget Natural Farming (ZBNF) is an indigenous solution to soil health degradation and other issues arising from unsustainable farming. This is being implemented in a few states in India, and is likely to reduce soil degradation and provide yield benefits to low-input farmers.[79] Also in India, a model forecasting the transition from water-intensive rice to coarse cereals (like maize and millets) by 2050, resulted in a change in cropping patterns driven by the new demand. As a result, the likely foodgrain

[77] IRP(2018). Resource Efficiency for Sustainable Development: Key Messages for the Group of 20. Think piece of the International Resource Panel. United Nations Environment Programme. Nairobi, Kenya.
[78] http://www.fao.org/3/a-i3817e.pdf .
[79] Smith et al 2020

shortage in 2050 due to continued over-exploitation of groundwater and unsustainable cropping patterns can be reduced by almost 75% with such a shift away from rice towards coarse cereals due to the reduced water stress.

- The global Climakers Initiative aims to empower farmers to take part in global climate political processes, to ensure that climate action is farmers-driven, science-based and result-oriented. The main objective of the Climakers is to influence the conception and adoption of the Nationally Determined Contributions (NDCs) of the Paris Agreement, calling on Governments to base the agricultural compartment's strategies, in their NDCs, from the best practices that farmers are already implementing to mitigate and adapt to the climate change.

- In Benito Juárez, Buenos Aires, Argentina, the Aurora Farm showcases agroecology approaches through sequential legume-cereal crops followed by, in the same plot, free-range double purpose cattle after the cereal harvest, showing productivity and high economic performance.

- The "Local 2030 Islands Network" led by Hawaii Green Growth and the Global Islands Partnership, GLISPA, involves mayors and governors of Small Island Developing States and States with Islands in discussions on the role of local authorities in nature-based food and nutrition security associated with fisheries' management.[80]

- The EU's Farm to Fork Strategy provides a promising policy framework to promote local and non-resource-intensive produce.[81] Eliminating subsidies that promote the use of inputs rather than agro-ecology will also be critical. National Dietary Guidelines should be assessed for their environmental impact and ensure guidance is adjusted accordingly.

- Through collaborating with other actors in concerted landscape and seascape level planning approaches, it is possible to avoid impacts and ensure the preservation, conservation, restoration and enhancement of biodiversity, and the ecosystem services it delivers. For example, the Soft Commodities Forum brings together companies trading agricultural commodities working with local communities and NGOs, and is focused on halting deforestation linked to soy production in the Cerrado region of Brazil,.

- In Brazil, Kenya, Sri Lanka and Turkey, the Biodiversity for Food and Nutrition Initiative, funded by the Global Environment Facility (GEF) and coordinated by the Alliance of Bioversity International and CIAT has helped government identify neglected and underutilized nutritious species that can be brought back to the table to achieve nutrition and environmental outcome. The initiative has fostered policy change by advocating for making agricultural biodiversity a key focus of national policies, programmes and markets aimed to improve health and food security. The project has also helped broaden knowledge and understanding of how biodiversity can improve food and nutrition by developing tools, sharing best practices, and holding engaging public events.[82]

[80] https://www.islands2030.org/virtual-platform
[81] https://ec.europa.eu/food/farm2fork_en
[82] https://www.bioversityinternational.org/news/detail/busia-first-county-in-kenya-to-endorse-a-biodiversity-conservation-policy/

- Developed by the Alliance of Bioversity International and CIAT, the Agrobiodiversity Index measures biodiversity across three domains usually disconnected: nutrition, agriculture and genetic resources. This action-oriented tool identifies policy and business levers, good practices and areas for improvements, risks and opportunities, to increase use and conservation of agrobiodiversity for sustainable food systems.[83]

Annex 2: Resources shared by UN system entities after the paper's original release

- Human Development and the Anthropocene
- Making Peace with Nature
- Dasgupta Review on The Economics of Biodiversity.
- Policy adoption of the SEEA Ecosystem Accounting
- GBO-5
- January's One Planet Summit prioritizes climate change over biodiversity - partners pledged $17 Billion for "Great Green Wall Accelerator"
- 2020 UN GA Summit on Biodiversity - urgency to support post-2020 framework
- Leaders Pledge for Nature - address biodiversity loss
- One Planet Summit - High Ambition Coalition on Nature and People (include language to protect land and sea at CBD COP2015 and promotes indigenous led conservation)
- Great Green Wall - public and private investment or ag and farming in Saharan and Sahel region
- Alliance for the Conservation of Tropical Rainforests - address connections between deforestation and human health..
- Post 2020 Global Biodiversity Framework
- UN Human Rights Council adopted, by consensus, resolution 46/L.6.Rev1 on human rights and the environment. (Appeals to all States to consider adopting and implementing national measures that respect and protect the rights of those who are particularly vulnerable to the loss of healthy ecosystems and biodiversity.)
- 2021 global report on food crisis
- UN Common Guidance on Resilience
- Taskforce on Nature-related Financial Disclosure
- A/74/161
- Sharm El-Sheikh to Kunming Action Agenda for Nature and People

[83] https://www.agrobiodiversityindex.org/

- "Building Back Better: How Big Are Green Spending Multipliers?"
- "Ensuring a Post-COVID Economic Agenda Tackles Global Biodiversity Loss" by Pamela McElwee