animals are key to human development

a guidebook for incorporating conservation and animal welfare into development planning

ifaw

the conservation of wildlife and welfare of domestic and wild animals

are key to achieving the SDGs

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contents

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executive summary

In response to the social and economic challenges humans are facing, the United Nations (UN) developed a set of Sustainable Development Goals (SDGs) in 2015 to help countries set priorities and measurable targets to drive progress toward key human development and environmental areas with the goal of eradicating challenges to sustainable development by 2030. The SDGs target multiple issues including poverty, lack of access to clean drinking water, gender inequality, and limited women's rights, but one of the most pressing issues is conserving our remaining biodiversity. As many as one million species are in danger of going extinct with current trends. The record levels of income inequality, lack of fresh drinking water, and global pandemics such as the COVID-19 outbreak have been linked to the degradation of earth's ecosystems and biodiversity. It has become clear that protecting wildlife, ensuring animal welfare, and conserving habitats are crucial to achieving the SDGs and improving human well-being.

As many as **one million species** are in danger of going extinct with current trends.

Although the SDGs certainly provide a thorough breakdown of most social issues plaguing the earth, they do so through an economic and human development focus. However, as this report conveys, the conservation of wildlife and welfare of domestic and wild animals are key to achieving the SDGs. Through key examples, this report outlines how animals affect different aspects of sustainable development and provides recommendations for policy makers to incorporate animals into country- and local-level implementation of the SDGs.

I. glossary

Animal welfare: The physical, behavioral, and mental well-being of animals. Animal welfare is affected by living conditions, and the ability to engage in natural behaviors and live free of unnecessary pain and distress. Physical, physiological, and behavioral measurements are used to assess animal welfare.

Biodiversity: A measurement of the amount and diversity of species (both flora and fauna) in a given area. Biodiversity can be measured by an aggregate number of species, relative abundance, or other methods.

Development: In this paper, we define development as improving living conditions for people. Development is often measured in terms of improved income, infrastructure, sanitation, clean water access, education access, gender equality, etc.

Nature: In this paper, we define nature as the living phenomena of the natural world, including plants, animals, and the interactions between them. Nature is in juxtaposition to humans or human creations.

Well-being: A holistic measurement of a person or group of people's living condition. Well-being measurements often include typical measures found in the development arena such as income, physical health, and access to clean drinking water. However, it also includes more holistic concepts such as culture, satisfaction with life, and psychological health. Well-being can be used at various scales from person, family, or community, all the way to province, country, or region.

Wildlife conservation: The science and practice of conserving wild animals (individuals, populations, species, or entire habitats).

abbreviations

2030 Agenda: 2030 Agenda for Sustainable Development

CBD: Convention on Biological Diversity

CMS: Convention on Migratory Species

COP: Conferences of Parties

COVID-19: Coronavirus disease 2019

GDP: Gross Domestic Product

GNH: Gross National Happiness

HLPF: High Level Political Forum

IFAW: International Fund for Animal Welfare

IPBES: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IPCC: Intergovernmental Panel on Climate Change

NBSAPs: National Biodiversity Strategies and Action Plans

NCSA: National Capacity Self-Assessments

OECD: Organisation for Economic Co-operation and Development

OIE: World Organisation for Animal Health

SARS: severe acute respiratory syndrome

SDGs: The United Nations' Sustainable Development Goals

UN: United Nations

UNFCCC: United Nations Framework Convention on Climate Change

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II. background: sustainable human development relies on animals

In response to the social and economic challenges humans are facing, the United Nations (UN) developed a set of Sustainable Development Goals (SDGs) in 2015 to help countries set priorities and measurable targets to drive progress toward key human development and environmental areas with the goal of eradicating challenges to sustainable development by 2030. Although the SDGs target multiple issues, including poverty, lack of access to clean drinking water, gender inequality, and limited women's rights, one of the most pressing issues is conserving our remaining biodiversity. The degradation of earth's ecosystems and biodiversity has been linked to the record levels of structural inequality we are currently facing as a society. Conserving wildlife and their habitats is crucial to achieving the SDGs and improving human well-being. Additionally, the treatment of animals—both domesticated and wild—is directly related to achieving the SDGs and human well-being. Improving the welfare of animals is critical to livelihoods, food security, economics, well-being, and recovery from extreme events. Increasingly, the key cross-cutting themes within the human development sector are finding that better welfare for animals improves development outcomes.

Conserving wildlife and their habitats is crucial to achieving the SDGs and improving human well-being.

Although the SDGs certainly provide a thorough breakdown of most social issues plaguing the earth, they do so through an economic and human development focus on many of the issues as opposed to a more holistic approach that prioritizes the ecosystems and biodiversity that are crucial to human survival.[1] Successfully achieving

[1] IFAW. 2018. *Thriving together: Achieving the sustainable development goals and increasing well-being for animals and people.* International Fund for Animal Welfare. https://www.ifaw.org/resources/thriving-together-achieving-the-sustainable-development-goals-and-increasing-well-being-for-animals-and-people.

many of the SDGs relies on addressing the issues that directly relate to conservation and animal welfare. For example, in many cases, lack of both food and water access is because ecosystems—on which many species depend—have degraded.[2] Ultimately, conserving wildlife species is crucial to providing sustainable environments for human and non-human inhabitants of rural and urban areas.[3]

In 2019, the global population was at a record high of 7.7 billion people, almost double what it was in 1970. This is in stark contrast to the population of wild animals. Scientists who have been monitoring the global decline in populations of animal species over the last 20 years have concluded that wild animal populations have declined by more than half in less than 50 years largely due to human activity.[4] At present, the planet is facing one of the highest rates of extinction in its history with projected rates estimated to be 100 to 1,000 times higher than historical rates.[5] The losses to the global ecosystems are largely a result of human activity; as such, we must closely monitor the changes to biodiversity, and also generate and implement policies that will help combat these threats to the environment. Our global ecosystems rely on wildlife, and the drastic rate at which biodiversity is declining poses a threat to our very existence. Without solid intervention over the course of the next few years, we could see the complete degradation of entire global ecosystems that we rely on for food, water, and livelihoods. Existing human development frameworks, such as the SDGs, address population, consumption, production, technological development, ecosystem services, and land management patterns, which are crucial to our survival as humans.[6] However, there is a need for additional focus on the multitude of interactions between people, domestic animals, and wild flora and fauna.

Ensuring the ecological sustainability of the planet is crucial to achieving and implementing all SDGs. If the state of our ecosystems is not addressed, it will be impossible to achieve any SDGs,[7] even those that may not necessarily

At present, the planet is facing one of the highest rates of extinction in its history with projected rates estimated to be **100 to 1,000** times higher than historical rates.

appear to be linked to conservation and biodiversity. Although it may be hard to see at first, human well-being relies on the terrestrial and marine ecosystems around us; when they suffer, our health also suffers directly and indirectly. The fate of human survival is interwoven with the fate of the environments we inhabit. Should we fail to protect them now, the consequences will be dire for life on earth. It is imperative that the international community safeguard the sustainable use of ecosystems, promote policies that combat deforestation and desertification, and put a stop to policies that lead to biodiversity loss.[8]

Human development policies must also incorporate animal welfare policies. Effective animal welfare not only contributes to the well-being of humans and animals but also helps countries achieve their sustainable development agenda.[9] Many circumstances exist where severe animal neglect is the norm. The link between animal welfare and the well-being of the humans who live around them cannot be overstated. If animal welfare is not considered in development policies, it can be detrimental for animals and the people who rely on them. One such example is the trade of animal products, such as donkey and cow hides. The donkey-hide trade has destroyed donkey populations across Africa. As a result, communities who rely on these animals for income generation in agriculture, transportation, tourism, and mining (which often involves abuse and poor animal welfare) are left without the means of earning a living.[10]

Conversely, when animal welfare policies are introduced and animals are well cared for, they can help many in rural areas to provide for their families. For example, it has been estimated that for every one U.S. dollar spent in early stage

[2] IPCC. 2019. *Climate change and land: Summary for policymakers*. https://www.ipcc.ch/site/assets/uploads/2019/08/4.-SPM_Approved_Microsite_FINAL.pdf.

[3] IPCC, *Climate change and land*.

[4] Barrett, M., Belward, A., Bladen, S., Breeze, et al. 2018. *Living planet report 2018: Aiming higher.* World Wildlife Fund. https://www.wwf.org.uk/sites/default/files/2018-10/LPR2018_Full%20Report.pdf.

[5] Chivian, E. and Bernstein, A. (eds.). 2008. *Sustaining life: How human health depends on biodiversity*. New York, NY: Oxford University Press.

[6] IPCC, *Climate change and land*.

[7] IFAW, *Thriving together.*

[8] IFAW, *Thriving together.*

[9] IPCC, *Climate change and land*.

[10] United Nations. October 8, 2009. *Animal welfare essential to sustainable development (WSPA).* [YouTube video]. https://www.youtube.com/watch?v=PNXzFaWID2c.

intervention for animals in the Dhemaji floods in India in 2012, that $US96 in economic benefits were secured.[11]

Unfortunately, the importance of animal welfare and wildlife conservation is inadequately addressed by many of the world's policy and decision makers. National development plans do not account for the well-being of animals or the conservation of wildlife species; there are consistent knowledge gaps in the valuation of animals. Accordingly, planning and investments must be adequately adapted to include conservation and animal welfare. A better understanding of how improved animal welfare and wildlife conservation policies can accelerate the achievement of the goals outlined in the 2030 Agenda for Sustainable Development (2030 Agenda) will help to inform better investment and policy decisions. It will also aid in achieving global goals under all multilateral environmental agreements, including the Convention on Biological Diversity (CBD), the Convention on Migratory Species (CMS), and the United Nations Framework Convention on Climate Change (UNFCCC), among others.

[11] Campbell, R. and Knowles, T. 2011. *A cost-benefit analysis of WSPAs 2012 Intervention in the Dhemaji district of Assam, India*. Melbourne, Australia: Economists at Large.

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III. today's context: what is the status quo and what can be changed?

In this section, we discuss the policies, institutions, and development strategies that are currently in place and how they can be adjusted or improved to better protect biodiversity and animal welfare.

1. policy and institutions

Currently, countries publish official national reports to highlight measures they have undertaken to implement their development priorities. This helps countries to assess implementation and to collaborate, if applicable, with other countries. Nations also develop National Biodiversity Strategies and Action Plans (NBSAPs), which are submitted to the CBD to communicate progress related to conservation efforts and SDGs. The reports and action plans are a focal point developed through stakeholder consultation processes, which often involve indigenous and local communities. This inclusive process is designed to ensure that all affected groups and land management practices are incorporated into development and implementation strategies.[12]

An International Fund for Animal Welfare (IFAW) review of multiple national reports and NBSAPs revealed that most countries outlined the need to implement the goals of the CBD Strategic Plan for Biodiversity. The plan is a ten-year framework for action by all member countries and stakeholders to safeguard biodiversity and the benefits it provides to people through 20 targets (i.e., Aichi Biodiversity Targets) at a community level to facilitate their integrated and long-lasting implementation. Although a few countries effectively focus on the crucial role that animals play in conservation efforts, many focus simply on the preservation of natural landscapes, deforestation efforts, and in-situ and ex-situ conservation efforts. Further analysis reveals that most national reports are aspirational rather than reflective of on-the-ground implementation

[12] UNEP. 2016. *Protected areas and ecosystem restoration.* Convention on Biological Diversity. https://www.cbd.int/doc/meetings/sbstta/sbstta-20/official/sbstta-20-12-en.pdf.

It is imperative that **future development strategies value biodiversity** in the same way they value economic measures.

because many submissions highlighted difficulty in meeting these targets.

A big challenge is that in much of the work that is done at country and regional levels, the lessons learned from projects are not always adequately shared among stakeholders. This highlights a need to develop better cross-project learning capabilities to avoid duplicating efforts among multilateral partners and other stakeholders as well as to widely disseminate best practices. Intergovernmental platforms and integrated pilot programs such as those of the Global Environment Facility[13] provide a good arena for such learning to happen, which can influence the agenda for Conference of Parties (COP) debates and financing. Respectively, the National Capacity Self-Assessments (NCSA) program,[14] a project designed to assess countries' foundational capacities to meet global environmental objectives, highlighted the need for scientific research and programmatic support in developing and implementing biodiversity plans and policies. This could be achieved through instituting programmatic approaches to research, identifying experts who can contribute to expanded research programs, and ensuring that scientific research contributes to the development of appropriate policies and plans.

Within and among government sectors, it is also important to implement knowledge-sharing mechanisms to ensure that skill sharing takes place across ministries, departments, and stakeholders. Strong cross-sectoral collaboration can elevate the importance of considering all conservation elements and lead to increased financing for the environmental portfolio. Engaging ministers of finance and education alongside ministers of environment at international meetings at High Level Political Forum (HLPF) of COP gatherings, for example, can lead to a better understanding of how biodiversity and ecosystem services are crucial to a nation's Gross Domestic Product (GDP), health, and wellness of its population.

South Africa is an example of a country that has successfully executed this strategy. Its National Biodiversity Economy Strategy, which draws its mandate from the Constitution and the African Union's Vision 2063, was developed in 2016. This strategy encompasses the business and economic activities that either directly depend on biodiversity for their core business or that contribute to the conservation of biodiversity through their activities.[15] The goal is a biodiversity economy that grows at 10 percent per annum, until at least 2030, while providing a foundation for social well-being and maintaining the ecological resources base. A key priority of the strategy is to increase access to transformative and inclusive economic opportunities in the biodiversity and broader economy for previously disadvantaged communities and small-, medium-, and micro-enterprises adjacent to six transboundary conservation areas. Over the last few years, South Africa has been hailed as a leader in this regard and was invited to present this strategy at the CBD COP 14 to share best practices with other parties.

2. investments in development

It is imperative that future development strategies value biodiversity in the same way they value economic measures. National and local development strategies primarily measure success through economic growth and poverty alleviation. They do not account for increases or decreases in biodiversity or biodiversity's contribution to growth or lack of growth. The CBD's strategic plan mandates that national and local development and poverty reduction strategies should integrate biodiversity values into accounting and reporting systems. If it is not measured, it is not considered in decision making. Undervaluing biodiversity and ecosystem services leads to harmful practices such as unsustainable crop and livestock production; although the crops and livestock are valued, the habitats that are degraded in the process are not. The short-term result may be increased yield, but over time production will decline as the supporting ecosystem services are degraded.[16] Because biodiversity is undervalued, countries do not prioritize investing in conservation policies or lobbying their governments to make conservation a priority. To make investments

[13] Global Environmental Facility. 2016. *Tackling global environmental challenges through the integrated approach pilots—3rd progress report*. https://www.thegef.org/publications/tackling-global-environmental-challenges-through-integrated-approach-pilots-3rd.

[14] The NCSA program was launched by the Global Environment Facility (GEF) in January 2000, with the United Nations Development Program (UNDP) and the United Nations Environment Program (UNEP) as the implementing agencies.

[15] 2016. *National biodiversity economy strategy (NBES)*. Government of South Africa. https://www.environment.gov.za/sites/default/files/reports/nationalbiodiversityeconomystrategy.pdf.

[16] Kothari, A. with Corrigan, C., Jonas, H., Neumann, A., and Shrumm, H. (eds.). 2012. *Recognising and supporting territories and areas conserved by indigenous peoples and local communities: Global overview and national case studies*. Secretariat of the Convention on Biological Diversity, CBD Technical Series no. 64. https://www.cbd.int/doc/publications/cbd-ts-64-en.pdf.

in conservation a priority, improved understanding of the cultural, social, ecological, and economic values associated with wildlife conservation and animal welfare is needed.

The goal of biodiversity valuation is ultimately to be able to compare policy outcomes pertaining to biodiversity conservation with agro-pastoral policy, watershed management, and land development, among other types of development projects.[17] Knowing the full range of the hidden costs of biodiversity loss could contribute toward more informed decision making. By adequately assessing biodiversity values for multiple stakeholders and facilitating management at different levels, countries can ensure a more sustainable development process. Therefore, improved understanding of how to carry out these valuations is needed. The UN has recognized the need to develop integrated environmental and economic accounting; however, many difficulties remain. There is a growing recognition that national accounting procedures must be modified in order to include values for ecosystem goods and services.[18] Others have argued for developing a green GDP to describe the state of nature and its worth or an ecosystem services index to account for all of nature's contributions to the welfare of human society.[19] In the recent Intergovernmental Panel on Climate Change (IPCC) Special Report on Climate Change and Land, the annual value of the world's total terrestrial ecosystem services was estimated to be between US$75–85 trillion in 2011.[20]

Countries that have successfully implemented policies that prioritize wildlife conservation have seen a drastic rise in ethical and responsible animal tourism and have reaped the benefits through local job creation. For example, the Rwandan Development Board is leading a process to expand the Volcanoes National Park for the benefit of mountain gorillas. This is a core element of their national economic vision, which is a strong example of animal conservation, mainstreaming biodiversity, and expanding protected areas in one of the most densely populated regions of Africa.[21] Gorilla trekking, an activity that brings thousands of visitors to Rwanda every year and generates millions of tourism dollars, helped create almost 350,000 domestic jobs in 2018 alone.[22]

Countries should start incorporating qualitative valuations into their development planning processes in addition to quantitative values that assess the monetary value of biodiversity, ecosystem services, and wildlife to an economy. This includes factors such as how nature contributes to human happiness, cultural practices, mental and physical health, and community interactions. Currently, most countries value only economic growth while not understanding the human cost. If we change what we value, we can improve quality of life for human populations while reducing adverse impacts on nature. Several countries are already taking the lead on this change; Bhutan adopted the Gross National Happiness (GNH) philosophy,[23] which includes an index to measure the collective happiness and well-being of its population along with the economy. And more recently, Iceland's prime minister adopted well-being policy priorities rather than focusing the nation's development agenda solely on economic growth figures.[24]

[17] Jungcurt, S. 2016. *Living in harmony with nature to transform our world: The CBD's contribution to SDG implementation, policy update 14*. International Institute for Sustainable Development.

[18] Costanza, R., Hart, M., Posner, S., and Talberth, J. (2009). Beyond GDP: The need for new measures of progress. *The Pardee Papers*, 4, 1–47.

[19] IPCC. 2007. *Climate change 2007: Working group II: Impacts, adaptation and vulnerability—4.5 costs and valuation of ecosystem goods and services*. https://archive.ipcc.ch/publications_and_data/ar4/wg2/en/ch4s4-5.html.

[20] IPCC, *Climate change and land*.

[21] 2018. *The expansion of Volcanoes National Park a win-win project*. Volcanoes National Park Rwanda. https://www.volcanoesnationalparkrwanda.com/blog/expanding-volcanoes-national-park.html.

[22] Food and Agriculture Organization of the United Nations. 2016. *Sustainable agricultural development for food security and nutrition: What roles for livestock?* http://www.fao.org/3/a-i5795e.pdf.

[23] *What is GNH?* GNH Centre Bhutan. www.gnhcentrebhutan.org/what-is-gnh/.

[24] 2019. *Iceland puts well-being ahead of GDP in budget*. BBC News. www.bbc.com/news/world-europe-50650155.

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IV. compelling connections between animals, achieving sustainable development, and improving human well-being

In this section, we highlight elements of sustainable development and human well-being that are intertwined with animal welfare and wildlife conservation. Humans have a direct effect on wildlife populations and animal welfare; less well known are the impacts of animals and their well-being on people's livelihoods, culture, and quality of life.

Humans have a **direct effect** on wildlife populations and animal welfare.

1. healthy ecosystems are key drivers of economies and rely on robust wildlife populations

Diversity of wildlife is the backbone of tourism industries in many countries. Kenya, South Africa, and Australia count non-consumptive animal tourism among the top reasons tourists choose to visit their countries.[25] Conserving certain species and the ecosystems in which they thrive are crucial for those countries' human populations. However, the tourism industries in these countries will not be able to thrive if the wildlife conservation efforts are not expanded to ensure that animals continue to have access to water, land to graze and forage, and ecosystems that are

[25] 2014. *Fifth national report to the Convention on Biological Diversity*. Republic of South Africa. https://www.cbd.int/doc/world/za/za-nr-05-en.pdf.

Wildlife viewing is one of the most popular reasons many people choose to vacation in several African countries; **80 percent** of the continent's tourism is from nature tourism.

not disrupted.[26] Nature tourism not only brings in millions of dollars for many developing countries, it also creates jobs for the people who live in the rural areas near where many endangered species live. Wildlife viewing is one of the most popular reasons many people choose to vacation in several African countries; 80 percent of the continent's tourism is from nature tourism. The wild animals that inhabit these areas are such a draw for foreigners that a single animal can be worth millions of dollars. For instance, a single elephant in a safari camp has the ability to bring in an estimated US$1.6 million throughout its lifetime.[27]

Flourishing ecosystems and healthy wildlife populations are a draw all around the world. When they are maintained efficiently, they can help exponentially boost the local tourism industry in both developing and developed countries. In the United States, nature tourism accounted for roughly 612,000 jobs in 2010 alone.[28] Protected areas such as Yellowstone and Yosemite National Parks draw hundreds of thousands of tourists each year largely as a result of the parks' iconic wildlife. Animals like Yellowstone's gray wolves are considered must-see attractions, and public interest in them generates US$70 million per year.[29] Maintaining ecosystems is key, but conservation needs to include an understanding of the migratory pathways and ranges of wildlife species.

Wildlife also benefits people in more indirect ways. In coastal and marine systems, certain species help maintain balanced ecosystems that are crucial to sustaining life on earth.[30] For example, sea otters play a major role in kelp forest ecosystems by limiting sea urchin populations and preserving the kelp, which provide habitat and food for fish.[31] The protection and conservation of sea otters therefore helps not only marine ecosystems but also coastline regions inhabited by humans.

2. pastoralism and sustainable development

Pastoral animal and land management play a crucial role in the conservation and sustainable use of biodiversity as well. CBD Technical Series No. 41, an expert analysis of the links between wildlife conservation and climate change mitigation, noted that pastoralists have traditional and newer strategies "to deal with climate variability (e.g., mobility, common land tenure, reciprocity, mixed species grazing)."[32] Given that 25 percent of the world's land area spanning significant areas on all continents is managed by pastoralists,[33] examining pastoral contributions to the economy and development is key to achieving the SDGs. Pastoralism is most common in dryland countries; these countries constitute more than 40 percent of global land cover, are home to 30 percent of the world's population, and host 44 percent of the world's agricultural production.[34] Water scarcity is one of the defining characteristics of drylands, and these ecosystems include savannahs, grasslands, dryland, Mediterranean, arid, and semi-arid ecosystems.

Pastoralists rely on drylands for providing direct goods and services such as water, food, and fodder; ecosystem services such as nutrient and water cycling; and cultural services such as recreation, tourism, and identity. As a result, pastoralists have a unique understanding of how a balance between conservation and sustainable use can be achieved. Many people in drylands conserve biodiversity

[26] 2015. *Fifth national report to the conference of parties to the convention on biological diversity*. Republic of Kenya. https://www.cbd.int/doc/world/ke/ke-nr-05-en.pdf.

[27] Allgood, B., Ratchford, M., and Large, K. 2016. *Measuring what matters. International Fund for Animal Welfare*. https://d1jyxxz9imt9yb.cloudfront.net/resource/49/attachment/regular/IFAW_AnimalsAndHappiness__1_.pdf.

[28] 2012. *National travel and tourism strategy: Task force on travel & competitiveness*. https://travel.trade.gov/pdf/national-travel-and-tourism-strategy.pdf.

[29] Goad, J., Goldfuss, C., and Kenworthy, T. 2011. *The jobs case for conservation*. Center for American Progress. https://www.americanprogress.org/issues/green/reports/2011/09/20/10343/the-jobs-case-for-conservation/.

[30] UN Water. *Water and ecosystems*. http://www.unwater.org/water-facts/ecosystems.

[31] *Kelp forest*. National Oceanic and Atmospheric Administration Fisheries, West Coast Region. https://www.fisheries.noaa.gov/west-coast/habitat-conservation/kelp-forest-habitat-west-coast.

[32] 2009. *CBD technical series no.41: Connecting biodiversity and climate change mitigation and adaptation: Report of the second ad hoc technical expert group on biodiversity and climate change*. Convention on Biological Diversity. https://www.cbd.int/doc/publications/cbd-ts-41-en.pdf.

[33] The UN Environment Programme (UNEP) and International Union for Conservation of Nature (2014). *Pastoralism and the green economy—a natural nexus?* https://portals.iucn.org/library/sites/library/files/documents/2014-034.pdf.

[34] ICARDA. 2015. *ICARDA annual report 2014*. International Center for Agricultural Research in the Dry Areas, Beirut, Lebanon. https://cgspace.cgiar.org/bitstream/handle/10947/4605/ICARDA_2014.pdf?sequence=1&isAllowed=y.

in innovative ways, and well-managed pastoralism can contribute a positive difference for many more.[35] In grasslands, shifting from excessive to moderate grazing can significantly improve soil organic carbon levels.[36] Thus, determining and implementing optimal grazing levels can substantially reduce carbon loss and increase sequestration, thereby mitigating climate change impacts.

Animals play a critical role in supporting people's livelihoods in the drylands. They are often referred to as "walking bank accounts" because they support income generation, enable pastoralists to save money, and can be sold when money is urgently needed, thereby allowing their owners to cope better with shocks.[37] Animals also provide products and services such as nutritious meat and dairy products, manure to fertilize crops, and as cultural and social assets.[38] In developing countries we find that pastoralism and the care for livestock is one of the few ways in which women can hold and manage wealth and their contribution directly benefits some of the most vulnerable in society.

3. human health depends on animal welfare and wildlife conservation

Policies that ensure the humane treatment of animals are not only beneficial for animal health, but they also directly contribute to the well-being of humans. Nearly every pandemic in human history originated from cross-species transmission from animals to humans.[39] As of the time of this writing, available evidence indicates the COVID-19 pandemic follows the same pattern.[40] However, in order to make the jump from animals to humans, sustained human-animal contact is needed.[41] Wildlife markets and wildlife farming are perfect opportunities for this interface.[42] SARS originated from wildlife "wet" markets in the early 2000s[43] and the COVID-19 pandemic has been linked to the same types of markets.[44] The spread of Ebola was traced to the trading of non-human primates, bats, rodents, and shrews.[45] Furthermore, scientists have been able to trace the origins of the HIV pandemic to chimpanzees[46] and gorillas[47] and believe that the virus was first transmitted to humans through the trade in wild meat. To reduce the chance of further pandemics, policies should be put in place to reduce consistent contact with wildlife.

In some cases, domestic animals also can contribute to disease transmission. Livestock that are kept in cramped, overcrowded, and unsanitary conditions directly contribute to the spread of communicable and non-communicable diseases.[48] The inhumane conditions these animals are kept in are not only unnecessarily cruel, they are also the perfect breeding ground for pathogens to grow and multiply. Additionally, many of the factory farms (farms in which large numbers of livestock are raised indoors in conditions intended to maximize production at minimal cost), where such conditions are customary, have been found to cause the spread of communicable diseases.[49]

[35] 2010. *Pastoralism, nature conservation and development: A good practice guide*. SCBD (Secretariat of the Convention on Biological Diversity). https://www.cbd.int/development/doc/cbd-good-practice-guide-pastoralism-booklet-web-en.pdf.

[36] 2013. *Valuing the biodiversity of dry and sub-humid lands. Technical series no. 71*. SCBD (Secretariat of the Convention on Biological Diversity). https://www.cbd.int/doc/publications/cbd-ts-071-en.pdf.

[37] te Pas, C., Dilthey, P., Schwarz, U., and Waters-Bay, A. 2019. *Pastoralism & the SDGs: How supporting pastoralism can help realise the sustainable development goals. Global Range Lands, Coalition of European Lobbies for Eastern African Pastoralism*. https://globalrangelands.org/sites/globalrangelands.org/files/SDG%20Paper%20February%202019R.pdf.

[38] te Pas, C., *Pastoralism & the SDGs*.

[39] Pike, B. L., et al. 2010. The origin and prevention of pandemics. *Clinical Infectious Diseases*, 50(12), 1636–40.

[40] Lam, T.T., Shum, M.H., Zhu, H. et al. 2020. Identifying SARS-CoV-2 related coronaviruses in Malayan pangolins. *Nature*. https://doi.org/10.1038/s41586-020-2169-0.

[41] Pike, B. L., *The origin and prevention of pandemics*.

[42] Pike, B. L., *The origin and prevention of pandemics*.

[43] Pike, B. L., *The origin and prevention of pandemics*.

[44] Lam, T. T., Identifying SARS-CoV-2.

[45] World Health Organization. (2017). *Stop using antibiotics in healthy animals to prevent the spread of antibiotic resistance*. https://www.who.int/news-room/detail/07-11-2017-stop-using-antibiotics-in-healthy-animals-to-prevent-the-spread-of-antibiotic-resistance.

[46] Sharp, P. M. and Hahn, B. H. 2011. Origins of HIV and the AIDS pandemic. *Cold Spring Harbor Perspectives in Medicine 1*(1). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3234451/.

[47] D'arc, M. et al. 2015. Origin of the HIV-1 group O epidemic in western lowland gorillas. *Proceedings of the National Academies of Sciences of the United States of America 112*(1). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4371950/.

[48] Ahktar, A. 2013. The need to include animal protection in public health policies. *Journal of Public Health, 34*(4), 549–59. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3826830/.

[49] World Health Organization, *Stop using antibiotics in healthy animals*.

The role animal products play in nutrition is well known and the science well developed; a decrease or loss of animal productive capacity will affect people's ability to consume meat, milk, and other animal products. Nutritional animal products play a critical role in post-disaster recovery, especially in lower income countries, and the loss or reduction in them can dramatically increase the time that people depend on food aid.

Various studies have shown that pastoralist communities derive between 20 and 50 percent of their energy requirements from milk alone[50] and it is well established that good nutrition improves outcomes in pregnancy success, maternal health, and rates of schooling. Considering that these benefits are great within women and vulnerable groups (the most vulnerable in disasters), securing nutrition through the input of better animal welfare has benefits to development as well as humanitarian outcomes. Sadler et al. showed that malnourished children that lost access to milk showed significant changes to nutritional status and increased the cost to humanitarian therapeutic feeding programs.[51]

However, conserving wildlife and their habitats can lead to improved health outcomes. Healthy wildlife populations provide benefits to the health and well-being of the people in their surrounding communities. When humans interact with natural ecosystems, even those in urban areas whose access to nature spaces is limited, there are myriad mental and physical health benefits to humans.[52] Domestic animals can also improve human health. Living with a pet or other animal has been proven to promote physical activity and exercise, improve cardiovascular health, and decrease blood pressure.[53] The benefits for people who, from a young age, interact with animals include higher levels of compassion, kindness, and an ability to connect with other people on a deeper level.

4. food security and livelihoods

Animal agriculture is the main source of income and employment for roughly 1.3 billion people in the world and represents 40 percent of the global value of agriculture.[54] In many parts of the world, animal labor—such as agricultural production and transport—is crucial to many industries and forms the cornerstone of economies in many communities. Policies that ensure these vital animals are cared for can simultaneously have positive effects on animal welfare, human health, livelihoods, and global food production supply chains.[55]

Animal agriculture is the main source of income and employment for roughly **1.3 billion people** in the world and represents **40 percent** of the global value of agriculture.

Proportionately we find a higher percentage of low-level incomes rely on livestock. Livestock are also a highly productive use of labor where formal labor markets do not allow access to women, children, and the elderly. These groups happen to be some of the most vulnerable to crisis in lower income countries.[56]

Livestock play a critical role in food security as both a direct and indirect influence. They provide an alternative source of food when crops fail or create critical additions to limited food supplies in disasters. This can be extremely critical in climate-related disasters that show the biggest impacts on crops in their aftermath. Animals are therefore not only directly critical to maintaining food production but also perform an important role in "smoothing out" cyclical differences in food availability.[57]

Although animal agriculture is the cornerstone of many economies, intensive or unsustainable animal agriculture can drive deforestation or other land use changes that result in ecosystem degradation, poor animal welfare, and climate change exacerbation. Intensive animal agriculture often takes the form of large-scale, industrial facilities where animals are housed in cramped conditions, leading to poor animal welfare and increased disease incidence. This form of livestock production demands crop intensification to produce feed and leads to the

[50] Webb, P. and Braun, J. 1994. *Famine and food security in Ethiopia, Lessons for Africa*. Chichester UK: John Wiley and Sons.

[51] Sadler, K., Michard, E., Abdi, A., Shiferaw, Y., Bekele, G., and Catley, A. 2012. *Milk matters: The impact of dry season livestock support on milk supply and child nutrition in Somali region, Ethiopia*. Feinstein International Centre, Tufts University and Save the Children, Addis Abbaba; and Sawyer, J. and Huertas, G. 2018. *Animal management and welfare in natural disasters*. Routledge, New York, NY.

[52] Kondo, M. C., et al. 2018. Urban green space and its impact on human health. *International Journal of Environmental Research and Public Health 15*, 445. www.mdpi.com/1660-4601/15/3/445/pdf.

[53] Osten, C., April 18, 2018. How dogs drive emotional well-being. [blog post]. *Psychology today*. https://www.psychologytoday.com/us/blog/the-right-balance/201804/how-dogs-drive-emotional-well-being.

[54] Food and Agriculture Organization of the United Nations. *Animal production*. http://www.fao.org/animal-production/en/.

[55] United Nations, *Animal welfare essential to sustainable development*.

[56] Campbell, R. and Knowles, T. 2011. *The economic impact of losing livestock in a disaster*. Melbourne, Australia: Economists at Large.

[57] Sawyer, J. and Huertas, G. 2018. *Animal management and welfare in natural disasters*. Routledge, New York, NY.

conversion of natural land for agricultural use. Because this system favors high-yield plant varieties, it also drives the underutilization and disappearance of local plant species; the resulting monocultures are at a higher risk of catastrophic diseases, and they fail to support pollinator habitat and pest control. In addition, the conversion of natural land to grow animal feed crops often results in habitat degradation, as clearing land is prioritized over ecosystem services like water quality protection, flood mitigation, carbon sequestration, and habitat provision for wildlife.

Animal agriculture also contributes significantly to climate change. This industry contributes 15 percent of the carbon dioxide, 53 percent of the nitrous oxide, and 44 percent of the methane generated by human activity.[58] The negative effects to human well-being presented by intense animal agriculture can be mediated through animal welfare- and conservation-focused policies. Ensuring animals have enough space and the ability to socially interact with each other is not only good for animal welfare, but it also dramatically reduces disease incidence.

5. clean water, infrastructure, and climate action

SDG 6 focuses on all global citizens having access to clean drinking water and sanitation. As a direct result of climate change, most of the water upon which the world's poorest communities rely will become increasingly scarce and expensive if the ecosystems that help to sustain those water sources continue to die out. In accordance with the goal of accomplishing SDG 6, UN Water—an interagency mechanism that coordinates the efforts of UN entities and international organizations working on water and sanitation issues—stated that "all freshwater ultimately depends on the continued healthy functioning of ecosystems, and recognizing the water cycle as a biophysical process is essential to achieving sustainable water management."[59] Water security depends entirely on the ecosystems that support water sources remaining healthy and viable, and wildlife is critical to the continued functioning of these ecosystems.

SDG 9 focuses on infrastructure; given that infrastructure development and urbanization are among the major drivers of biodiversity loss, it is urgent that investments in infrastructure are made in ways that do not undermine biodiversity and ecosystem services. Not only must infrastructure investments be low carbon and resilient, they must also support the conservation and sustainable use of biodiversity. By supporting green infrastructure such as wetlands, natural vegetation buffers, native plantings, and wildlife crossings, countries can improve development goals. A single acre of wetlands can hold up to 1.5 million gallons of rain or melting snow. For less than US$300,000, it is possible to construct a wetland that can intercept 3.15 million gallons of storm water otherwise destined for the sewer or streets. A single mature tree with a thirty-foot crown can keep 4,600 gallons of water out of the sewer each year. Native plantings benefit agriculture and public health by supporting pollination, pest control, water quality, and local and regional scales and cost less in the long run. Wildlife crossings can effectively save nations millions of dollars as well as human and animal lives. The International Finance Corporation and World Bank recently adopted "improved environmental standards for potential impacts of infrastructure and other investments on biodiversity and ecosystem services" in an effort to mainstream biodiversity into their decision-making processes. We are already seeing a shift of capital through companies and investors factoring in long-term environmental risks into their decision-making and acknowledging the value of ecosystem services to the economy. Evidence is emerging of investments that consider these risks starting to outperform those who traditionally have not.

SDG 13 focuses on climate change and taking action to combat its effects. This SDG cannot be achieved without addressing wildlife conservation, which plays a crucial role in mitigating climate change. For example, prairie dogs in Southwest America (whose underground burrowing has proven to help underground water flow and soil productivity) and elephants in sub-Saharan Africa (who overturn soil and dig water holes during times of drought) are essential to their ecosystems and the people who rely on them. Scientists have estimated that natural climate solutions such as wildlife protection could provide 37 percent of cost-effective carbon dioxide mitigation needed through 2030 in order to hold global warming below 2 degrees Celsius.[60]

6. synergies between the sustainable development goals

The preamble to the resolution adopting the 2030 Agenda, a commitment to eradicate poverty and achievable sustainable development by 2030 world-wide, states that SDGs are "integrated and indivisible," clearly

[58] Gerber, P. et al. 2013. *Tackling climate change through livestock—a global assessment of emissions and mitigation opportunities*. Food and Agriculture Organization of the United Nations. http://www.fao.org/3/a-i3437e.pdf.

[59] UN Water. *Water and ecosystems*.

[60] Griscom, B. W. et al. 2017. Natural climate solutions. *Proceedings of the National Academy of Sciences*, 114(44), 11645–11650.

articulating that making progress on one goal should not require neglecting or completely reducing progress on another goal. For instance, achieving SDG 2 on reducing hunger should not come at the expense of stopping land degradation or halting deforestation. In this case, both food security goals and land degradation neutrality can be achieved through a move toward sustainable agriculture that has a lower ecological footprint than existing systems. According to the recently released Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report on Biodiversity and Ecosystem Services, "current negative trends in biodiversity and ecosystems will undermine progress towards 80 percent (35 out of 44) of the assessed targets of goals related to poverty, hunger, health, water, cities, climate, oceans and land (SDGs 1, 2, 3, 6, 11, 13, 14, and 15)."[61]

It is impossible to achieve the SDGs without understanding and preserving ecosystems and their biodiversity. The links between water security, climate action, life below water, and life on land (SDGs 6, 13, 14, and 15 respectively) and nature are evident. However, the links between ending poverty and hunger, improving health and well-being, and establishing sustainable cities (SDGs 1, 2, 3, and 11) are not as evident and therefore aren't accounted for in many development plans. Yet, healthy ecosystems are essential to these goals by playing a key role in pollination and nutrient regulation, reducing vulnerability to flooding and droughts, regulating air and water quality, and serving as sources of medicine.[62]

Additionally, the IPBES report found important synergies between nature and SDGs 4, 5, 10, and 16 on education, gender equality, reducing inequalities, and promoting peace and justice, respectively.[63] Land or resource insecurity and nature degradation disproportionately affect women and girls. Women play a crucial role as natural resource managers in many societies. The gendered distribution of labor roles means that women are often responsible for burdensome tasks such as water and fuelwood collection. If water becomes scarce or wood is overharvested, women must spend even more time and energy collecting these resources.[64]

Incorporating the knowledge and beliefs of local and indigenous people into conservation policies **dramatically improves** plan implementation.

Implementing gender differentiated policy and investment decisions is necessary to enhance progress toward global development goals and to conserve biodiversity and nature. Unfortunately, in the case of gender and other SDGs, the existing focus and wording of the SDGs does not adequately account for each goal's respective relationship to nature consequently impeding their assessment across the board. This shortcoming presents a major knowledge gap. Policy targets, indicators, and datasets must account for aspects of nature and their relevance to human well-being more explicitly in order to effectively track the long-term consequences of nature on the SDGs and vice-versa.[65]

Incorporating the knowledge and beliefs of local and indigenous people into conservation policies dramatically improves plan implementation. Using local knowledge to develop wildlife and natural resource management policies and practices, rather than relying on outside perspectives, equips communities to combat many of the challenges associated with climate change, including food insecurity, deforestation and desertification, and biodiversity loss.[66]

The primary ambition of the 2030 Agenda is to achieve sustainable development in a manner that balances economic, social, and environmental needs. Successfully achieving the SDGs depends on national implementation; it is critical to ensure an integrated approach at various political levels, yet consider that progress will vary across regions, societies, and ecosystems. Such an integrated approach is difficult to achieve in the short term; however, steps can be taken to ensure that short-term actions do not have detrimental effects on marine and terrestrial ecosystems in the long term.

[61] Diaz, S. et. al. 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. https://www.ipbes.net/sites/default/files/downloads/spm_unedited_advance_for_posting_htn.pdf.

[62] 2019. *Assessing progress towards meeting major international objectives related to nature and nature's contributions to people.* Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. https://www.ipbes.net/system/tdf/ipbes_global_assessment_chapter_3_unedited_31may.pdf?file=1&type=node&id=35279.

[63] Diaz, S., Summary for policymakers.

[64] Davies, J., Poulsen, L., Schulte-Herbrüggen, B., Mackinnon, K., Crawhall, N., Henwood, W. D., ... & Gudka, M. (2012). *Conserving Dryland Biodiversity*. xii+ 84p. http://catalogue.unccd.int/124_drylands_bk_2.pdf.

[65] Diaz, S., Summary for policymakers.

[66] IPCC, *Climate change and land*.

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V. challenges and opportunities for achieving the 2030 agenda for sustainable development

One of the key components of the 2030 Agenda is the need for bottom-up, country-led implementation. This process allows countries to elaborate on national targets and provide information on national priorities, achievements, and constraints. Implementation of the 2030 Agenda yields policy and institutional challenges including the need for improved governance, resource mobilization, and cross-sectoral commitment and communication. Technical and scientific challenges include insufficient research capacity, a need for improved valuation of the benefits from improved environmental policies, and enhanced monitoring and evaluation mechanisms.[67]

Many countries' national reports highlighted the need for increased support when developing national environmental policies. This support includes providing technical expertise, increasing in cross-sectoral collaboration, and allocating additional funds to the environmental portfolios within national budgets. By identifying the needs, relevant partner organizations can play a key role in providing support to assist governments in the national policy development process.

Ultimately, the key to implementing many of the 2030 goals is emphasizing synergies between the goals to ensure consistent progress. Balanced progress across all dimensions is crucial to fulfilling and sustaining many of these goals along with simultaneously integrating social, economic, and environmental targets. Once institutional frameworks have been strengthened and reformed to align with targets, countries will start to see balanced progress in each goal, thereby allowing them to fulfill their own sustainable development agendas.

[67] The Ministry of Environmental Protection of China. 2014. *China's fifth national report on the implementation of the convention on biological diversity*. https://www.cbd.int/doc/world/cn/cn-nr-05-en.pdf.

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VI. pathways for policy makers to incorporate animal welfare and wildlife conservation into development planning

The loss of ecosystems and their biodiversity is taking place at an unprecedented rate, largely because their value as underpinning human well-being is not fully understood. As a result, the critical role that nature plays in human and animal well-being is not adequately taken into account in public and private decision making.[68] Ecosystems and biodiversity must be at the center of the economic paradigm, including in finance, trade, and development. In order to meet their targets, many countries still have a long way to go toward implementing policies that uphold the conservation of nature.

The following are our recommendations for national and international policy makers as well as project managers:

1. explore holistic assessment practices that include valuing animals in the ecosystem and in the community

- The economic valuation of biodiversity and ecosystem services remains one of the major gaps in making the case for the protection of natural capital and ensuring that investments do not adversely impact nature. There is a need for governments to shift from a single-minded focus on measuring progress with the GDP as the primary indicator of well-being. Communities see benefits from biodiversity conservation beyond GDP, and any assessment practices must capture those benefits.

[68] 2018. *Biodiversity at the heart of sustainable development: Input to the 2018 high-level political forum on sustainable development (HLPF).* Secretariat of the Convention on Biological Diversity. https://sustainabledevelopment.un.org/content/documents/18277CBD_input_to_2018_HLPF.pdf.

- Various instruments can be used as examples, including the Genuine Progress Indicator, Bhutan's Gross National Happiness, and the OECD Better Life Index.

- Animals must be factored into assessments in the aftermath of crisis and in advance in terms of risk reduction and preparedness. They have a key role in securing ecosystems and landscapes, protecting from extreme effects, reducing the cost and impact of recovery, and ensuring less aid dependency.

2. integrate animal welfare and conservation practices into development policies and practices

- The success of sustainable development projects are undeniably linked to animal welfare and conservation; however, it is not always evident due to information and knowledge gaps.

  - Development policies must recognize the inherent value of biodiversity and good animal welfare practices within communities and to human well-being more generally.

  - Development plans should incorporate biodiversity conservation and good animal welfare practices as a matter or priority to ensure long-term viability and success of the project.

  - Development programming should consider animal welfare at all stages of the planning cycle as a cross-cutting issue.

3. lead projects that encourage active co-creation and community engagement

- Community engagement and co-creation are intended to ensure community members are intricately involved in any projects that affect them. If community members are able to contribute meaningfully to those activities and help steer the project, it helps to ensure the success and sustainability of the project.

  - Within the first planning stages, development teams should hold radical listening sessions with the communities in which programs are based. These conversations should focus on what is working for communities and where change is needed. They must also seek to ascertain what manner of change best suits specific communities. Additionally, community input needs to be a recurring theme throughout the entire project cycle so that more meaningful impact to local people and animals can be achieved and maintained.

  - Uphold socio-cultural practices and respect indigenous peoples and local communities as custodians of the land.

  - Supporting and expanding community-based conservation can help in the conservation of wildlife through efforts to combat wildlife poaching and trafficking, and securing protected areas.

  - Ensure the projects include the safety and security of communities and their members as a primary purpose. Examples include mitigating human-wildlife conflict, securing livelihoods that don't deplete wildlife populations or natural resources, and promoting human well-being linked with coexistence of wildlife.

4. protect and establish sufficient habitat and corridors for migratory species

- Establishing proper infrastructure and/or corridors for migratory species can reduce human-wildlife conflicts including wildlife vehicle collisions, water competition, and crop raiding.

  - Policy makers who negotiate multilateral environmental agreements must pay closer attention to geographic areas in which migratory species exist as well as their connectivity. This is crucial given the importance of ecologically connected areas to climate change resilience, maintaining genetic diversity, and integrating nature into human landscapes such as cities and agricultural zones.

  - Develop green infrastructure plans that will reduce infrastructure costs and enhance environmental benefits. These plans should consider the following elements, among others:

    - Implement natural alternatives to gray infrastructure (concrete), including wetlands and dune restoration.

    - Plant rain gardens or green roofs to reduce flooding risk.

- Preserve natural features, such as floodplains, with a natural vegetation buffer along streams that can slow, filter, and store polluted runoff.

- Minimize or disconnect impervious surfaces, such as pavement, using methods such as rain barrels, narrower streets, and permeable paving.

- Create and maintain wildlife corridors, which provide habitat or ecological connectivity, and allow for fish, wildlife, or plant movement.

- Install structural elements like underpasses, culverts, overpasses, animal detection systems, or crosswalks to allow wildlife to avoid road traffic.

- Remove obsolete fencing and upgrade and mark extant fencing to improve connectivity for migratory game and other species, while also reducing collision mortality and entanglement of wildlife.

– Ensure communities living in project areas be included in any decision making.

5. improve agricultural production policies

- Not only are agricultural production practices usually intensive and harmful to animal welfare, they also perpetuate unsustainable resource use and waste. Therefore, to achieve long-term sustainability and well-being for all, the structural production and consumption practices that impede human development should be reevaluated.

  – Agricultural ministries are responsible for implementing policies that support smallholders over intensive agricultural production, and for promoting best practices in animal welfare and sustainable agricultural production. Therefore, agricultural ministries should implement and adhere to the World Organization for Animal Health (OIE) existing regulations on animal welfare.

  – Additionally, agricultural development institutions should prioritize funding initiatives that integrate sustainable, indigenous, community-led, and climate-smart practices.

  – Partnerships between agricultural ministries, non-governmental organizations, academic institutions, and other stakeholders should be formalized and expanded because they are needed to promote best practices in agricultural development.

6. share best practices with counterparts

- Information sharing is key to delivering better and more efficient services that are coordinated around the needs of the project and/or policies. It is essential to enable early intervention and preventative work for safeguarding and promoting the sustainability of future development projects.

  – Institutional capacity should and can be strengthened through effectively integrating biodiversity, national poverty reduction strategies, and sectoral plans across all relevant government ministries. One way in which this can be achieved is through increased coordination between inter-ministerial and inter-agency processes when developing government policies.

  – Another key approach is by adopting inclusive mechanisms for stakeholder engagement, including effectively engaging civil society groups, indigenous peoples, and local communities in policy and decision making. Inclusion at all levels, from the beginning of the policy development process, is key to ensuring all voices are included on the road to implementing the 2030 Agenda.

  – There needs to be enhanced regional collaboration to disseminate best practices that have already been applied and been found successful, as well as develop new initiatives that can help countries that have yet to meet their goals. Countries that have demonstrated leadership on integrating animal welfare and wildlife conservation into their national development policies can act as champions in their region and be used as templates for driving the message.

  – Incentives and requirements should exist to share best practices in order to create a better life for all.

  – The decision of mainstreaming biodiversity in productive sectors was decided at the thirteenth meeting of the COP to the CBD, and provides guidelines that leaders can use in the decision-making process. These guidelines must be adopted by all stakeholders in the investment process, including regional development banks, sovereign banks, private investors, and governments.

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VII. conclusion

Achieving true sustainable development for the world is not possible without understanding and incorporating the importance of animals in the world's ecosystems and human health and well-being. Human activity has led to unprecedented biodiversity loss and habitat destruction. With the sixth extinction crisis upon us, it is more critical than ever for policy makers to link conservation and animal welfare with sustainable development. The economic and human development focus of the SDGs and other measures of development must change to include animals because investing in conservation and animal welfare will undoubtedly have benefits for both people and animals.

Achieving true sustainable development for the world is not possible without understanding and incorporating the importance of animals in the world's ecosystems and human health and well-being.

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About IFAW
The International Fund for Animal Welfare (IFAW) is a global non-profit helping animals and people thrive together. We are experts and everyday people, working across seas, oceans, and in more than 40 countries around the world. We rescue, rehabilitate, and release animals, and we restore and protect their natural habitats. The problems we're up against are urgent and complicated. To solve them, we match fresh thinking with bold action. We partner with local communities, governments, non-governmental organizations, and businesses. Together, we pioneer new and innovative ways to help all species flourish. See how at ifaw.org.

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