



LEAVES, A Newsletter of the INTERNATIONAL ENVIRONMENT FORUM Volume 21, Number 05, 15 May 2019

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From the Editor, Request for information for upcoming newsletters

This newsletter is an opportunity for IEF members to share their experiences, activities, and initiatives that are taking place at the community level on environment, climate change and sustainability. All members are welcome to contribute information about related activities, upcoming conferences, news from like-minded organizations, recommended websites, book reviews, etc. Please send information to newsletter@ief.org

Please share the Leaves newsletter and IEF membership information with family, friends, and associates and encourage interested persons to consider becoming a member of the IEF.

IEF and Biodiversity

Launch of a new thematic issue

The growing crisis in biodiversity has now reached the top of the international agenda alongside climate change, with the recent release of a damning report, the IPBES Global Assessment of Biodiversity. The International Environment Forum has decided to add **Nature and Biodiversity** as a new issue on which to concentrate, with materials in support of its membership accessible through a new Issue page on its web site. These materials include

- A compilation of Baha'i writings and texts on **Nature and Biodiversity** to put this issue in a spiritual context (This newsletter will begin with a few quotations from this compilation.)
- A summary of the **Global Assessment on Biodiversity and Ecosystem Services 2019** providing the latest consensus scientific information from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) on the crisis facing nature and its biodiversity on which we all depend (This comprehensive summary is printed after "Members Corner" below.)
- A list of **things that everyone can do** to help to protect biodiversity. (See the bottom of this newsletter)
- More materials will be added as they become available.

Some IEF members have been involved as scientists in this issue for many years, and have even contributed to the IPBES global assessment process. Sylvia Karlsson-Vinkhuyzen organized a workshop recently at Wageningen University in the Netherlands preparing inputs to IPBES on indicators of peoples' relationships to nature, with the participation of Arthur Dahl and other experts, including one of the lead authors of the IPBES report. Sylvia and Austin Bowden-Kerby of Fiji also contributed to an IPBES meeting in New Zealand last year.

Nature and Biodiversity

A Sample from the IEF Compilation

Nature in its essence is the embodiment of My Name, the Maker, the Creator. Its manifestations are diversified by varying causes, and in this diversity there are signs for men of discernment. Nature is God's Will and is its expression in and through the contingent world. It is a dispensation of Providence ordained by the Ordainer, the All-Wise. Were anyone to affirm that it is the Will of God as manifested in the world of being, no one should question this assertion. It is endowed with a power whose reality men of learning fail to grasp. Indeed a man of insight can perceive naught therein save the effulgent splendor of Our Name, the Creator. Say: This is an existence which knoweth no decay, and Nature itself is lost in bewilderment before its revelations, its compelling evidences and its effulgent glory which have encompassed the universe.

(Bahá'u'lláh, Tablets of Bahá'u'lláh, p. 142)

Reflect upon the inner realities of the universe, the secret wisdoms involved, the enigmas, the inter-relationships, the rules that govern all. For every part of the universe is connected with every other part by ties that are very powerful and admit of no imbalance, nor any slackening whatever. In the physical realm of creation, all things are eaters and eaten: the plant drinketh in the mineral, the animal doth crop and swallow down the plant, man doth feed upon the animal, and the mineral devoureth the body of man. Physical bodies are transferred past one barrier after another, from one life to another, and all things are subject to transformation and change, save only the essence of existence itself - since it is constant and immutable, and upon it is founded the life of every species and kind, of every contingent reality throughout the whole of creation.

('Abdu'l-Baha, Selections from the Writings of `Abdu'l-Baha, page 157)



Natural meadow at the Baha'i House of Worship in Langenhain, Germany

When... thou dost contemplate the innermost essence of all things, and the individuality of each, thou wilt behold the signs of thy Lord's mercy in every created thing, and see the spreading rays of His Names and Attributes throughout all the realm of being.... Then wilt thou observe that the universe is a scroll that discloseth His hidden secrets, which are preserved in the well-guarded Tablet. And not an atom of all the atoms in existence, not a creature from amongst the creatures but speaketh His praise and telleth of His attributes and names, revealeth the glory of His might and guideth to His oneness and His mercy....

('Abdu'l-Bahá, Selections from the Writings of 'Abdu'l-Bahá, p. 41-42)

Take heed ... that ye hunt not to excess. Tread ye the path of justice and equity in all things. Thus biddeth you He Who is the Dawning-place of Revelation, would that ye might comprehend.

(Bahá'u'lláh, The Kitáb-i-Aqdas)

Members Corner

Call for Videos about Sustainable Development Goals

IEF members are invited to create a brief video (2 – 6 min.) on one of the Sustainable Development Goals (SDGs) that will be discussed at the up-coming High Level Political Forum (HLPF) on Sustainable Development which will be held in New York City from 9 to 18 July 2019. The theme will be "Empowering people and ensuring inclusiveness and equality". The set of goals to be reviewed in depth is the following:

- **Goal 4.** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- **Goal 8.** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- **Goal 10.** Reduce inequality within and among countries
- **Goal 13.** Take urgent action to combat climate change and its impacts
- **Goal 16.** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- **Goal 17.** Strengthen the means of implementation and revitalize the global partnership for sustainable development

For more information about the specific goals reviewed at HLPF, please, visit

<https://sustainabledevelopment.un.org/hlpf/2019>

Please, send your videos or questions to the IEF secretariat ief@iefworld.org

Visit the new video page on the IEF website here: <https://iefworld.org/videos>

New Book by IEF Member on Climate Change available as an E-Book: "Les changements climatiques, nous sommes plus que concernés"

IEF member Kadima Mpoyi Long'sha of the Democratic Republic of Congo wants to inform all members that his publication in French "*Les changements climatiques, nous sommes plus que concernés*" is now sold online as an e-book by kobo.com and fnac.com. His price is 3\$US.

The direct links to the book in the two stores selling the e-book are:

<https://www.kobo.com/us/en/ebook/les-changements-climatiques-nous-sommes-plus-que-concernes>

<https://www.fnac.com/SearchResult/ResultList.aspx?SCat=0%211&Search=Les+changements+climatiques+%2C+nous+sommes+plus+que+concern%C3%A9s&sft=1&sa=0>

Synopsis

Il est de plus en plus évident que le réchauffement de la petite planète bleue, notre seule et unique demeure, est un phénomène anthropique qui préoccupe l'ensemble de l'humanité, tant il constitue autant une menace qu'une opportunité. La lecture de cet ouvrage permet d'en saisir la quintessence. Pour sauver cette embarcation qu'est la vie des espèces du naufrage, tous les pays et peuples de la Terre, quel que soit leur niveau de responsabilité face à la crise, la contribution de tous et de chacun s'avère indispensable. La RDC n'est pas du reste. Certes, on attend beaucoup beaucoup de sa forêt et de ses savanes pour atténuer les effets de gaz à effet de serre. Va-t-elle tirer son épingle du jeu? Et au cas où l'esprit humain trouverait une autre solution pour séquestrer ce gaz, comment luttera-t-elle contre sa pauvreté?

N'est-ce pas paradoxale, sur le plan global, que la diminution de la pauvreté d'un pays en développement se fasse par la séquestration du CO₂ émis en majorité par les pays riches? Pourquoi ne pas agir sur l'extrême pauvreté et l'extrême richesse?

New Book by IEF Member Giles Cavalli on "Managing a sustainable farm enterprise"

Gilles Cavalli, an IEF member in France, has authored a new book in French, "*Manager une entreprise agricole durable : Pour une démarche entrepreneuriale responsable, rémunératrice et résiliente*" (Managing a sustainable farm enterprise in a responsible, rewarding and resilient way), an

optimistic book that combines being an entrepreneur and respecting sustainable development. Today, more and more farmers are concerned about the impact of their activities on the environment and society. They want to practice their occupation in a responsible way while optimizing the economic performance of their farm. Gilles Cavalli wrote his book for cereal growers, ranchers, market gardeners, wine growers and those with orchards who want to develop their enterprise. It is a combination of a practical manual, an academic study, and a guide to personal and professional development. Strongly optimistic and well-documented, it helps readers to see their farming enterprise in a new way. Gilles said “The aim of the ‘agripreneur’ is to live well from his work while contributing positively to the sustainable development of society. He considers that his enterprise has a role in ‘the whole’ that is fully taken into account.” The book was published in March 2019 by Editions France Agricole (<http://www.editions-france-agricole.fr>).

Stories from the Trees: A Spiritual Perspective on Climate Change

Report by IEF Member Margaret Tash – Rochester, NY (U.S.)

On April 14, as part of Faith Climate Action Week, our Bahá'í Center hosted its fifth annual celebration, which includes a devotional gathering and a brief presentation on climate change. I offered “Stories from the Trees: A Spiritual Perspective on Climate Change” using slides and story-telling.

The spiritual aspects of climate change were discussed, followed by stories of three people who planted trees – Richard St. Barbe Baker, Wangari Maathai, and Felix Finkbeiner. The stories were brief due to time constraints; a reference sheet was included so participants could read more on their own. We discussed the spiritual qualities these individuals exhibited, and how they knew about each other.

At the end, we discussed an action we can take - using the search engine Ecosia which plants trees from revenue generated by online searches. I learned about Ecosia thanks to Christine Muller, who wrote about it in the Wilmette Institute newsletter.

Paul Hanley generously shared information about how Richard, Wangari, and Felix were connected, which brought their stories to life. He also sent invaluable photos from his book, “Man of the Trees: Richard St. Barbe Baker, the First Global Conservationist.”

Among the 20 participants, there was excellent discussion about the program, especially using Ecosia as a search engine. One person sent a report to our local Bahá'í email list and received several request for the reference sheet. The program will be offered again in late May and in June at two small gatherings for Bahá'ís and friends.

Despite the daunting challenges we face, I wanted to offer hope, an uplifting view of those working to combat climate change, ideas for actions we can take, and ways our communities can continue the conversation.

In Praise of Diversity in Nature – a Baha'i's Perspective on the Loss of Biodiversity

On 18 April 2019, US Baha'i News printed an article by IEF member Christine Muller in which she shared her childhood experience with different species of ladybugs in Switzerland which have all vanished. The article also includes information about the importance of species diversity and some Baha'i teachings relevant to the issue. It closes with a simple list of actions everyone can take to help insects and other wildlife thrive.

You can read the article here:

<http://bahaius.wpengine.com/earth-day-reflections-on-justice-and-the-environment/>



National Conference on Biotechnology Innovation: Interdisciplinary Approach to Agriculture, Food, Health, Environment and Sustainable Development

IEF member Dr. Sunil Kumar is organising a "National Conference on Biotechnology Innovation: Interdisciplinary Approach to Agriculture, Food, Health, Environment and Sustainable Development (NatConBio-2019)" in association with Society for Biotechnologists (India) on 27-28 September 2019 at Shri Ramswaroop Memorial University, Barabanki (UP), India. For further information, contact him at sunil.bio@srmu.ac.in.

Global Assessment on Biodiversity and Ecosystem Services

Biodiversity is in Crisis

Nature's Dangerous Decline 'Unprecedented'

Species Extinction Rates 'Accelerating'

'Transformative changes' needed to restore and protect nature

Opposition from vested interests can be overcome for public good

1,000,000 species threatened with extinction

The headlines are frightening but true

Nature is declining globally at rates unprecedented in human history — and the rate of species extinctions is accelerating, with grave impacts on people around the world now likely, warns a landmark new report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the summary of which was approved at the 7th session of the IPBES Plenary, meeting 29 April – 4 May in Paris.

"The overwhelming evidence of the IPBES Global Assessment, from a wide range of different fields of knowledge, presents an ominous picture," said IPBES Chair, Sir Robert Watson. "The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide."

"The Report also tells us that it is not too late to make a difference, but only if we start now at every level from local to global," he said. "Through 'transformative change', nature can still be conserved, restored and used sustainably – this is also key to meeting most other global goals. By transformative change, we mean a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values."

"The member States of IPBES Plenary have now acknowledged that, by its very nature, transformative change can expect opposition from those with interests vested in the status quo, but also that such opposition can be overcome for the broader public good," Watson said.

The IPBES Global Assessment Report on Biodiversity and Ecosystem Services is the most comprehensive ever completed. It is the first intergovernmental Report of its kind and builds on the landmark Millennium Ecosystem Assessment of 2005, introducing innovative ways of evaluating evidence.

Compiled by 145 expert authors from 50 countries over the past three years, with inputs from another 310 contributing authors, the Report assesses changes over the past five decades, providing a comprehensive picture of the relationship between economic development pathways and their impacts on nature. It also offers a range of possible scenarios for the coming decades.

Based on the systematic review of about 15,000 scientific and government sources, the Report also draws (for the first time ever at this scale) on indigenous and local knowledge, particularly addressing issues relevant to Indigenous Peoples and Local Communities.

"Biodiversity and nature's contributions to people are our common heritage and humanity's most important life-supporting 'safety net'. But our safety net is stretched almost to breaking point," said

Prof. Sandra Díaz (Argentina), who co-chaired the Assessment with Prof. Josef Settele (Germany) and Prof. Eduardo S. Brondízio (Brazil and USA). “The diversity within species, between species and of ecosystems, as well as many fundamental contributions we derive from nature, are declining fast, although we still have the means to ensure a sustainable future for people and the planet.”

The Report finds that around 1 million animal and plant species are now threatened with extinction, many within decades, more than ever before in human history.

The average abundance of native species in most major land-based habitats has fallen by at least 20%, mostly since 1900. More than 40% of amphibian species, almost 33% of reef-forming corals and more than a third of all marine mammals are threatened. The picture is less clear for insect species, but available evidence supports a tentative estimate of 10% being threatened. At least 680 vertebrate species had been driven to extinction since the 16th century and more than 9% of all domesticated breeds of mammals used for food and agriculture had become extinct by 2016, with at least 1,000 more breeds still threatened.

“Ecosystems, species, wild populations, local varieties and breeds of domesticated plants and animals are shrinking, deteriorating or vanishing. The essential, interconnected web of life on Earth is getting smaller and increasingly frayed,” said Prof. Settele. “This loss is a direct result of human activity and constitutes a direct threat to human well-being in all regions of the world.”

To increase the policy-relevance of the Report, the assessment’s authors have ranked, for the first time at this scale and based on a thorough analysis of the available evidence, the five direct drivers of change in nature with the largest relative global impacts so far. These culprits are, in descending order: (1) changes in land and sea use; (2) direct exploitation of organisms; (3) climate change; (4) pollution and (5) invasive alien species.

The Report notes that, since 1980, greenhouse gas emissions have doubled, raising average global temperatures by at least 0.7 degrees Celsius – with climate change already impacting nature from the level of ecosystems to that of genetics – impacts expected to increase over the coming decades, in some cases surpassing the impact of land and sea use change and other drivers.

Despite progress to conserve nature and implement policies, the Report also finds that global goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond may only be achieved through transformative changes across economic, social, political and technological factors. With good progress on components of only four of the 20 Aichi Biodiversity Targets, it is likely that most will be missed by the 2020 deadline. Current negative trends in biodiversity and ecosystems will undermine progress towards 80% (35 out of 44) of the assessed targets of the Sustainable Development Goals, related to poverty, hunger, health, water, cities, climate, oceans and land (SDGs 1, 2, 3, 6, 11, 13, 14 and 15). Loss of biodiversity is therefore shown to be not only an environmental issue, but also a developmental, economic, security, social and moral issue as well.

“To better understand and, more importantly, to address the main causes of damage to biodiversity and nature’s contributions to people, we need to understand the history and global interconnection of complex demographic and economic indirect drivers of change, as well as the social values that underpin them,” said Prof. Brondízio. “Key indirect drivers include increased population and per capita consumption; technological innovation, which in some cases has lowered and in other cases increased the damage to nature; and, critically, issues of governance and accountability. A pattern that emerges is one of global interconnectivity and ‘telecoupling’ – with resource extraction and production often occurring in one part of the world to satisfy the needs of distant consumers in other regions.”

Other notable findings of the Report include:

- Three-quarters of the land-based environment and about 66% of the marine environment have been significantly altered by human actions. On average these trends have been less severe or avoided in areas held or managed by Indigenous Peoples and Local Communities.
- More than a third of the world’s land surface and nearly 75% of freshwater resources are now devoted to crop or livestock production.

- The value of agricultural crop production has increased by about 300% since 1970, raw timber harvest has risen by 45% and approximately 60 billion tons of renewable and nonrenewable resources are now extracted globally every year – having nearly doubled since 1980.
- 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 and 100-300 million people are at increased risk of floods and hurricanes because of loss of coastal habitats and protection.
- In 2015, 33% of marine fish stocks were being harvested at unsustainable levels; 60% were maximally sustainably fished, with just 7% harvested at levels lower than what can be sustainably fished.
- Urban areas have more than doubled since 1992.
- Plastic pollution has increased tenfold since 1980, 300-400 million tons of heavy metals, solvents, toxic sludge and other wastes from industrial facilities are dumped annually into the world's waters, and fertilizers entering coastal ecosystems have produced more than 400 ocean 'dead zones', totalling more than 245,000 km² - a combined area greater than that of the United Kingdom.
- Negative trends in nature will continue to 2050 and beyond in all of the policy scenarios explored in the Report, except those that include transformative change – due to the projected impacts of increasing land-use change, exploitation of organisms and climate change, although with significant differences between regions.

The Report also presents a wide range of illustrative actions for sustainability and pathways for achieving them across and between sectors such as agriculture, forestry, marine systems, freshwater systems, urban areas, energy, finance and many others. It highlights the importance of, among others, adopting integrated management and cross-sectoral approaches that take into account the trade-offs of food and energy production, infrastructure, freshwater and coastal management, and biodiversity conservation.

Also identified as a key element of more sustainable future policies is the evolution of global financial and economic systems to build a global sustainable economy, steering away from the current limited paradigm of economic growth.

“IPBES presents the authoritative science, knowledge and the policy options to decision-makers for their consideration,” said IPBES Executive Secretary, Dr. Anne Larigauderie. “We thank the hundreds of experts, from around the world, who have volunteered their time and knowledge to help address the loss of species, ecosystems and genetic diversity – a truly global and generational threat to human well-being.”

(IPBES press release 6 May 2019)

Global Assessment on Biodiversity and Ecosystem Services

Key messages from the Summary for Policy-makers

Nature and its vital contributions to people, which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide.

Nature embodies different concepts for different people, including biodiversity, ecosystems, Mother Earth, systems of life and other analogous concepts. Nature's contributions to people embody different concepts such as ecosystem goods and services, and nature's gifts. Both nature and nature's contributions to people are vital for human existence and good quality of life (human well-being, living in harmony with nature, living well in balance and harmony with Mother Earth, and other analogous concepts). While more food, energy and materials than ever before are now being supplied to people in most places, this is increasingly at the expense of nature's ability to provide such contributions in

the future and frequently undermines nature's many other contributions, which range from water quality regulation to sense of place. The biosphere, upon which humanity as a whole depends, is being altered to an unparalleled degree across all spatial scales. Biodiversity – the diversity within species, between species and of ecosystems – is declining faster than at any time in human history.

A1. Nature is essential for human existence and good quality of life. Most of nature's contributions to people are not fully replaceable, and some are irreplaceable.

A2. Nature's contributions to people are often distributed unequally across space and time and among different segments of society. There are often trade-offs in the production and use of nature's contributions.

A3. Since 1970, trends in agricultural production, fish harvest, bioenergy production and harvest of materials have increased, but 14 of the 18 categories of contributions of nature that were assessed, mostly regulating and non-material contributions, have declined.

A4. Nature across most of the globe has now been significantly altered by multiple human drivers, with the great majority of indicators of ecosystems and biodiversity showing rapid decline.

A5. Human actions threaten more species with global extinction now than ever before. An average of around 25 per cent of species in assessed animal and plant groups are threatened (figure SPM.3), suggesting that around 1 million species already face extinction, many within decades, unless action is taken to reduce the intensity of drivers of biodiversity loss. Without such action there will be a further acceleration in the global rate of species extinction, which is already at least tens to hundreds of times higher than it has averaged over the past 10 million years.

A6. Globally, local varieties and breeds of domesticated plants and animals are disappearing. This loss of diversity, including genetic diversity, poses a serious risk to global food security by undermining the resilience of many agricultural systems to threats such as pests, pathogens and climate change.

A7. Biological communities are becoming more similar to each other in both managed and unmanaged systems within and across regions.

A8. Human-induced changes are creating conditions for fast biological evolution - so rapid that its effects can be seen in only a few years or even more quickly. The consequences can be positive or negative for biodiversity and ecosystems, but can create uncertainty about the sustainability of species, ecosystem functions and the delivery of nature's contributions to people.

B. Direct and indirect drivers of change have accelerated during the past 50 years

The rate of global change in nature during the past 50 years is unprecedented in human history. The direct drivers of change in nature with the largest global impact have been (starting with those with most impact): changes in land and sea use; direct exploitation of organisms; climate change; pollution; and invasion of alien species. Those five direct drivers result from an array of underlying causes – the indirect drivers of change – which are in turn underpinned by societal values and behaviours that include production and consumption patterns, human population dynamics and trends, trade, technological innovations and local through global governance. The rate of change in the direct and indirect drivers differs among regions and countries.

B1. For terrestrial and freshwater ecosystems, land-use change has had the largest relative negative impact on nature since 1970, followed by the direct exploitation, in particular overexploitation, of animals, plants and other organisms mainly via harvesting, logging, hunting and fishing. In marine ecosystems, direct exploitation of organisms (mainly fishing) has had the largest relative impact, followed by land/sea-use change.

B2. Climate change is a direct driver that is increasingly exacerbating the impact of other drivers on nature and human well-being.

B3. Many types of pollution, as well as invasive alien species, are increasing, with negative impacts for nature.

B4. In the past 50 years, the human population has doubled, the global economy has grown nearly 4-fold and global trade has grown 10-fold, together driving up the demands for energy and materials.

B5. Economic incentives generally have favoured expanding economic activity, and often environmental harm, over conservation or restoration. Incorporating the consideration of the multiple values of ecosystem functions and of nature's contribution to people into economic incentives has, in the economy, been shown to permit better ecological, economic and social outcomes.

B6. Nature managed by indigenous peoples and local communities is under increasing pressure. Nature is generally declining less rapidly in indigenous peoples' land than in other lands, but is nevertheless declining, as is the knowledge of how to manage it. At least a quarter of the global land area is traditionally owned, managed, used or occupied by indigenous peoples.

C. Goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond may only be achieved through transformative changes across economic, social, political and technological factors

Past and ongoing rapid declines in biodiversity, ecosystem functions and many of nature's contributions to people mean that most international societal and environmental goals, such as those embodied in the Aichi Biodiversity Targets and the 2030 Agenda for Sustainable Development, will not be achieved based on current trajectories. These declines will also undermine other goals, such as those specified in the Paris Agreement adopted under the United Nations Framework Convention on Climate Change and the 2050 Vision for Biodiversity. The negative trends in biodiversity and ecosystem functions are projected to continue or worsen in many future scenarios in response to indirect drivers such as rapid human population growth, unsustainable production and consumption and associated technological development. In contrast, scenarios and pathways that explore the effects of a low-to-moderate population growth, and transformative changes in production and consumption of energy, food, feed, fibre and water, sustainable use, equitable sharing of the benefits arising from use and nature-friendly climate adaptation and mitigation, will better support the achievement of future societal and environmental objectives.

C1. Implementation of policy responses and actions to conserve nature and manage it more sustainably has progressed, yielding positive outcomes relative to scenarios of no intervention, but not sufficiently to stem the direct and indirect drivers of nature deterioration. It is therefore likely that most of the Aichi Biodiversity Targets for 2020 will be missed.

C2. Nature is essential for achieving the Sustainable Development Goals. However, taking into consideration that the Sustainable Development Goals are integrated and indivisible, as well as implemented nationally, current negative trends in biodiversity and ecosystems will undermine progress towards 80 per cent (35 out of 44) of the assessed targets of goals related to poverty, hunger, health, water, cities, climate, oceans and land (Sustainable Development Goals 1, 2, 3, 6, 11, 13, 14, and 15).

C3. Areas of the world projected to experience significant negative effects from global changes in climate, biodiversity, ecosystem functions and nature's contributions to people are also home to large concentrations of indigenous peoples and many of the world's poorest communities.

C4. Except in scenarios that include transformative change, negative trends in nature, ecosystem functions and in many of nature's contributions to people are projected to continue to 2050 and beyond, due to the projected impacts of increasing land/and sea-use change, exploitation of organisms and climate change.

C5. Climate change is projected to become increasingly important as a direct driver of changes in nature and its contributions to people in the next decades. Scenarios show that meeting the Sustainable Development Goals and the 2050 Vision for Biodiversity depends on taking into account climate change impacts in the definition of future goals and objectives.

D. Nature can be conserved, restored and used sustainably while simultaneously meeting other global societal goals through urgent and concerted efforts fostering transformative change

Societal goals – including those for food, water, energy, health and the achievement of human well-being for all, mitigating and adapting to climate change and conserving and sustainably using nature – can be achieved in sustainable pathways through the rapid and improved deployment of existing policy instruments and new initiatives that more effectively enlist individual and collective action for transformative change. Since current structures often inhibit sustainable development and actually represent the indirect drivers of biodiversity loss, such fundamental, structural change is called for. By its very nature, transformative change can expect opposition from those with interests vested in the status quo, but such opposition can be overcome for the broader public good. If obstacles are overcome, commitment to mutually supportive international goals and targets, supporting actions by indigenous peoples and local communities at the local level, new frameworks for private sector investment and innovation, inclusive and adaptive governance approaches and arrangements, multi-sectoral planning and strategic policy mixes can help to transform the public and private sectors to achieve sustainability at the local, national and global levels.

D1. The global environment can be safeguarded through enhanced international cooperation and linked locally relevant measures. The review and renewal of agreed environment-related international goals and targets based on the best available scientific knowledge and the widespread adoption and funding of conservation, ecological restoration and sustainable use actions by all actors, including individuals, are key to this safeguarding.

D2. Five main interventions (“levers”) can generate transformative change by tackling the underlying indirect drivers of nature deterioration: (1) incentives and capacity-building; (2) cross-sectoral cooperation; (3) pre-emptive action; (4) decision-making in the context of resilience and uncertainty; and (5) environmental law and implementation.

D3. Transformations towards sustainability are more likely when efforts are directed at the following key leverage points, where efforts yield exceptionally large effects (Figure SPM.9): (1) visions of a good life; (2) total consumption and waste; (3) values and action; (4) inequalities; (5) justice and inclusion in conservation; (6) externalities and telecouplings; (7) technology, innovation and investment; and (8) education and knowledge generation and sharing.

D4. The character and trajectories of transformation will vary across contexts, with challenges and needs differing, among others, in developing and developed countries. Risks related to inevitable uncertainties and complexities in transformations towards sustainability can be reduced through governance approaches that are integrative, inclusive, informed and adaptive.

D5. Recognizing the knowledge, innovations and practices, institutions and values of indigenous peoples and local communities and their inclusion and participation in environmental governance often enhances their quality of life, as well as nature conservation, restoration and sustainable use, which is relevant to broader society. Governance, including customary institutions and management systems, and co-management regimes involving indigenous peoples and local communities, can be an effective way to safeguard nature and its contributions to people, incorporating locally attuned management systems and indigenous and local knowledge.

D6. Feeding humanity and enhancing the conservation and sustainable use of nature are complementary and closely interdependent goals that can be advanced through sustainable agricultural, aquacultural and livestock systems, the safeguarding of native species, varieties, breeds and habitats, and ecological restoration.

D7. Sustaining and conserving fisheries and marine species and ecosystems can be achieved through a coordinated mix of interventions on land, in freshwater and in the oceans, including multilevel coordination across stakeholders on the use of open oceans.

D8. Land-based climate change mitigation activities can be effective and support conservation goals {Table SPM1}. However, the large-scale deployment of bioenergy plantations and afforestation of non-forest ecosystems can come with negative side effects for biodiversity and ecosystem functions.

D9. Nature-based solutions can be cost-effective for meeting the Sustainable Development Goals in cities, which are crucial for global sustainability.

D10. A key constituent of sustainable pathways is the evolution of global financial and economic systems to build a global sustainable economy, steering away from the current limited paradigm of economic growth.

(Based on https://www.ipbes.net/sites/default/files/downloads/summary_for_policym... launched 6 May 2019. See the full summary for further details.)

About the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

Often described as the “IPCC for biodiversity”, IPBES is an independent intergovernmental body comprising more than 130 member Governments. Established by Governments in 2012, it provides policymakers with objective scientific assessments about the state of knowledge regarding the planet’s biodiversity, ecosystems and the contributions they make to people, as well as the tools and methods to protect and sustainably use these vital natural assets. Its full report of about 1,500 pages will be published later in 2019. For more information about IPBES and its assessments visit www.ipbes.net

Things you can do to protect biodiversity

The following are suggestions for simple actions that almost anyone can do to protect biodiversity. If you have other suggestions, please send them to info@iefworld.org.

AT HOME

- Avoid using pesticides and other chemicals dangerous to living things
- Minimize your use of antibiotics, only when a doctor prescribes them for a microbial infection; they can continue to affect microbes in nature
- Plastics are contaminating the world: reduce, reuse and recycle; never discard them in nature
- Cats are a disaster for biodiversity; do not let them roam freely, or use collars and bells
- For noxious fauna like mice and rats, use traps rather than poisons that can affect scavengers and other wildlife
- Bring nature into your home; house plants and urban gardens are good for health
- There is room for nature in the city, in street trees, parks, roof gardens, vegetative roofs, and even on balconies

IN YOUR GARDEN OR FARM

- Practice organic gardening for both home landscaping and a vegetable or herb garden
- Favour trees where space allows, prefer native trees or fruit trees, and cut a tree only when absolutely necessary
- Plant for diversity in your garden
- Avoid, and if necessary combat, invasive species; check on exotics before introducing them to your garden
- Create and maintain hedges and hedgerows around plots and fields

- Use plantings favourable to animals, birds and insects
- If a lawn is not used for recreation, consider replacing it by more productive plantings
- If you need to maintain open spaces, mow selectively and leave some unmowed patches as habitat
- Install nesting boxes and bird feeders
- Use low till or no-till agriculture to protect soil fauna
- Compost to restore or maintain soil fertility
- Stabilize soils and maintain vegetation cover to prevent erosion
- Protect ponds, streams and watersheds from drainage of chemicals, pollutants, fertilizers and sewage, especially in storm runoff
- On a farm, leave some natural areas that can help to maintain defences against pests, and control erosion

WHEN YOU ARE IN NATURE

- In natural areas, do not walk off trails in winter and during the breeding season to avoid disturbing animals and birds
- Control dogs when walking in natural areas to avoid scaring wildlife
- Carry out all your waste

AS A CONSUMER

- Never buy goods containing products of endangered species like ivory, furs, or certain traditional medicines
- Heavy pesticide use in agriculture threatens biodiversity and human health, so consider practices in the places you buy food and other goods from, and prefer organic
- Tropical deforestation is driven by demand for meat, soybeans, palm oil, cocoa, coffee and other products, so reducing our consumption, selecting sustainably-produced products or preferring locally-produced items is essential.
- If you travel to or vacation in natural areas, be sure that your actions respect nature and its biodiversity; avoid encouraging tourism that destroys natural areas
- Buy seafood from sustainably-managed fisheries (MSC) or aquaculture (ASC)
- Buy paper and wood products from sustainably managed forests (FSC)
- Roads and traffic outside cities impact wildlife; prefer public transport over personal motor vehicles



Diverse lawn at the Baha'i House of Worship in Langenhain, Germany