The 11th Annual Horizon Scan of Emerging Opportunities and Threats of Biodiversity 2020

The Horizon Scan of Emerging Global Biological Conservation Issues for 2020 presented fifteen issues the constitute threats to and opportunities for biodiversity. Scientists and conservation professionals narrowed down a list of 89 issues to 38 issue first, then to fifteen issues that are the most emerging effects on global biological conservation as published in the journal *Trends in Ecology & Evolution*.

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We list some of the top picks that highlighted important positive and negative issues identified in 11th annual horizon scan.

Cellulose as good product with bad outcomes

Cellulose helps with removing carbon dioxide and reducing the demand for environment-harming plastics. Its use in packaging and construction raised the demand to 18% per year. This higher demand for cellulose may threaten the biodiversity of forests and disturb habitat.

Wood as an alternative fuel

After the European Union classified wood as a renewable energy, the import of timber from several countries into Europe has increased. Such higher demand may no longer be satisfied by current exporters which could promote the the intensification of European forestry. This would accelerate the loss of primary forest and have a dramatical effects the climate change and biodiversity.

Sunflowers as nutritious plants of bees

Perils such as pesticides and diseases decimate the population of bees and other pollinators. A research published in US reported that sunflowers pollen reduces gut infections in bumblebees, which negatively impact the productive process of the pollinators. These results may lead to a massive planting of sunflowers. As sunflowers are considered less nutritious to other bees apart from bumblebees, the mass planting of sunflower could negatively affect other bee species, which depend on alternative plants for more nutritional values.

Kelp forests are disappearing

Kelp is well known for its important benefits such as protecting shores from erosion and providing shelter to a numerous maritime species in addition to commercially important fishstock. The raise in ocean temperature in addition to pollution and other factors lead to a dramatical decline in kelp forests. This decline compromises ocean ecosystems and may results in an economic loss of billions of dollars.

Antarctic ice: Serious consequences

The rise in the atmospheric temperatures contributes to the retreat of polar ice. Scientists are trying to understand how reducing the ozone hole is contributing to the melting of Antarctic ice. The consequences of the vanishing of large parts of polar ice are obvious: Sea levels would rise significantly, threatening the existence of coastal communities and heavily disturbing littoral species.

Overall, horizon scanning aims to improve the robustness of policies and to provide new insights, opening up potentials for a more sustainable future of global biodiversity.

Reference

The Guardian. (2019, December 5). Biodiversity in 2020: the biggest threats and opportunities. Retrieved December 13, 2019 from: https://www.theguardian.com/environment/2019/dec/05/biodiversity-in-2020-the-biggest-threats-and-opportunities-aoe

Annex:

UN Convention on Biological Diversity's science body provides advice critical for next year's UN Biodiversity Conference (*PDF on Pages 5-7 of this News section*)

COP25: The annual United Nations' climate talk

In 2015, the Paris climate summit took place with representatives of almost 200 countries. The agreement's long-term goal was to limit global warming to no more than 2°C. However, pledges to limit carbon emission seem to be out of reach as a new peak of greenhouse gas emissions has been recorded in 2018, which meant that emissions are continuing to raise.

An annual United Nations' climate talk, COP25, took place in Madrid 5-13 December 2019, focused on the international carbon emissions trading which could reduce the cost of climate change mitigation. Article 6 of Paris agreement, encouraging voluntary collaboration between nations, was on the table for discussion.

The participating nations had over the last years succeeded in introducing rules for emissions tracking. This year, they failed to agree on rules regarding carbon trading. Carbon trading is a scheme which allows buying and selling permits to emit carbon dioxide. It enables countries with high emission and countries with relatively low emissions to satisfy their respective carbon emission requirements.

The parties to the COP also argued over the voluntary offsetting scheme which promotes certain services to be ''carbon neutral''. Many countries criticized this offsetting scheme, as they see that economically advanced countries may use it to avoid their responsibilities in achieving the required goal of emission reduction. Unplanned offsetting schemes could prevent the required goal of global emission to be reached, as efforts to reduce the emissions could be simply avoided and moved between the countries.

As the climate-protest movement is rapidly growing, this year's meeting also faced intensifying public pressure. Moreover, the United States' official withdrawal from the Paris agreement affected this year's talk. However, the US will continue as a member of Kyoto Protocol and the Paris agreement, and the UN Framework Convention on Climate Change. Yet they will no longer take part in any future COP meetings, except for the next year's meeting, unless it revokes the decision to withdraw from the Paris agreement.

The world leaderships are focusing efforts to reduce the disturbance of Earth's climate by greenhouse gas. New hopes to reduce emissions are being represented by the 'climate and environmental emergency', a move on which the European Parliament voted to promote the EU countries to curb emissions by 55% by 2030, and to achieve net-zero emissions by 2050.

Reference

Schiermeier, Q. (2019, December 5). Carbon markets shape agenda at UN climate summit. *Nature*, *576*(7785), 17. Retrieved December 12 from *https://www.nature.com/articles/d41586-019-03695-x*

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An avoidable health risk: Air pollution reduction leads to prompt remarkable health benefits

Air pollution is a hazard that can lead to harmful health impact on humans, animals, and plants. Emissions from factories, cars, and planes are among the main causes of air pollution. Fortunately, by reducing air pollution, these mischievous impacts are not only possible to be avoided, but health can also enhanced in a matter of short period.

A report revealed by the Environmental Committee of the Forum of International Respiratory Societies (FIRS) addresses the prompt and spectacular improvements in health-outcomes promptly after reducing air pollution. The report examines the outcomes of different interventions conducted by several countries in order to reduce air pollution.

The smoking ban in Ireland was one of the distinctive mentioned examples. Starting at week one, the ban brought astonishing health benefits foremost among non-smokers, such as a decrease of all-cause mortality with 13%, a 32 % reduction in stroke and a 26% reduction in ischemic heart disease.

In Utah, the United States, a closure of a steel mill for 13 months yielded a 40% decrease in school absenteeism. More importantly, hospitalizations for pneumonia, pleurisy, bronchitis and asthma were reduced by half.

Prompt health benefits were also noteworthy following the restrictions applied on transportation by each of Georgian and Chinese governments during the Olympics. In a matter of weeks, hospitalizations for asthma cases dropped remarkably.

In addition to city-level regulations, individuals' actions could also contribute in air pollution reduction within the home. Statistics of pregnant Nigerian women who used clean cook stoves that helps with indoor reduction of air pollution had reported higher birth weights, greater gestational age at delivery, and less perinatal mortality.

On an economical level, the enactment of the Clean Air Act in US resulted in 2 trillion dollars of savings in 25 years. This environmental policy was announced as one of the most effective public health policies of all time in the United States.

The report concludes that air pollution is avoidable and can result in fundamental and, most importantly, immediate health gains. Thus, Dr. Dean Schraufnagel, lead author of the report, emphasizes the critical rule of governments in immediate adopting and enforcing of WHO guidelines for air pollution. Moreover, he suggests sweeping policies and local programs that contribute in a better air pollution reduction.

Reference

American Thoracic Society. (2019, December 6). Dramatic health benefits following air pollution reduction. *ScienceDaily*. Retrieved December 10, 2019 from *www.sciencedaily.com/releases/2019/12/191206173634.htm*

PRESS RELEASE

UN Convention on Biological Diversity's science body provides advice critical for next year's UN Biodiversity Conference

- *Governments identified key elements of the scientific base needed to build post-2020 global biodiversity framework.*
- *New ecologically or biologically significant marine areas in the North-East Atlantic catalogued.*
- *Parties recognized urgency of tackling biodiversity loss and climate change through ecosystem-based approaches to climate change adaptation, mitigation and disaster risk reduction.*

1 December 2019 – The Convention on Biological Diversity's (CBD) subsidiary body on science suggested elements of the science base that will be used at next year's biennial UN Biodiversity Conference[1] in Kunming, China that will include discussions on an ambitious, transformative and effective post-2020 global biodiversity framework.

Some 673 delegates representing 118 countries convened in Montreal for the twenty-third meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-23), held from 25-29 November. The agreed recommendations include decisions suggested to be adopted at the UN Biodiversity Conference.

"The results of SBSTTA-23 illustrated the critical role this scientific body of the Convention plays in ensuring that all work under it is underpinned by sound science," said Elizabeth Maruma Mrema, Acting Executive Secretary. "To that end, Parties have identified key elements of the scientific base for the development of the post-2020 global biodiversity framework. While much work remains to be done, we are well on our way to achieve a framework that is both ambitious and effective."

In late 2020, the 196 Parties to the Convention will adopt the post-2020 global biodiversity framework. This global agreement will offer an unparalleled opportunity to advance progress on the conservation, restoration, and sustainable use of biodiversity, while strengthening interlinkages between biodiversity, climate change and sustainable development agendas.

Development of this framework is based on an open and transparent consultative process, engaging all Parties and stakeholders in a meaningful and integrated manner. The process is informed by best available science and evidence base learning also from relevant global and other assessments., such as the IPBES Global Assessment.

[1] Fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity; Tenth meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety; Fourth meeting of the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol on Access and Benefit-sharing; Kunming, China, October 2020.

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At SBSTTA-23, governments agreed on the following recommendations:

Informing the Scientific and Technical Evidence Base for the Post-2020 Global Biodiversity Framework: Parties stressed the need for action to address indirect and direct drivers of biodiversity loss, and to tackle climate change and land degradation in an integrated manner. This includes scaling up existing measures and initiating steps to achieve transformative change. Parties further recognized that to achieve the 2050 vision of the CBD: 'living in harmony with nature,' changes are needed in finance and economics that support pathways to sustainability.

Biodiversity and Climate Change: Parties recognized that biodiversity loss, climate change, desertification and land degradation are inseparable, interdependent challenges of "unprecedented severity." Parties noted that limiting the global average temperature increase to 1.5°C above pre-industrial levels is not sufficient to halt biodiversity loss but would significantly reduce it. Parties noted that nature-based solutions provide approximately 37 per cent of climate change mitigation needed by 2030 to keep warming below 1.5°C . Ecosystem-based approaches to climate change adaptation, mitigation and disaster risk reduction are indispensable to achieving multiple globally agreed goals, including the Paris Agreement and the sustainable development agenda.

Possible Elements of Work on the Links Between Nature and Culture in the Post-2020 Biodiversity Framework: The Scientific Body built on the results of the previous eleventh meeting of the Convention's Working Group on Traditional Knowledge and Indigenous Peoples and Local Communities. Parties considered increased interagency cooperation bringing together the CBD, United Nations Educational, Scientific and Cultural Organization, IUCN and indigenous peoples and local communities, and other partners to integrate biological and cultural diversity - Nature and Culture - in the development of the post-2020 framework.

Sustainable Wildlife Management: Parties recognized the importance of the sustainable use of biodiversity in wildlife management, including the contribution of indigenous peoples and local communities. They agreed to strengthen collaboration among multilateral environment agreements and international organizations to tackle illegal and unsustainable use and trade of wildlife trade. Additional work is still required to implement decisions on sustainable wildlife management, and voluntary guidance for a sustainable wild meat sector.

Technical and Scientific Cooperation: Parties recognized the importance of technical and scientific cooperation to implement the post-2020 framework. Such cooperation will need to extend across a wide range of fields and disciplines to support the mainstreaming of biodiversity. SBSTTA asked for additional views and suggestions for matters such as technology horizon scanning, assessment and monitoring, and examples of effective institutional mechanisms, partnerships, networks, and regional and subregional institutional arrangements.

Results of The Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas in the North-East Atlantic Ocean: Parties considered the outputs of a regional workshop that described 17 areas meeting the criteria for ecologically or biologically significant marine areas (EBSAs) in the North-East Atlantic Ocean and adjacent areas. These results fill an important geographical gap in the work under the Convention to describe EBSAs globally. Parties also acknowledged the collaboration of the Convention for the Protection of the Marine Environment of the North-East Atlantic and the North-East Atlantic Fisheries Commission and their pioneering work related to EBSAs in the North-East Atlantic Ocean. Parties encouraged continued efforts to describe EBSAs using the best available science and emphasized that EBSAs can inform the development of the post-2020 global biodiversity framework.

New and emerging issues: Parties deferred consideration of whether synthetic biology would be classified as a new and emerging issue to its twenty-fourth meeting, and recommended that pending the outcome of that meeting, the Conference of the Parties not to add new and emerging issues to the SBSTTA agenda in the coming biennium.

NOTES TO EDITORS

The Subsidiary Body on Scientific, Technical and Technological Advice, the intergovernmental body responsible for providing scientific, technical and technological advice related to the implementation of the Convention, plays a key role in assessing the current status of the world's biodiversity, identifying solutions and in bringing emerging issues related to the conservation and sustainable use of biodiversity to the attention of the global community.

Meeting documents: www.cbd.int/conferences/sbstta23-8j11/sbstta-23/documents

Convention on Biological Diversity (CBD)
Opened for signature at the Earth Summit in Rio de Janeiro in 1992, and entering into force in December 1993, the Convention on Biological Diversity is an international treaty for the conservation of biodiversity, the sustainable use of the components of biodiversity and the equitable sharing of the benefits derived from the use of genetic resources. With 196 Parties, the Convention has near universal participation among countries. The Convention seeks to address all threats to biodiversity and ecosystem services, including threats from climate change, through scientific assessments, the development of tools, incentives and processes, the transfer of technologies and good practices and the full and active involvement of relevant stakeholders including indigenous and local communities, youth, NGOs, women and the business community. The Cartagena Protocol on Biosafety and the Nagoya Protocol on Access and Benefit Sharing are supplementary agreements to the Convention. The Cartagena Protocol, which entered into force on 11 September 2003, seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology. To date, 172 Parties have ratified the Cartagena Protocol. The Nagoya Protocol aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies. It entered into force on 12 October 2014 and to date has been ratified by 123 Parties.

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