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**United Nations
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**United Nations Environment Assembly of the
United Nations Environment Programme
Fifth session**

Nairobi (online), 22–26 February 2021*
Item 5 of the provisional agenda**

**International environmental policy and
governance issues**

**Compilation of statements and recommendations by major
groups and stakeholders from North America for consideration
by the United Nations Environment Assembly at its fifth
session*****

Note by the secretariat

Introduction

1. The annex to the present report sets out the outcomes of regional meetings of major groups and stakeholders in North America held during 2020 in preparation for the fifth session of the United Nations Environment Assembly of the United Nations Environment Programme. The statements, key messages and recommendations are reproduced as received, without formal editing.
2. In preparation for the fifth session of the Environment Assembly, the North America Office of the United Nations Environment Programme (UNEP North America) hosted a series of six virtual consultation workshops on the theme “Strengthening actions for nature to achieve the Sustainable Development Goals.” In partnership with MIT Solve, the World Environment Centre and the United Nations Associations in Canada and the United States of America, UNEP North America convened over 400 North American stakeholders across the nine Major Groups to explore the topic of nature as a solution to the climate and biodiversity crises.

* In accordance with the decisions taken at the meeting of the Bureau of the United Nations Environment Assembly held on 8 October 2020 and at the joint meeting of the Bureaux of the United Nations Environment Assembly and the Committee of Permanent Representatives held on 1 December 2020, the fifth session of the Assembly is expected to adjourn on 23 February 2021 and resume as an in-person meeting in February 2022.

** UNEP/EA.5/1/Rev.1.

*** The present document is being issued without formal editing.

Annex

North American regional input to UNEA-5

Executive Summary

1. In preparation for the fifth session of the United Nations Environment Assembly (UNEA-5), the United Nations Environment Programme's North America Office (UNEP North America) hosted a series of six virtual consultation workshops on the theme of "Strengthening Actions for Nature to Achieve the Sustainable Development Goals." In partnership with MIT Solve, the World Environment Center, and the United Nations Associations in Canada and the United States, UNEP North America convened over 400 North American stakeholders across the Major Groups to explore the topic of nature as a solution to the climate and biodiversity crises.

2. Building on the distributed consultation model implemented in preparation for UNEA-4, UNEP North America and its partners designed this regional consultative process to ensure broad and diverse stakeholder participation in UNEA-5, given the challenges and restrictions imposed by the COVID-19 pandemic. Playing a crucial role in the design and implementation of the process were the four UNEA Regional Facilitators for North America. The Regional Facilitators were nominated by UNEA-accredited organizations, UNEP partners, and other stakeholders in the region, and were chosen by UNEP North America. They are:

(a) Regional Facilitator (Canada): Jennifer Garard, Science Officer, Future Earth

(b) Alternate Regional Facilitator (Canada): Dan Burns, Board Member, One Earth Initiative

(c) Regional Facilitator (United States): Anne Bowser, Director of Innovation, Woodrow Wilson International Center for Scholars

(d) Alternate Regional Facilitator (United States): Celeste Connors, Executive Director, Hawai'i Green Growth

3. The six consultations were executed as follows:

(a) 20 May 2020: Youth consultation (United States), in partnership with United Nations Association of the United States of America, via their Global Engagement Online Series Platform

(b) 18 June 2020: Youth consultation (Canada), in partnership with the United Nations Association in Canada

(c) 3 September 2020: Public sector consultation (Canada), in partnership with the United Nations Association in Canada

(d) 24 September 2020: Private sector consultation (Canada), in partnership with the United Nations Association in Canada

(e) 8 October 2020: "Apex" major groups consultation (United States and Canada), in partnership with MIT Solve

(f) 14 October 2020: Private sector consultation (United States and Canada), in partnership with MIT Solve and the World Environment Center

4. In each consultation, participants were asked to share examples of nature-based solutions and best practices in North America, reflecting on both successes and challenges, and to formulate key messages to policy makers about the enabling conditions needed to scale these best practices. In addition to highlighting strong North American examples of nature-based solutions, discussions across the six consultations converged around the following common themes and key messages.

5. **Both top-down and bottom-up approaches must work in tandem to achieve effective, long-term solutions to the climate and biodiversity crises.** Participants called for clear commitments from government at all levels to a green recovery from COVID-19, including investment in nature-based solutions, renewable energy, and circular economy to address the climate and biodiversity crises. With leadership at the national level, governments can then set shared goals for a municipality or a region which have broad jurisdictional agreement and support, but focus on smaller-scale, local projects as an implementation strategy. Participants emphasized the need to support, incentivize, and scale up solutions happening at the grassroots level, noting that impactful

localized projects can draw on shared science and replicated approaches, while also being rooted in their unique social and ecological context.

6. **Co-designing nature-based solutions with stakeholders at the local level, particularly with indigenous communities, is key.** Given the abundance of nature-based solutions being implemented at the local level, and the intimate knowledge of sustainable land and resource management in indigenous communities, decision-makers should prioritize community and indigenous input on policies to support nature-based solutions. Participants suggested that engaging local and tribal groups early and often in designing nature-based solutions could help build trust and ease the process of planning and implementing actions for nature. Ensuring appropriate cross-scale interactions would also be necessary in order to scale input from local levels and to learn from local experiences across the region.

7. **Cross-sector collaboration is required to implement and sustain nature-based solutions.** Participants stressed that complex problems require complex solutions. The regular convening of diverse stakeholders could also foster the cross-sector collaboration and public-private partnerships needed to systemically tackle the climate and biodiversity crises. Participants highlighted the need for feedback loops between the research and policy community and between the policy community and the private sector, for example, to strengthen approaches to nature-based solutions. Through these partnerships, actors across sectors can lead by example, demonstrating the diverse benefits of nature-based solutions and inspiring further collaboration on actions for nature.

8. **Empowering youth and communities through education can inspire the sustainable lifestyle transition and behaviour change needed to achieve the SDGs.** There was a universal call in each consultation, but most strongly in the youth-focused discussions, for Environment and Education Ministers to focus on empowering actions for nature through education. Participants suggested starting early – instilling a deep appreciation for nature and commitment to sustainability – and developing year-round core curriculum and educational programming that support this shift for students of all ages. These changes should be implemented across disciplines, including the natural sciences, economics, and business, emphasizing interconnectivity and systems change. Participants emphasized that implementing sustained environmental education can help overcome common entrenched viewpoints and misconceptions about environmental action, create shared value, and ultimately empower youth to become stewards of the environment in their communities.

9. **Innovation, data, and technology have an unprecedented role to play in designing and demonstrating the benefits of nature-based solutions.** Participants noted that the climate, biodiversity, and COVID-19 crises are immense challenges, but also immense opportunities to jump-start innovation for nature. New technologies offer effective, efficient ways to implement nature-based solutions and quantify their impact. Participants stressed that open-source data can bring credibility, accountability, and monitoring to nature-based solutions. Demonstrating impact through data sharing can, in turn, empower local projects to build on successful models and implement strategic nature-based solutions in their own unique contexts. Further, scaling up innovative methods and technologies provides a prime opportunity for cross-sector collaborations to strengthen nature. Participants also cautioned that issues such as data sovereignty and privacy must be explicitly addressed in collaboration with stakeholders across scales.

10. **The standardization of language and metrics around nature-based solutions is needed to define collective rules and impact.** Participants highlighted the discordant understanding of nature-based solutions across sectors and jurisdictions. At the outset, stakeholders would benefit from a common definition of nature-based solutions and additional clarification of their diverse co-benefits. In designing and implementing nature-based projects, participants suggested that permitting and reporting requirements must also be standardized, while allowing replication across diverse sites, supply chains, and local contexts. Following implementation, stakeholders would also benefit from standard requirements for the calculation and verification of project impact. Participants noted that making this kind of information available and standardizing processes for the implementation of nature-based solutions would be particularly beneficial in the finance sector, for investors who are interested in environmental impact, but are not experts in nature-based solutions or natural capital.

11. **Stakeholders must invest in nature, financing and de-risking nature-based solutions.** As participants noted in each consultation, local efforts to strengthen nature can be a key approach to reach larger sustainability goals, yet local nongovernmental organizations, community groups, and governments often have the least budget capacity to build knowledge. National or state-level government, philanthropic, and/or private funding can fill the gap in resources needed to enable clear goal-setting, adaptation, and implementation of nature-based projects. This support should be

multi-year whenever possible, to allow for the time necessary to establish new approaches, measure project impacts, and identify best practices. Participants highlighted the possibility of instruments such as economic incentives, green bonds, biodiversity offsets, public procurement standards, and reinsurance mechanisms to encourage investment in nature, while demonstrating the cost-saving co-benefits of nature-based solutions.

12. **Private sector entities should rise to the challenge of integrating sustainability into core business values.** In consultations focused on engaging the private sector, participants noted that integrating sustainability and nature-based solutions throughout company objectives takes significant work and buy-in from leadership, but may be the only way to have durable impacts. Several participants discussed challenges around mismatched supply chain visibility and impact – that the sections of the supply chain with high impact are often several steps removed from public-facing brands or those making decisions on sustainability. Yet these challenges present opportunities: investing in innovation, facilitating meaningful and ongoing community engagement, and internalizing environmental costs wherever possible. Integrating nature-based solutions into core business approaches is needed to achieve long-term sustainability at all levels of the supply chain.

13. A compendium of individual summary reports from the six virtual consultation workshops is included in this report to provide more detailed insight into each group’s discussion around the above themes.

I. North American nature-based solutions

14. The following examples of regional nature-based solutions were identified during the course of the North American consultative process in the lead-up to UNEA-5. In each consultation, participants were invited to share nature-based solutions and best practices in North America, reflecting on both successes and challenges. UNEP North America, with the help of MIT Solve, also conducted a survey in advance of the 8 October and 14 October consultations, allowing consultation participants and other stakeholders to submit strong examples prior to convening.

A. ALUS Canada

15. [ALUS](#) is a voluntary, principle-based Payment for Ecosystems Services program installing nature-based solutions and ecological services on farms and ranches across 27 rural communities in Canada. With more than 800 participants, the ALUS program is currently funding more than 15,500 nature-based projects that restore wetlands, reforest, plant windbreaks, install riparian buffers, manage sustainable drainage systems, create wildlife and pollinator habitats, and establish other ecologically beneficial projects on their properties. Projects contribute to climate resiliency (flood, drought, wind/storm mitigation), sustainable agriculture (water security, pollination, beneficial insects), economic resiliency (creating a revenue stream for farmers, local jobs), and natural infrastructure (stormwater/surfacewater management, reduction of water treatment costs).

16. ALUS has developed information and financial systems to ensure transparency and accountability for investors who comprise a combination of government, corporate, and philanthropic revenue streams. Farmers and ranchers are central to the program, working with the local committees (which include local producers) to design and manage their projects. ALUS is also a pay-for-performance program, in that farmers and ranchers sign contracts and are obligated to do annual project maintenance, creating incentive for project success and sustainability. The program is exceptionally popular because it is voluntary, respects private property rights, and puts farmers and ranchers at the heart of environmental solutions.

B. Arizona State University: Adaptive multi-paddock grazing study

17. In 2018, Arizona State University scientists launched a [research project](#) focused on adaptive multi-paddock grazing and its potential to draw down material amounts of atmospheric CO₂ in the Southeast and Great Plains regions of the U.S. Adaptive multi-paddock grazing (AMP) is a form of rotational grazing in which one paddock is grazed for a short period of time and at a high stock density, while other paddocks are allowed an adequate period of forage rest and recovery. Working directly with cattle ranchers, the project seeks to measure and identify beneficial systems within farms and ranches to explore connections between regenerative grazing and 1) carbon sequestration; 2) water infiltration and retention; 3) soil microbial, plant, insect, and wildlife biodiversity; 4) livestock and rancher well-being; and 5) greenhouse gas cycling. Research has shown that AMP grazing has a lower operating expense than conventional grazing and increases ranch and farm productivity by up 400%, in addition to producing cost- saving ecosystem regeneration.

18. The AMP grazing research project is funded by a grant from the non-profit Foundation for Food and Agriculture Research, a nonprofit established in the 2014 Farm Bill, matched with funding from McDonalds USA. The project was designed to be the initial step in scaling, incentivizing farms to adopt ecologically and financially beneficial regenerative practices.

C. Eco2Urb: iConnectivity & SylvCit

19. [Eco2Urb](#) in Montreal, Quebec was founded in 2018 in response to the growing demand for analysis and management of the diversity, connectivity, and ecosystem services supplied by natural ecosystems and urban green infrastructure. Using leading-edge connectivity science developed by Dr. Andrew Gonzalez at McGill University, Eco2Urb designed the Connect2 toolkit, which is used to co-design nature-based solutions with municipalities, indigenous groups, and government ministries across Quebec. The toolkit provides open source data on the cost-saving potential of nature-based solutions in a variety of landscapes, in addition to models and decision-support tools for implementation. For example, in a recent collaboration with the David Suzuki Foundation, Eco2Urb evaluated the contribution of urban trees and natural infrastructure on the island of Montreal, showing that the urban trees alone provide the equivalent of more than \$4 million per year of ecosystem services. This data was used to map areas of high conservation priority and provide recommendations for integrating natural infrastructure in urban planning and protecting those areas that contribute most to the well-being and health of citizens.

20. Eco2Urb is also collaborating with the municipality of Varennes, Quebec, to develop an urban forest assessment and management plan using SylvCit, an artificial intelligence tool designed to optimize the resilience of urban and peri-urban forests in North America. Developed by researchers at the Université du Québec à Montréal, SylvCit provides an analysis of an urban canopy's functional diversity, vulnerability to current and future stressors, probable longevity, and practical recommendations to improve the health of the urban forest and the ecosystem services provided. In the U.S, it is estimated that urban trees generate \$18.3 billion in annual value from air pollution removal, reduced building energy use, carbon sequestration, and avoided pollutant emissions (Nowak and Greenfield 2014). Thus far, the application has been developed for trees in North America, but SylvCit can be used for any city or private forest, helping forest managers establish science-based planting strategies for areas ranging from a small street to entire forest stands.

D. Blue Forest: Forest Resilience Bond

21. The [Forest Resilience Bond](#) (FRB), designed by the non-profit organization Blue Forest, is an innovative investment vehicle deploying private capital to fund forest restoration activities that mitigate wildfire risk and protect water resources. The FRB is bridging the gap between investors and environmental interventions by developing measurement technology, innovative contracting schemes, and financial structures that will allow private capital to fund land management, all while ensuring that public land remains public and mitigating wildfire risk. Investment capital for the FRB is raised from foundations, insurance companies, and impact investors to cover the costs of implementing restoration. Beneficiaries then share in the cost of reimbursing investors over time.

22. In the FRB's first pilot project, Blue Forest and the Tahoe National Forest launched the Yuba Project, providing \$4 million in private capital from four investors to finance ecological restoration treatments across 15,000 acres of national forest. The State of California and the Yuba Water Agency are repaying investors at contracted rates as restoration work is completed, with the Tahoe National Forest providing in-kind support and funding for project planning, development, and execution. FRB financing made it possible for the Tahoe to accelerate landscape restoration work and complete projects in just 4 years instead of the projected 10 to 12 years.

E. Central Arkansas Water: Green Bond

23. Central Arkansas Water (CAW), in partnership with the World Resources Institute and Encourage Capital, recently prepared and issued an innovative \$31 million U.S. [municipal green bond](#), the first of its kind to earmark proceeds for acquiring and protecting forests in order to secure clean drinking water. Recognizing the growing threat that development poses to the central Arkansas drinking watershed, 35% of the green bond proceeds will be used to acquire 4,500 forested acres around Lake Maumelle and its tributaries. The remainder of the funds will be used to develop traditional water infrastructure. This approach will allow CAW to achieve the milestone of 45% protection of the watershed which provides drinking water to the almost half a million residents of the greater Little Rock, Arkansas area.

24. By bonding a dedicated watershed protection fee and building resiliency into current water infrastructure, this green/gray approach protects the drinking watershed while also financing tens of thousands of tons of forest carbon storage. As stewards of public services, utilities and municipalities can replicate this model, evaluating and quantifying the benefits of ecosystems such as forests, mangroves, salt marshes, and wetlands, in providing enhanced protection from disasters to filtration services.

F. Unilever: ending deforestation in the supply chain

25. In 2020, Unilever launched a program in partnership with Google Cloud leveraging satellite technology to monitor the forests, biodiversity, and water cycles that interact with the company's supply chain. In the first ever commercial application of Google Earth's imaging technology for sustainable commodity sourcing, Unilever will collect and analyze geolocation data to ensure that the land from which the company sources raw materials is not connected to deforestation.

26. Focusing initially on using this data to source sustainable palm oil, Unilever will subsequently scale the project to include additional commodities among its more than 400 brands, with the goal of ending deforestation across their entire supply chain by 2023. The data collected through this partnership will help Unilever achieve greater accountability in its supply chain, raise sustainable sourcing standards for suppliers across the globe, and prioritize areas of forests or habitats in need of urgent protection.

G. Nature conservancy: beaver mimicry

27. The Nature conservancy, researchers, and land managers in Montana, Idaho, and California have partnered to create [man-made dams](#) that mimic those built by beavers for nature-based water management and wetland restoration in degraded streams. When beavers create dams and wetlands they reconnect floodplains, improve water quality and storage, provide habitats for threatened native species, and promote the sequestration of carbon in vegetation and soils. Mimicking this process delivers these ecosystem services, while also luring beavers back to streams. This nature-based approach is more cost-effective than other stream restoration approaches that involve realigning or redesigning stream channels using heavy earth-moving equipment.

H. Hawai'i green growth: Aloha+ Challenge

28. The [Aloha+ Challenge](#) is a statewide commitment to achieve Hawai'i's sustainability goals, and a locally driven framework to implement the United Nations Sustainable Development Goals (SDGs). The challenge sets ambitious sustainability targets for the state, including the achievement of 70% clean energy, doubled local food production, protection of 30% of priority watershed forests, 70% solid waste stream reduction, increased resilience in the built environment, and increased local green jobs and education – all by 2030. The Aloha+ Challenge builds on a legacy of community-level nature-based solutions to support collective action, aiming to demonstrate that place-based implementation of the SDGs can be scaled to achieve the global agenda. In a multi-year process, stakeholders across the state collaborated to create the Aloha+ Challenge Dashboard, an online, open-data platform that tracks progress against the Aloha+ Challenge targets, ensuring accountability and transparency.

I. Kitasoo/Xai'xais Nation Marine Use Plan

29. The Kitasoo/Xai'xais Nation has sustainably and naturally harvested Pacific herring roe for generations using kelp and hemlock branches. The roe provides subsistence and crucial economic support for the Nation. To combat the staggering loss of herring stocks caused by commercial fishery and climate change, and the loss of other species which depend on herring as a keystone species, scientists partnered with the native community to develop and implement a [Marine Use Plan](#) for the sustainable management and protection of Pacific herring in the Kitasoo/Xai'xais Nation. The plan establishes comprehensive management models and sets spatial management zones for protected areas. Using traditional knowledge to help guide fisheries management, herring stocks have started to rebound. The Marine Use Plan was subsequently harmonized with other Central Coast Nations' individual plans to create a Central Coast First Nations Marine Use Plan, and was incorporated into British Columbia's larger Marine Planning Partnership initiative.

J. Nā Wai ‘Ekolu

30. [Nā Wai ‘Ekolu](#) is a group of K-12 educators in Honolulu, Hawai‘i, developing and sharing environmental curriculum, and working to monitor and restore the health of the local watershed. The curriculum uses a hands-on, citizen science approach that integrates modern science and traditional cultural knowledge. It is intended to aid schools in building a scientific database of information, analyzing and interpreting data used to monitor and manage watershed health, and developing a greater scientific understanding of watershed biodiversity, climate, infectious disease, flood mitigation, and pollution. Further, Nā Wai ‘Ekolu’s educational approach helps teachers and students connect with the natural world, build an affinity for the health of the ecosystem, and challenge students to solve pressing real-world problems.

K. Garden Club of Honolulu: Women’s Community Correctional Center

31. The Garden Club of Honolulu, Hawai‘i has partnered with local community centers to promote [nature-based education](#) for inmates at the Women’s Community Correctional Center in Kailua. In partnership with the Lani-Kailua Outdoor Circle, the Garden Club supported inmates in obtaining college credits for horticulture classes taught by college faculty, which included a nursery rehabilitation project. This program also oversaw the development of a hydroponic nursery, which taught inmates to grow lettuce to be sold in local markets, which in turn would fund the educational program. The Garden Club also worked with the correctional center to support inmates in maintaining Lei and Lo‘i garden spaces. Inmates cultivate and string together flowers grown in the Lei gardens for traditional flower necklaces and learn to cultivate and harvest native taro in the Lo‘i gardens for sale or consumption.

L. Windward Zero Waste School Hui

32. The [Windward Zero Waste School Hui](#) is a partnership of schools working cooperatively across Oahu in the pursuit of waste reduction, soil restoration, and applied environmental education. This project diverts organics from schools’ waste streams using hot composting and vermicomposting – simple, natural, inexpensive technologies conducted on site. The resulting organic material is then added to gardens, landscaping, and lawns, promoting plant growth, increasing moisture retention, mitigating erosion, promoting biodiversity, and restoring depleted, barren schoolyards to vigorous health. All surplus compost is then sold to the public, raising revenue to support each school’s Garden Fund. Students and school staff contribute to the effort by collecting and sorting waste during the school day, making environmental stewardship not just a special event, but a daily habit.

M. Carbon Neutrality Challenge

33. The [Carbon Neutrality Challenge](#), led by Associate Professor Camilo Mora at the University of Hawai‘i at Mānoa, aims to make Hawai‘i the first carbon-neutral state, offsetting the state’s carbon emissions by planting trees. The challenge website allows citizens to calculate approximately how much CO₂ they generate in a year, estimate the number of trees necessary to sequester those emissions, and register to participate in tree planting events with their fellow community members. In December 2019, one such event brought together over 2,000 volunteers to plant 10,000 native trees in a single day.

N. The Grey Water Project

34. Founded in 2016 by Shreya Ramachandran, a senior at American High School in Fremont, California, the [Grey Water Project](#) is a nonprofit organization promoting the safe reuse of grey water and water conservation through advocacy, grey water curricula, and support for grey water system building efforts. Grey water, or water that is lightly used from things such as showers, sinks, and laundry, makes up to 60% of the used water in an average American household – and it can be reused. A circular approach, reusing grey water reduces individual total water use, which generates several cost savings including the reduction of water treatment, water transport, and the cost of water bills for individual households. The Grey Water Project’s K-12 grey water curriculum can be used for free by schools worldwide, aiming to make grey water reuse just as common as paper and plastic recycling.

O. Save the Planet – Open Doors: housing energy efficiency ratings

35. Fourteen-year-old environmentalist and youth leader Aryan Gautam founded [Save The Planet – Open Doors](#), a federally incorporated environmental non-profit organization in Mississauga, Ontario. In 2020, the organization launched the Housing Energy Efficiency Rating (H.E.E.R.) initiative, which

aims to add a metric of home eco-efficiency to real estate listings in Ontario. Through the rating, the organization hopes to incentivize and reward the implementation of natural solutions in homes and the reduction of a home's carbon footprint, while also educating homeowners about the cost-saving benefits of doing so.

II. UNA-USA global engagement online series: strengthening actions for nature to achieve the Sustainable Development Goals

Summary report

A. Overview

36. The UN Environment Programme (UNEP) North America Office, as part of the regional consultative process in the lead-up to the fifth session of the United Nations Environmental Assembly (UNEA-5), sought to capture North American best practices and perspectives on nature-based solutions in a series of virtual consultation workshops. Stakeholders across the major groups in Canada and the U.S. were invited to share examples of innovative nature-based solutions, reflecting on both successes and challenges, and to formulate key messages to policy makers about the enabling conditions needed to scale these best practices.

37. In partnership with the United Nations Association of the United States of America (UNA-USA), UNEP North America hosted a virtual consultation workshop on May 20, 2020, with youth across the United States to facilitate discussion around three questions:

- (a) How can we generate greater action to strengthen nature at local, national and international levels?
- (b) What particular ideas/experience for nature-based solutions do you have?
- (c) What messages would you send to the world's Environment Ministers on the importance of nature and what we need to do to strengthen it?

38. 50 youth participated in the event, discussing the above questions in four breakout sessions facilitated by members of the UNEP North America team and the North American Regional Representatives.

B. Discussion

39. Across the four breakout groups, fruitful discussions emerged around three major themes.

1. Collaboration and engagement

40. Participants highlighted the need to engage with youth and other diverse groups outside the "usual suspects" in conversations around nature-based solutions. Inclusive messaging, using social media as a tool to engage a diversity of stakeholders, was flagged as an impactful strategy in outreach efforts. Participants emphasized that coordination with grassroots, indigenous, and local communities is key, as these groups are often disproportionately exposed to environmental risks and hazards, yet are often excluded from environmental decision-making processes. Frameworks for getting local perspectives heard in national and global policy circles should be formulated and made widely accessible.

41. Additionally, participants noted that a variety of innovative nature-based solutions are being implemented in these local contexts across North America. For example, in Maryland, local government, businesses, and scientists are sponsoring projects to reintroduce mussel and oyster populations to the Chesapeake Bay watershed to leverage their natural water filtration and ecosystem health benefits. To improve air quality, many cities across the country are turning to nature-based solutions such as re-greening parking lots and tree planting. Apart from national and international efforts to support nature-based solutions, effort and resources should be dedicated to support and scale up local and regional actions for nature.

42. Beyond local engagement and support, participants called for cross-sector and cross-border collaboration for implementing effective and impactful nature-based solutions. The business sector in particular, which has a significant impact on nature, can be an important player in supporting nature-based solutions and creating green jobs, particularly as we build back from the COVID-19 pandemic. In addition to policy instruments which set environmental regulation and reporting

requirements, incentives for public-private collaboration should be created to catalyze innovation for nature and find win-win solutions (promoting both sustainability and economic benefits).

43. To encourage these collaborations, participants emphasized the need to create shared value for nature at all levels and across all socio-demographic groups. Fostering environmental responsibility means meeting people where they are, recognizing the diversity of how they experience nature in various geographical environments. Investments in community gardens, public green spaces, and innovative programs that increase public awareness of the role of nature in our lives can be useful in nurturing this sense of shared value and responsibility.

2. Education and empowerment

44. Education and awareness raising are key components in engaging communities on nature-based solutions. Participants highlighted the need for interdisciplinary and inclusive educational programs that bring nature into the classroom, as part of the core curriculum and starting at an early age. Educators, peer leaders, and local advocates, through these programs, can impart that there is no minimum age to act on strengthening nature. Youth can then carry these lessons home, sharing knowledge and inspiring action with their families, peers, and communities.

45. Participants noted that empowering youth and communities through education can help achieve the behavioral change needed to strengthen and protect nature. For example, having a strong educational foundation in the environmental impacts of human behaviour, a consumer might alter their personal purchasing choices, paying closer attention to where a product comes from and the sustainability of a larger business' practices and supply chain. In general, participants emphasized the importance of fostering awareness of the broader implications of our individual and collective actions in order to realize behaviour change.

46. Education can also help inform on the co-benefits of nature-based solutions. Participants suggested that educational programs can help in overcoming the stigma that strengthening nature and supporting healthy economies are not mutually exclusive strategies – that a healthy environment does not have to come at the cost of the economy. For example, municipalities along the Mississippi River have invested in building water parks that deliver nature-based flood mitigation while also generating revenue from tourism. Sharing and celebrating such examples of mutually beneficial nature-based solutions can, in turn, encourage further expansion and scaling up actions for nature.

3 Data sharing and monitoring

47. Participants acknowledged the value of sharing data collected through tools like environmental impact assessments, environmental economics, and environmental accounting in demonstrating the benefits of nature-based solutions and the harm of a continued “business as usual” model. Collecting, analysing, and publishing this kind of information can be an impactful catalyst for prompting behavioural change, encouraging action that supports nature and informing on the impact and effectiveness of certain strategies. Participants noted that using data to show both the scientific and economic value of nature-based solutions can be particularly valuable when engaging policymakers.

48. Additionally, it is important to think about leveraging data when collecting and sharing local case studies of nature-based solutions. Participants suggested that data could be used to produce blueprints or toolkits for communities to work from to implement their own actions for nature. If best practices at the local level can be identified and data can be used to highlight their challenges and successes, models can be formulated for the replication and scaling up of nature-based solutions.

C. Conclusion

49. Youth participants in the UNA-USA virtual consultation showed an enthusiasm for the potential of nature-based solutions and emphasized the urgency to adopt actions for nature given the planetary emergency they are inheriting. While examples of nature-based solutions were discussed and applauded for their innovation, as one participant put it, “Students [and youth] don’t need applause, they need cooperation and action.” Participants sent a strong, unified message calling for multi-stakeholder collaboration, inclusive awareness-raising, and data-backed models for communities and policymakers to strengthen nature and secure a healthy future.

50. UNA-USA Youth Observer to the UN, Dustin Liu, created a video that highlighted key messages from this consultation and was aired during the UN Summit on Biodiversity “Voices for Nature” program. It can be viewed [here](#).

III. UNA-Canada UNEA-5 youth consultation: strengthening actions for nature to achieve the Sustainable Development Goals

Summary report, prepared by UNA-Canada

A. Description

51. The youth consultation served as an opportunity for United Nations Association in Canada (UNA-Canada) members and youth across Canada to feed ideas, experiences, and messages into the fifth United Nations Environment Assembly (UNEA-5), to be held in Nairobi, Kenya in February 2021. The UN Environment Programme (UNEP) Regional Office for North America is working closely with UNA-Canada and other partners to hold consultations across Canada and the U.S. in the lead up to this event.

52. UNEP and UNA-Canada hosted this interactive dialogue to gain insight and feedback about “Strengthening Actions for Nature to Achieve the Sustainable Development Goals.” The theme promotes the use of nature-based solutions to address the current biodiversity and climate crises and aims to demonstrate how nature can be a solution to many challenges.

C. Data

53. The youth consultation took place on June 18, 2020. In total, 92 Canadian youth participated in the meeting. From the group of participants, 34 identified as part of a visible minority, while two identified as indigenous. Also, five participants mentioned identifying themselves as LGBTQ+. In total, 55 identified themselves as a woman, 20 as men, and one nonbinary. The participants were located across Canada. In total, 50.6% of participants came from Ontario, 19.5% from British Columbia, 12.6% from Alberta, and 8% from Quebec. Two participants were from Nova Scotia, and two others were from Saskatchewan.

IV. Questions and answers during the consultation

A. Question 1: What particular ideas and experiences for nature-based solutions do you have?

1. Breakout room 1:

- (a) COVID-19 is changing the current environment of the city – possibly with changes that will become permanent.
- (b) Need an evidence-based response to COVID-19.
 - (i) Many cities across Canada are facing non-recoverable financial losses due to COVID-19. Municipalities have done the right things through closures, hiring freezes, etc., but the consequences may be felt in years to come.
 - (ii) Municipalities need new revenue tools. Looking for innovative solutions of how to recover financial losses from this pandemic that will instill permanent changes in how the cities and country is governed.
- (c) Municipalities don’t want the federal and provincial governments to lose sight of essential issues present before the pandemic. COVID-19 has shifted the priorities of the federal government, but cities are still experiencing complicated issues unrelated to COVID-19.
 - (i) Smaller municipalities have the same complexity of issues as the Greater Toronto Area (GTA). Provinces must take this into consideration, as they are often overlooked or seen as not as complicated as GTA.
 - (ii) Need other financial tools to increase flexibility and meet the needs of the community.
- (d) Economic development strategy coming out of COVID-19.
 - (i) Investment in housing.
 - (ii) Diversification is necessary: COVID-19 has made people rethink the threats within a society. Diversity allows for more flexibility.

- (iii) Collaboration will become even more critically important as mayors drive the power of the GTA.
- (iv) Employment areas will need to look different – incorporating office space within residential buildings, a shift of urban area to include less transit, fewer interactions with the public, more self-sustainability.
 - a. Pandemic has shown that business can be done virtually. Example: Shopify moving to work at home model and getting rid of building's lease.
 - b. Also, changes will be seen in land use, zoning, etc.

2. Breakout room 2:

- (a) Sustainability plans in Hawai'i build on 1000 years of indigenous knowledge and culture.
- (b) Examples of nature-based solutions seen in Vietnam, where coastal communities are being severely impacted by climate change. Looking at climate change adaptation, including rehabilitation of mangrove forests and building storm-resilient homes.
- (c) Importance of community in leading and implementing nature-based solutions – knowledge needs to be shared with communities, engage community leaders.
 - (i) Ensure that there is at least 50% leadership coming from women.
- (d) Canada has so much potential, must create jobs for youth. Work with youth to ensure that youth networks are informed of new jobs and are trained adequately with correct skills, including leadership advocacy.
- (e) Importance of jump-starting innovation.
- (f) Start teaching hard sciences from an environmentally sustainable lens. Bring the environment into school curriculum, including indigenous perspective. Important to ensure youth are literate in such issues into adulthood.
- (g) Work on issue of 'extraction' – need education regarding harmful byproducts/impacts on the environment and human health. Teach alternative extraction techniques.
- (h) Importance of hydroponics and food security.
- (i) Understanding linkages between different issues rather than a siloed approach. Essential to understand issues in different contexts, including social, environmental, cultural, etc.
- (j) Cultural knowledge can provide guidance on local efforts. Need to appropriately store knowledge according to local cultures, including upholding local communities' rights.

3. Breakout room 3:

- (a) Must empower individuals to act, teach them to reduce waste.
- (b) Fund innovation related to the environment and ban the exportation of plastic. It's not a solution to ship our waste to other countries. We should stop investing in fuel, not only in Canada.
- (c) Encourage the engagement and education of youth. We should also talk to the public and share how they are also part of the problem and solution. Share different perspectives.
- (d) Make local markets and local produce more accessible.
- (e) Promote a green recovery via investment in green infrastructures like environmental restoration and renewables.
- (f) Acknowledge the fundamental interdependence of humanity and nature, and the need to work collaboratively across countries.
- (g) Facilitate a better connection between the research community, who have quantified the benefits of nature-based solutions, and the government to implement policy.
- (h) Improve science communication in a way that would be efficient and understandable for all society.

4. Breakout room 4:

- (a) Indigenous peoples' knowledge is the key to developing sustainable practices. Their methods should be used as a model for how to proceed. They have sustainably lived on these lands for millennia, and their voices should be brought to the forefront of the conversation.
- (b) Environmental issues are complicated, and by increasing access to information related to the climate crisis to the public, this can increase the effectiveness of the movement. Organizations and youth can then feel empowered to present solutions/concerns to governments.
- (c) Leadership needs to be held accountable, and there should be a stronger push to have environmental concerns as one of the main pillars of leadership globally. The burden should shift to be equitably spread as the current trajectory raises environmental justice concerns. Leaders of countries with low environmental impact (low ecological footprints) may find themselves and their citizens facing disproportionate environmental consequences. The solution for this inequality can be getting countries with higher ecological footprints to transfer the wealth by paying a certain amount of environmental funding initiatives to either offset or dissuade the sustainability of certain lifestyles.
- (d) Conservation of forests is needed in advance of deforestation. Protection of forests/nature must be done properly to avoid forest fires in the rebuilt forest areas. Canada's goal of planting 2 billion trees is not enough, as it must be done in conjunction with preventative measures.
- (e) More funding for indigenous guardianship programs.
- (f) Unsustainability of the agriculture industry needs to be addressed. Solutions could include incentives for farmers to adopt sustainable practices - such as use fewer nitrogen fertilizers.
- (g) Youth need to be seen as meaningful partners.

B. Question 2: What messages would you send to the world's environment ministers on the importance of nature and what we need to do to strengthen it?**1. Breakout room 1:**

- (a) Even vaccine may not bring back to life in the traditional sense. Need for the permanent shift may be present. 'We are in a new game.'
 - (i) The way we work and form our communities will be even more critically important moving forward.
 - (ii) Need to focus and invest in education, local talent, building a highly skilled workforce.
- (b) Business perspective – worried about global supply chain. Need to bring manufacturing back to Canada. Concern that working from home is going to erode tax base.
- (c) Overall, changes related to COVID-19 that were not predicted before are now shaping the future of cities, and municipalities need to react and adapt to these new measures. In these changes, it will be increasingly important for cities to become more flexible in their new policies as unexpected changes may occur again in the future.

2. Breakout room 2:

- (a) We are in a unique situation because we need to rebuild the economy post-COVID, therefore environmental and climate considerations are imperative.
- (b) Need to look long term at environmental incentives for the private sector.
- (c) Implement educational investigation:
 - (i) Have Education Ministers across the country enact environmental education within the educational system. Ensure students are educated on the climate crisis in primary and secondary schools.

3. Breakout room 3:

- (a) Youth are important to the movement. Need support and resources, partners, and motivation. Must recognize how we are all connected, encourage investment in nature.
- (b) Nature-based solutions can also bring financial benefits.
- (c) Urban areas tend to be sacrifice zones. We don't create a connection between urban and agricultural zone. Connect cities with nature, create shared value.
- (d) Work with and train local companies and communities in preservation and conservation.
- (e) One of the issues in Canada is waste management. Need to adopt a circular economy.
- (f) Need to take down barriers for everybody to feel comfortable talking about nature-based solutions, even if you don't have a science background.
- (g) In Europe, farmers are subsidized to set aside a small amount of land on their farms to be left 'as is,' supporting insect, bird, and plant biodiversity. Governments also support farmers transitioning to organic. Could adopt these policies in Canada.
- (h) Need to stop treating the climate and biodiversity crises as an environmental issue only. This is a political and economic issue too, and should be treated as such. It is not about choosing the environment over the economy; it is about constructing a better economic world order that prioritizes the conservation of nature.

4. Breakout room 4:

- (a) Efficient solutions require a holistic approach with the involvement of a wide range of stakeholders. When all actors involved are participating in a solution together, it often has more long-lasting effects.
- (b) Need action towards sustainable practices with resource extraction.
- (c) Cannot place the blame and pressure solely on individuals with how they conduct their daily lives, such as societal pressures with plastic water bottles. Blame is shared with the industries with their massive contributions to environmental degradation.
- (d) Need a clear commitment to adopt renewable energy solutions.
- (e) Leaders should make a commitment to proper, ethical, and local recycling options. Having more resources for people to be able to compost and recycle to ensure that materials can be put into a more sustainable cycle. There needs to be attention to our consumption waste practices with single-use plastics, landfills, ocean cleanup, etc.
- (f) The youth are the ones that will shortly be taking on the burden of the environmental consequences, and youth need better ways to engage and participate.

V. UNA-Canada UNEA-5 public sector consultation: “Action Through Policy” – strengthening actions for nature to achieve the Sustainable Development Goals

Summary report, prepared by UNA-Canada

A. Description

54. The public-sector consultation served as an opportunity for United Nations Association in Canada (UNA-Canada) members and policymakers, nonprofit actors, and Canadians from across the country to feed ideas, experiences, and messages into the fifth United Nations Environment Assembly (UNEA-5), to be held in Nairobi, Kenya, in February 2021. The UN Environment Programme (UNEP) Regional Office for North America is working closely with UNA-Canada and other partners to hold consultations across Canada and the United States in the lead up to this event.

55. UNEP and UNA-Canada hosted this interactive dialogue with participants to gain insight and feedback about “Strengthening Actions for Nature to Achieve the SDGs.” The theme promotes the use of nature-based solutions (NBS) to address the current biodiversity and climate crises and aims to demonstrate how nature can be a solution to many challenges.

B. Data

56. The public-sector consultation took place on September 3, 2020. In total, 107 Canadian participants joined the consultation. Of these, 47 identified as part of a visible minority, and four identified as indigenous. Also, 10 participants identified themselves as LGBTQ+. In total, 58 identified themselves as women, 47 as men, and two as nonbinary. The participants were located across Canada. 60.7% of participants came from Ontario, 11.5% from Quebec, 11.3% from British Columbia, and 11.1% from Alberta. The rest of the participants were from the other provinces and territories; one participant was a Canadian living outside of Canada.

VI. Questions and answers during the consultation

A. Question 1: What particular ideas and experiences for nature-based solutions do you have?

1. Breakout room 1:

- (a) With complex disasters ranging from COVID-19 to climate, there is a need for systemic solutions.
 - (i) Importance of the economy and economic incentives. We recognize that consumerism is problematic, and the circular economy is an important step forward. More clarity is needed on exactly how to achieve this.
 - (ii) Economic, social, and environmental health is linked.
- (b) Need creative solutions to supporting nature.
 - (i) Natural solutions in real estate/housing – a big factor in environmental and energy footprint. One participant is working with real estate agencies to include metrics related to how environmentally friendly communities are as a way to incentivize good behavior. Homes in America started using natural solutions, collectively saved over \$19 million. That is an incentive in itself. Using natural solutions will reduce your bill and your footprint.
 - (ii) Need nature-friendly alternatives in the built environment; for example, LED projects or natural playgrounds in schools.
 - (iii) Indigenous populations and local communities are a critical source of knowledge on NBS. Need to move beyond tokenism to have them at the table with a real opportunity for voice and meaningful support.
- (c) Incentives for pro-environmental behaviors are needed.
 - (i) Financial incentives, such as green bonds, are essential and underutilized.
 - (ii) There should be more promotion to drive corporations to become certified B corporations.
- (d) Value of youth as leaders. Change will happen on the grassroots level.

2. Breakout room 2:

- (a) Need to integrate NBS into policy/solutions, involving the private sector.
- (b) It is necessary to have sustainable finance objectives around how we report and make sure businesses are incorporating environmental solutions in their business plan.
- (c) It is necessary to ground solutions and policy in indigenous knowledge and wisdom. These solutions are increasingly desired in North America and have been taken into account in policies more often. The importance of this was a main point in the discussion, and it was noted that North America is doing a good job in this regard but needs to continue to do so.
- (d) Indigenous voices must be heard and should be systemically woven into UNEA-5.
- (e) Integration of local/community groups into the environmental movement is necessary to have lasting change. Local community groups have a greater foundation of knowledge for their local area and can use that insight to find solutions. Policy often takes too long, so local action is a great way to combat that.

- (i) Integrating the younger generation is very important, especially in local community groups, such as with youth tackling the plastic issue in the oceans.

3. Breakout room 3:

- (a) Collaboration and inclusivity:
 - (i) Work closely with diverse and neglected communities (including indigenous groups) to implement environmental policies and enable inclusive and participatory approaches.
 - (ii) Global coordination of voluntary national plans, e.g., at UNEA-5.
 - (iii) Canada pushing for more ambitious targets post-2020 biodiversity framework.
 - (iv) Learn from examples of NBS around the world (tree planting in India; solar power in Sydney, Australia; soil restoration in Montreal).
- (b) Local/Global solutions:
 - (i) Systems change: Rethinking global systems of modern industrial agriculture and trade.
 - (ii) Education for an informed and engaged population on nature and NBS.
 - (iii) Nature in urban environments—overcoming aesthetic desire for turfgrass, looking to native species, community gardens, urban green spaces.
 - (iv) Need to develop projects and tools that enable a global perspective on local solutions; empower citizens by making these accessible and straightforward, allowing the citizens to take a more active role.
- (c) Finance:
 - (i) Misalignment of subsidies is hampering progress. Need to overcome this idea that we need to find the money first before taking action.
 - (ii) Opportunities for innovative approaches to financing conservation from Northwest Territories: endowment fund, biodiversity offsets.
 - (iii) Federal investment in Canada increasing for protected areas, tree planting.
 - (iv) Canada, in collaboration with Small Island Developing States, exploring innovative insurance products to preserve coral reefs and mangroves.

B. Question 2: What messages would you send to the global community and the world's environment ministers on the importance of nature and what we need to do to strengthen it?

1. Breakout room 1:

- (a) Most plastic pollution is coming from manufacturers of single-use plastics. We need to see more commitments from our government to reduce plastic pollution.
- (b) Stronger policies, incentives on the industry. Shift away from consumerism. More policy, moving away from free-market deregulation that has contributed heavily to the crisis.
- (c) Do not build or develop policies without implementation methodologies or implementation tools. A strong policy has strong objectives and strong implementation mechanisms for a variety of contexts.
- (d) ISO standard for a circular economy. Coming up with a viable method for circularity is really challenging.

2. Breakout room 2:

- (a) A major issue discussed was the disproportionate amount of money Canada spends in the Department of Defense (15–20x more) versus what it spends on environmental change. This includes billions for new fighter jets, which are very energy inefficient, as are most other military equipment and endeavors. This has led to a movement that calls for demilitarization for

decarbonization and requires society and policymakers to take a long look at the military impacts on the environment.

- (b) It is difficult to convince people change is needed and implement solutions if there is no money saving because policy and financing often go hand-in-hand. This poses a barrier to attaining the changes that are necessary for the environment.
- (c) Need for policymakers and the political system in place to “de-risk” actions for nature.
- (d) It can be useful to find ways to engage the newly immigrated Canadians in the different levels of operations for environmental change and sustainability.

3. Breakout room 3:

- (a) There is potential that needs to be harnessed and used. Invest in mental health services: a human benefit and an economic prospect not to overlook.
- (b) In Canada:
 - (i) Commitment to plant 2 billion trees was made in the last election.
 - (ii) Nature legacy for Canada—one of the largest single investments in nature and conservation in Canadian history.
 - (iii) Canada is on a massive increase in our conservation areas to reach the 2020 goals. Pushing for 30% protected areas.
 - (iv) Capitalize on synergies to integrate nature-based solutions with other actions (oceans, climate, other SDGs)
 - (v) Investments with Small Island Developing States (SIDS)—innovative insurance products to preserve coral reefs and mangroves.
- (c) There is a strong need to be able to reflect and bring nature into the urban environment to build support and understanding of important functions plants and habitats provide.
- (d) There is a need to push back across Canada where traditional aesthetics don’t meet with the use of native plants. Benefits of natural landscapes and native species are so profound (erosion control, nutrient control, carbon sink, etc.)
- (e) Finance is always a primary concern.

VII. UNA-Canada UNEA-5 private sector consultation: strengthening actions for nature to achieve the Sustainable Development Goals

Summary report, prepared by UNA-Canada

A. Description

57. The consultation with the private sector served as an opportunity for the United Nations Association in Canada (UNA-Canada) members, partners, and other private sector actors from across Canada to provide ideas, experiences, and messages into the fifth United Nations Environment Assembly (UNEA- 5), to be held in Nairobi, Kenya, in February 2021. The UN Environment Programme (UNEP) Regional Office for North America is working closely with UNA-Canada and other partners to hold consultations across Canada and the U.S. in the lead up to this event.

58. UNEP and UNA-Canada hosted the third interactive dialogue with Canadians to gain insight and feedback about “Strengthening Actions for Nature to Achieve the SDGs.” The theme promotes the use of nature-based solutions (NBS) to address the current biodiversity and climate crises and aims to demonstrate how nature can be used as a solution to many challenges.

B. Data

59. The private sector consultation took place on September 24, 2020. In total, 79 Canadian participants joined the consultation. Of these, 22 identified as part of a visible minority, and one identified as Indigenous. Also, six participants identified themselves as LGBTQ+, and one as living with a disability. In total, 32 identified themselves as women, 47 as men. The participants were located across Canada with 66.3% of participants from Ontario, 12.9% from Quebec, 12.1 % from Alberta,

and 8.7% from the remaining provinces and territories. Four participants were Canadians living outside of Canada.

VII. Questions and answers during the consultation

A. Question 1: What particular ideas and experiences for nature-based solutions do you have?

1. Breakout room 1:

(a) Need to establish a common set of sustainable core principles or values that transcend industry, government, and civil society organizations (CSO) perspectives, as well as a common set of definitions, including the definition of NBS.

(b) Interplay between national, regional, and local perspectives. We recognize that many solutions will be local, and each local area has its own capacity including resources, skills, and expertise. At the same time, national-level policies trickle down to support local responses.

(c) In terms of NBS, need both practical and policy solutions. One participant was a chef, and in addition to avoiding most beef, he completely cut out three sources of plastic packaging. He led by example in the industry and through dialogue with patrons, which is important because consumers can be great advocates for industry change.

(d) NBS has been used in the health sphere, for example to facilitate better clotting and the role that plant-based foods can play in both human and environmental health.

(e) NBS can also be used in the built environment, including design for heating and cooling. More work is needed to address the carbon that is embodied in building material upfront. On a policy level, materials step codes could complement energy efficiency codes, to incentivize good behavior.

(f) Better land use planning to protect nature upfront is important. NBS can be used for recovering and remediating wetlands degraded during mining. Nature can be part of assessing solutions, including by using biomarkers such as plants and animals to see how wetlands are responding.

(g) Change needed across all sectors. Need to create feedback loops between the research and policy community, and between the policy community and private sector.

(h) Value of teaching children the importance of sustainability and encouraging them, along with CSOs, to give local policymakers a moral license to drive change, such as through citizen science contributions.

4. Breakout room 2:

(a) Need to work on innovative solutions to make economically viable ways for businesses to make the shift towards sustainability.

(b) Quality of marine and water systems should be an urgent focus.

(c) Work on community level should be a priority.

(d) Lack of policies and regulations around geoengineering is a great threat to our ecosystems. The lack of oversight is putting the environment at greater risk.

(e) Bonn “Billion Tree” Challenge –Pakistan met and exceeded the target, their economy didn’t suffer; in fact, by planting more green trees in Pakistan, it helped to transition to a green economy and support the economy, including during COVID.

(f) How do we see more of a demand for less harmful chemicals in our agriculture and soil? Need solutions that help farmers get more from their yield without putting chemicals in the land. Ultimately this will improve economic gain, yield amount, and health. Existing affordable solution called Soil Activator.

(g) Mining uses a lot of water to control the dust. Biodegradable alternatives should be available to reduce the amount of water used.

4. Breakout room 3:

(a) Education and awareness – nature is an ally not an obstacle. Use education to overcome entrenched viewpoints around misconceptions of environmental action. Can help to show benefits of NBS: e.g., restoration of riparian areas has multiple benefits (minimize risks of flooding, drought, biodiversity loss).

(b) Environmental education should be streamlined across disciplines. Currently, connections lacking between students and green business.

(i) In engineering education: hard to find green energy co-op placements, information on sustainable approaches to engineering.

(c) Start at home – individual actions do matter; people should be empowered to act beginning in their own backyard.

(d) Innovation: Business models, policy-making, projects around NBS – better results when you work with nature rather than use nature as merely a resource.

(e) Watershed protection strategies: revegetation, managing access, addressing invasive species, regional partnerships for local municipalities.

(f) Include ecological design principles in urban planning and development projects.

(g) Trying to ‘green’ oil sands, exploring solvents for transporting oil, supported by government subsidies.

4. Breakout room 4:

(a) Education is vital for people make a fundamental mindset changes in their connection to nature. Especially important is to support this mindset early, for children and youth. Policies, funding and facilities should be in place for this to happen

(b) The rights of nature (as per individuals) should be written into law, treaties, and policy.

(c) Support efforts towards sustainable lifestyle transition, increased social safety nets, circular economy, sharing economy, and self-actualization.

(d) Increase the efficiency of food production, storage, and distribution. This will reduce the amount of land that is being used for agriculture.

(e) Fund “proof of concept” and pilots in NBS.

(f) Stimulate/incentivize private sector to work with and support NBS. Create a certification program for small business that show they are environmentally responsible.

(g) Incentivize responsible energy use and transportation using tax credits.

(h) Fund renewable energy using funding, tax credits, other incentives including support for retrofitting. Create mechanisms to increase engagement between communities and energy companies.

B. Question 2: What messages would you send to the global community and the world’s environment ministers on the importance of nature and what we need to do to strengthen it?

1. Breakout room 1:

(a) Importance of citizen science, evaluating how we embolden, empower, train youth. Youth transmit this knowledge to their parents, become stewards of environmental action. Need people who are trained in working within systems and enacting change from within and that have moral imperative. Youth need to be empowered and they need to be trained.

(i) Giving policymakers, at the local level, the moral license and the opportunity to drive change.

(ii) Storytelling and land-based knowledge is central to our understanding of the change that’s needed at local levels. How do we empower local agencies to commit change? It’s probably resourcing.

(b) Public sector: Nature-based outcomes can holistically be achieved through better land use planning. Most land use planning decisions are municipal and cash strapped so they will let something go that may not be environmentally sound. Clear rules of where development can and cannot occur is important.

(c) Private sector: A role for sustainability frameworks and reporting on the interface between nature-based outcomes – we can achieve and articulate through concrete business practices. Reporting initiatives to drive change for GHG emissions. Provides promise for NBS.

2. Breakout room 2:

(a) Environmental concerns should be packaged in a way that policymakers can relate to the impacts/adverse effects on the environment personally. They have listened to so many solutions from scientists and activists, but nothing really changes. The concerns presented to our leaders should also be heard by the public.

(b) We need to go beyond the local, provincial, federal policy sphere and think about issues on a more global landscape. Global equity should be a priority when setting goals.

(c) NBS to meet global targets – carbon sequestration by forests, ocean and soils, along with the regeneration of nature's ability to regulate climate.

(d) Sometimes traditional/indigenous solutions are innovation. That is the essence of NBS.

(e) Shift ideology from reactive to proactive.

(f) Collective action for collective issues. We need all parties on board and all sectors involved.

3. Breakout room 3:

(a) So many environmental projects are unconventional projects at their root. Might not be traditional investment pieces, but have a great story and can be promoted to help political ambitions.

(b) Are there ways to influence municipal decision-making to include ecological design in development and planning?

(i) Integrate different perspectives in land use planning.

(ii) Golf courses – how can we make them include ecological design principles and considerations?

(c) Communicate to people that nature is an ally, not an obstacle or static resources.

(i) Can find solutions that work for nature and communities. Overcome old paradigms and construct new ones.

(ii) Important to give priority to companies that are innovating.

5. Breakout room 4:

(a) Renewable energy needs to be a priority. Make it affordable for families to reduce their carbon footprint: incentivize action.

(b) The power sector needs more community engagement. People need to reduce their power consumption; they need to be educated to do this, to reduce power demand.

(c) Story of an Edmonton community: They have solar panels, high quality, but there is an agreement for that land that they have to purchase energy from another source – there was a “barrier” to using green energy – they were not allowed to turn on their “installed” solar panels.

(i) Starts with the business community, we need to make initiatives interesting (profitable) to the business community.

(ii) There are many “proven/established ideas,” but there are either barriers to implementation, or a lack of incentives.

(d) Need more and better integration of indigenous knowledge in our land management and restoration activities.

- (e) Build liaison processes between government, private industry, labor, all component partners to build links and mutual support. Must take into account all partners to cover the real costs. Through these partnerships, we will build greater support and appreciation.
- (f) Business and production need to factor the social costs as these are often overlooked.

VIII UNEA-5 North American apex regional consultation

Summary report, prepared by MIT Solve

A. Overview

60. The UN Environment Programme (UNEP), as part of the North American process in the lead-up to the 5th United Nations Environmental Assembly (UNEA-5) sought to capture regional best practices on nature-based solutions (NBS). Stakeholders across Canada and the U.S. were invited to share examples of innovative nature-based solutions within the four action areas, reflecting on both successes and challenges, and to formulate key messages to policy makers about the enabling conditions needed to scale these best practices.

61. The consultation took place on October 8, 2020, from 1-3:30pm EDT, and included 60 participants from Canada and the United States. Attendees held two distinct breakout sessions in five topical groups, along with discussion among the full group.

62. This report was prepared by MIT Solve as a summary of the discussions and recommendations for North America. It has been reviewed for correctness and completeness by facilitators, UNEP staff, and the four Regional Representatives. While many suggestions for future action are included as part of the overall event goals, this report is not an endorsement of any particular path of action.

B. Innovative practices

63. The initial breakout session asked participants to build on their individual and organizational experience to identify specific practices that have led to successful NBS projects, and prioritize those that should be shared with UNEA-5 for broader implementation. We identified four overarching key practices based on the five groups' discussions:

(a) Prioritize projects led by local communities, particularly Indigenous communities. The majority of successful examples were based in local communities rather than from broader jurisdictions or programs. One specific example is the Kitsoo / Xai'xais Nation in BC, Canada, partnering with scientists to support using their traditional knowledge to help guide fisheries management and rebound herring populations. Successes range from marine protection with strong community participation to new land use practices for farmers and ranchers, managed at the local level. Many projects drew on shared science and replicated approaches while being rooted in a unique social and ecological context. Decision-makers should prioritize community and Indigenous knowledge and wisdom in land, marine, and resource management.

(b) Connect all stakeholders early to create durable trust and understanding. Discussions highlighted the overwhelming need for coordination between different sectors and levels of government for successful nature-based solutions (NBS) implementation – including local, tribal, state, and federal governments, NGOs, community groups, and private sector firms. For any given ecosystem or region, convening relevant groups regularly made it possible to build soft links between diverse people and organizations, particularly those with potentially conflicting perspectives. This trust can enable a broader set of options for action, and make project planning and implementation easier. Ideally, these convenings take place ahead of and outside of any specific project process. Examples of the benefits of trust-building include:

- (i) ALUS, working on agricultural NBS in communities across Canada, does heavy engagement with traditional farmers, residents, and banks to ease apprehension about changing practices and build new revenue streams to financial support regenerative farming practices in locally-appropriate ways.
- (ii) Communities around Hā'ena State Park in Hawaii spent 20 years building trust within the community, businesses, and state government to build a long-term management plan rooted in Native Hawaiian knowledge and practices.
- (c) Build multi-scale plans that allow smaller projects to contribute to a bigger whole. Landscape-scale issues - watershed protection, ecosystem restoration, etc. – are rarely addressed

through one large project, particularly when land ownership is fragmented. In response, one successful planning approach has been the development of shared goals for a region that have broad jurisdictional agreement and support, but focus on smaller-scale local projects as an implementation strategy (See: Hawaii, ALUS).

(d) Several groups commented that governments can have a unique role as a neutral convener, creating formal spaces for collective impact, rather than fragmented individual efforts. These shared goals can also encourage private construction or green infrastructure projects to incorporate nature-based approaches in existing work and budgets during permitting processes.

(e) Build awareness and public education on the benefits of nature-based solutions and shared value creation. Nature-based solutions is still a relatively new term. People tend to support solutions that they are aware of, particularly when they see individual or community benefits. Successful projects have integrated educational components to raise awareness and build support. This can range from signage on small rain garden projects to labelling public spaces that provide cooling, discussing economic rewards like lower cooling costs among real estate professionals, or sharing tangible results with elected officials, including through open source data dashboards. Just as NBS projects require trust among project stakeholders, many people need empathetic engagement to build trust that NBS are a viable option for public challenges.

C Recommendations for action

64. Building on the discussion of successful practices and challenges to broader implementation for NBS, the second breakout asked participants to identify recommendations for different stakeholders. While the resulting lists touched on stakeholders at all scales and with varying difficulty of implementation, we have focused on the following recommendations:

(a) National governments should empower local communities and jurisdictions to take action for nature while providing education and other resources for them to do so. Local efforts can be a key approach to reach larger goals, but local NGOs and governments often have the least budget capacity or time to build knowledge. National and regional governmental support or philanthropic funding can provide the educational and financial resources to enable clear goal-setting, adaptation and implementation of best practices from other projects, and high-quality monitoring and verification of success. This support should be multi-year whenever possible, to allow for the time necessary to establish new approaches to land management and see detectable project impacts.

(b) All governments should shift policy frameworks to enable and encourage more NBS projects. In many areas, current policy inhibits pursuit of NBS projects, and there are many regulatory changes that should be considered. These include:

- (i) Eliminating policies that prioritize traditional engineered approaches while ignoring or limiting nature-based approaches. These can make permitting arduous, particularly for the majority of NBS work which is at the local scale.
- (ii) Requiring consideration of NBS approaches for any governmental projects and procurement. This could be extended to require consideration of NBS during large development projects or environmental impact statements.
- (iii) At a broader level, enshrining the rights of nature in law, with examples from New Zealand or Ecuador, can provide long-term and durable frameworks for action.

(c) National governments should provide data standards and frameworks that encourage collaboration while protecting data sovereignty for communities. Participants spent significant time on the role of data in the success of projects, both during planning and through ongoing monitoring and verification of impact. NBS projects often integrate data from a variety of sources, and an array of new technologies (e.g. new satellites, drones, low-cost networked sensors, etc.) is exponentially increasing the amount of potential data along with the spatial and temporal resolution. However, there are risks of publicly-important data being locked in proprietary formats or databases, or of communities losing access to information that they helped generate. Governments, working with key stakeholders, should consider:

- (i) Establishing consistent data standards for storage and interoperability
- (ii) Building on rights for individual data to provide a framework for community data sovereignty, particularly for under-resourced communities.

- (iii) Expanding the set of data on the state of nature that is publicly available. This can enable local projects to build on this information without the high costs of data access. Two relevant examples:
 - a. Norway's recent commitment to providing high-resolution satellite tropical rainforest images to the world.
 - b. Hawaii's Aloha+ Dashboard tracks progress on local SDG implementation and provides an example of community driven solutions.

(d) All stakeholders should learn from and engage Indigenous communities. In a North American context, the legacy of colonialism has meant that the original inhabitants of land have often been removed, eliminated, or excluded from conversations on management. Community-based perspectives are an essential part of successful projects, and given Indigenous peoples' long histories of successful land management while preserving ecosystems, all NBS projects should incorporate Indigenous voices as experts and decision-makers when possible.

(e) Stakeholders, including philanthropic funders, should allocate resources towards convening and coordination. A consistent message across all groups was the need for more and better cross-sector conversations for successfully scaling NBS. However, collaboration takes dedicated staff time to be successful, a resource which is often in short supply. All stakeholders, including philanthropic funders of NGOs, should intentionally allocate staff time (directly or through grant budgets) and recognize the indirect value even without immediate or direct outputs.

D. Conclusions

65. This report aims to summarize three hours of conversation across two countries by highlighting key themes, specific approaches, and potential recommendations. It is necessarily incomplete. We hope that these examples, practices, and recommendations support and inspire others in developing NBS around the world.

IX. UNEA-5 North American regional consultation with the private sector

Summary report, prepared by MIT Solve

A. Overview

66. The UN Environment Programme (UNEP), as part of the North American process in the lead-up to the 5th United Nations Environmental Assembly (UNEA-5) sought to capture regional best practices on nature-based solutions. Private sector stakeholders in Canada, Mexico, and the U.S. were invited to share examples of innovative nature-based solutions (NBS) within the four action areas, reflecting on both successes and challenges, and to formulate key messages to policy makers about the enabling conditions needed to scale these best practices.

67. The consultation took place on October 14, 2020, from 11am-2pm EDT, and included 40 participants from Canada and the United States. Attendees participated in two rounds of breakout discussion sessions with four distinct groups during each session, along with discussion among the full group. The event was run using the Chatham House Rule, so individuals are not identified.

68. This report was prepared by MIT Solve as a summary of the discussions and recommendations for North America. It has been reviewed for correctness and completeness by facilitators, UNEP staff, the World Environment Center, and the four Regional Representatives. While many suggestions for future action are included as part of the overall event goals, this report is not an endorsement of any particular path of action.

B. Successes and challenges

69. The initial breakout session focused on successes and challenges in implementing NBS in specific sectors. Combining the discussions from all four groups, shared themes of opportunities and challenges were as follows:

- (a) Challenge: Creating a clear understanding of the shared value of nature-based solutions to all stakeholders including the government, private businesses, investors, and local communities. NBS is a relatively new concept. They encompass a variety of approaches with multiple benefits for

many stakeholders. As a result, educating all stakeholders about the definition of NBS and the value of current or proposed projects is a high priority but also a more complex step than some other sustainability or business objectives.

(b) **Challenge:** There are few systemic incentives to adopt NBS, particularly in North America. Many companies involved in the discussion are leaders on nature-based solutions in the private sector space. However, they cited a lack of incentives - either in the market or through policy - to encourage other companies in North America to explore this area. Specific examples include the low cost of water, the lack of a price on carbon, and no requirements to account for biodiversity or ecosystem services in permitting.

(c) **Opportunity:** Companies can leverage NBS for meaningful and ongoing community engagement. There was broad commentary that communities and companies are often insufficiently connected. NBS projects offer a clear role for the community as a local stakeholder and expert and through new employment opportunities during implementation, including through citizen science data collection methods. A few strong examples of NBS center around communities, including indigenous communities, but strong engagement and inclusion remains an aspirational goal rather than reality for many organizations.

(d) **Challenge:** Integrating nature-based solutions into core business approaches and creating long term sustainability at all levels of the supply chain. Several groups discussed challenges around mismatched supply chain visibility and impact - that the sections of the supply chain with high impact – positive or negative – are often several steps removed from public-facing brands or those making decisions on sustainability. Paired with this, building more local supply chains can reduce environmental impacts. Integrating NBS throughout company objectives and requiring suppliers to participate takes significant work and buy-in from leadership, but may be the only way to have durable impacts.

(e) **Challenge:** It is unclear who is or should be leading efforts to scale NBS. An area without consensus was around who should be leading these issues. While some participants felt that government should be driving the conversation through convening and policy incentives, others felt that companies should not rely on government and should instead scale on their own – though still flagged the need for a convening body.

(f) **Opportunity:** Using technology to bring credibility, accountability, and monitoring to nature-based solutions. New technologies offer faster and potentially more efficient ways to assess and monitor the impact of NBS projects. Some sectors have used technologies such as drones or IoT, or new approaches such as citizen science to build new datasets to improve core operations. These companies are now able to leverage these systems to monitor and assess some environmental goals met through NBS. Scaling up use of new methods is an opportunity for companies to partner with tech innovators and NGOs to demonstrate credible and effective approaches to evaluating NBS, potentially enabling them to scale more efficiently. Partnerships are also an opportunity for careful design to mitigate the serious potential risks around privacy, bias, and data governance from the beginning.

C. Recommendations for business action

70. The second set of breakouts focused on how stakeholders, particularly national governments, could act to enable many more nature-based solutions to be implemented. From a corporate perspective, this focused on different business areas ranging from supply chains to finance, but came to five broad recommendations which were mentioned across multiple groups:

- (a) **Standardizing language and metrics around nature-based solutions in order to define collective rules and impact.** A recurring and universal call was for standardization across sectors and jurisdictions for many different aspects of NBS, including:
- (i) Simplifying or clarifying terminology where possible - e.g. ‘nature-based solutions’, ‘natural climate solutions’, ‘green infrastructure’ are all used in the same conversations and refer to overlapping but distinct types of projects.
 - (ii) Standardizing permitting requirements for certain project types, enabling implementation through replication across many sites or supply chains while allowing variation for local context.
 - (iii) Clarifying and standardizing methods, calculation, and analysis of impact and verification, particularly impacts beyond carbon - water quality, water replenishment, biodiversity – and across various ecosystems (e.g., terrestrial, freshwater, marine)

(iv) Making investment information and process clearer for investors who are interested in environmental impact but not experts in NBS or natural capital.

(b) Encouraging the government to invest in environmental outcomes and practice outcome-based governance to incentivize innovation. Many policy goals or procurement requests are prescriptive, looking for specific solutions that often favour traditionally engineered approaches. To encourage innovative approaches to nature-based solutions, policymakers should focus instead on describing desired outcomes and evaluating proposals or procurement based on progress towards those objectives, regardless of specific approach. This outcomes-based focus may require a higher risk tolerance. As such, specific government investment to pilot early-stage nature-based approaches may be necessary.

(c) Government should convene stakeholders and lead discussions around cross-sector partnerships. Several groups noted a desire for ongoing discussion and convening in this space, particularly between the private sector, communities, and indigenous groups. Government at both national and subnational levels has a valuable potential role as a neutral convener, but has often been missing from that role. Developing a shared set of goals is valuable for all parties, but requires sustained connection and communication.

(d) Companies should champion NBS within their sectors and to their stakeholders. Participants in this consultation represented those already familiar with NBS as an approach, if at varying stages of implementation in their own organizations. Given the potential savings and societal benefits, participants identified a need for more peer to peer communication. Engagement both within and between companies can help companies understand that nature-based approaches are important to the future of their businesses, in a convergence of social and long term financial impact. One relevant example is the growing set of companies that are producing ESG reports to track progress around environment and climate goals. At the same time, large institutional investors have made clear their intent to invest in companies that disclose progress on their ESG metrics, pressuring sectors as a whole to improve. Ensuring that NBS can be linked to the ESG metrics can help advance both NBS and ESG.

71. Internalize environmental costs where possible. Monetizing the benefits of nature-based solutions, carbon, and other natural capital, and emphasizing these benefits through private and public investment. Building on the repeated feeling that there are few policy and market drivers towards investing in NBS, governments should act to internalize environmental costs and provide clear signals toward environmental protection. This could include pricing carbon, or otherwise charging companies for use or degradation of natural capital. As governments implement pandemic recovery and economic stimulus programs to “build back better,” there was support among participants to incorporate public investment in green infrastructure and targeted incentives for private investment. While academia and civil society calculate high values for different ecosystems, those values have little direct utility for private industry as the value is spread over many stakeholders and hard to enforce when lost.

D. Conclusions

72. This report aims to summarize three hours of conversation across the private sector by highlighting key themes, specific approaches, and potential recommendations. It is necessarily incomplete. The private sector has seen success in implementing a new generation of nature-based solutions, even with minimal incentives from government or specific financing instruments. There is significant potential to do more if stakeholders work together to develop standards, build cross-sector partnerships, and leverage the private sector’s capacity for innovation and capital to bring good ideas to a larger scale.
