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EDITORIAL

Balancing biodiversity and human prosperity

As we dive into Volume 3, Issue 2 of *The Conservation & Livelihoods Digest*, we find ourselves at a crossroads where conservation efforts and socio-economic realities intersect. This issue encapsulates a range of topics that collectively underscore the intricate balance required to sustain both biodiversity and human livelihoods.

The opening article on the Bern Process offers a profound exploration of global cooperation in biodiversity conservation. The Bern Process is highlighted as a pivotal initiative aimed at uniting various Multilateral Environmental Agreements (MEAs) to effectively implement the Kunming-Montreal Global Biodiversity Framework (GBF). The discussions and outcomes of the Bern III Conference illustrate the commitment of the international community to address biodiversity loss through coordinated efforts. This article sets the tone for the issue by emphasising the importance of collaborative actions and the need for tangible outcomes that respect the mandates of biodiversity-related conventions.

Following this, the article on the evolution of livelihoods within CITES provides a historical perspective on how socio-economic considerations have been integrated into the framework of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. It traces the journey from the early recognition of the benefits of wildlife trade to developing tools and guidelines that balance conservation goals with the needs of local communities. This narrative underscores the ongoing efforts to ensure that conservation measures do not disproportionately impact impoverished communities, highlighting the ethical and practical dimensions of conservation.

In a piece titled "Dark extinction: unveiling the hidden loss of biodiversity," the issue delves into the phenomenon of species going extinct before they are discovered or described by science. This article brings to light the significant gap in our understanding of biodiversity loss, emphasising the silent extinction of species due to human activities and environmental changes. It calls for increased taxonomic efforts and habitat preservation to mitigate the impact of dark extinction, providing a stark reminder of the urgent need for comprehensive conservation strategies.

The meeting report on the 31st NAMMCO Council Meeting offers insights into the collaborative efforts of the North Atlantic Marine Mammal Commission in addressing marine mammal conservation. It highlights discussions on welfare issues in marine mammal hunting, the progress of scientific research, and the importance of integrating ecosystem-based management principles into conservation efforts. This report underscores the significance of international cooperation and robust scientific research in addressing the complex challenges facing marine mammal conservation.

The article on navigating the BBNJ Agreement and its implications for Nauru's deep sea mining ambitions presents a nuanced analysis of the intersection between economic development and environmental stewardship. It examines the potential benefits and challenges of deep sea mining for Nauru, a

small island nation, within the framework of the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement. This piece highlights the need for sustainable practices and adherence to international environmental principles to ensure that economic activities do not compromise marine biodiversity.

The discussion on distinguishing zoonotic diseases from human rights considerations within the CITES mandate brings a critical perspective to the issue. It argues that while zoonotic diseases fall outside the primary scope of CITES, human rights considerations are integral to its implementation. This article reinforces the universal, inalienable, indivisible, and interrelated nature of human rights, emphasising the ethical dimensions of conservation.

Finally, the exploration of future climate projections with CityApp introduces a sophisticated tool for visualising how climate change might affect various cities over the next 60 years. Created by Matt Fitzpatrick at the University of Maryland Center for Environmental Science, CityApp provides users with interactive maps to understand future climate conditions based on current trends and different emissions scenarios. This tool serves as a practical application for urban planners, policymakers, and residents, helping them prepare for potential climate impacts and design better-suited cities for future conditions.

As we reflect on the diverse articles in this issue, a common thread emerges: the need for a holistic and inclusive approach to conservation. Whether it is through international cooperation, integrating socio-economic considerations, addressing hidden biodiversity loss, or leveraging innovative tools for climate adaptation, the path forward requires collaborative efforts and a commitment to balancing conservation goals with human well-being.

Looking ahead, the challenge remains to translate these insights and discussions into actionable strategies that can effectively address the multifaceted issues at the heart of conservation and livelihoods. By fostering cooperation among various stakeholders, enhancing scientific research, and prioritising ethical considerations, we can pave the way for a sustainable and biodiverse future that supports both the natural world and the communities that depend on it. This unified vision is not only essential for preserving our planet's biodiversity but also for ensuring a resilient and equitable world for generations to come.

— Dr Nikolas Sellheim
June 2024

ARTICLE

The Bern Process and its role in global conservation

Introduction

The Bern Process represents a pivotal step in global efforts to address biodiversity loss through enhanced cooperation among international conventions. By fostering collaboration and synergies among Parties and stakeholders, the Bern Process aims to ensure the successful implementation of the Kunming-Montreal Global Biodiversity Framework. This initiative is essential in uniting various Multilateral Environmental Agreements (MEAs) to achieve a common goal: the preservation and sustainable management of global biodiversity.

The journey of the Bern Process began with the Bern I consultation in 2019, where foundational discussions set the stage for subsequent actions. The continuation of these efforts through Bern II, even amidst the challenges posed by the COVID-19 pandemic, highlighted the resilience and commitment of the international community. Now, as we approach the Bern III Conference, the focus is on translating discussions into tangible, action-oriented outcomes that respect the mandates of biodiversity-related conventions and drive the collaborative implementation of the GBF.

The Bern Process not only exemplifies international cooperation but also underscores the importance of coordinated actions in tackling the pressing issue of biodiversity loss. Through continued dialogue and collaboration, the Bern Process aims to pave the way for a more sustainable and biodiverse future.

The Bern III conference

Background and Objectives

The Bern III Conference, held in Bern, Switzerland, from 23—25 January 2024, was organised to enhance cooperation among biodiversity-related conventions for the effective implementation of the Kunming-Montreal Global Biodiversity Framework (GBF). This conference brought together representatives from 16 multilateral environmental agreements (MEAs), along with various stakeholders, organisations, and experts, to discuss and identify practical opportunities for collaboration at global, regional, and national levels. The primary objectives were to strengthen cooperation and collaboration within and among Parties to biodiversity-related conventions, make recommendations for further steps, and share practical experiences in implementation.

Preparation and Organisation

Prior to the conference, the United Nations Environmental Programme (UNEP) organised two webinars to inform participants about key issues likely to be discussed and to build a common understanding. These webinars covered perspectives on the Bern Process, the format of the conference, UNEP's role in facilitating MEA synergies, and the Kunming-Montreal Global Biodiversity Framework. Several documents, including a provisional agenda, a Co-Chairs paper, and information papers on MEA mandates, upcoming

meetings, and cross-mapping MEA strategies, were prepared and shared with participants.

The conference aimed to maximise participant discussion, with sessions professionally facilitated and evolving based on participant interests and energies. The format was designed to encourage practical outcomes by capturing discussion results through various means, including rapporteur's notes and online tools.

Conference proceedings

The conference opened with welcoming remarks from representatives of the Government of Switzerland and UNEP, emphasising the importance of cooperation and the willingness to engage in implementing the Kunming-Montreal Global Biodiversity Framework. The co-chairs introduced their personal ambitions for the conference, encouraging participants to engage beyond their official roles and build new working relationships.

The initial sessions focused on setting the scene by introducing key background documents and perspectives from various stakeholders, including youth, indigenous groups, and sub-national governments. Participants were invited to identify key topics and questions for discussion, leading to a focus on enhanced cooperation among national focal points, engagement in National Biodiversity Strategies and Action Plans (NBSAP) development and implementation, coherence in reporting and use of indicators, resource mobilisation, and regional cooperation.

Exploring collaborative progress

In exploring opportunities for collaborative progress at the global level, participants considered four goals identified by the co-chairs: supporting GBF targets to achieve MEA goals, enhancing collaboration among MEA clusters, using consistent indicators and data sources for monitoring and reporting, and recognising MEA roles in GBF implementation. Discussions highlighted existing actions, planned activities, tools and guidance, formal agreements, and opportunities for increased cooperation and communication.

National-level implementation

Discussions on national-level implementation emphasised the need for cooperation in developing and implementing NBSAPs, creating ongoing dialogue and capacity-building mechanisms, aligning national monitoring and reporting systems, and seizing regional and sub-regional collaboration opportunities. Participants recognised the challenges of achieving national and subnational synergies and the importance of engaging various stakeholders, including the private sector and civil society.

Future actions and recommendations

The conference concluded with a set of consolidated actions proposed by the co-chairs, focusing on enhancing cooperation among MEA secretariats, establishing national platforms for stakeholder engagement, contributing to global reviews of GBF implementation, and promoting the benefits of cooperation. The need for continued dialogue and cultural change within MEAs

was emphasised, along with the importance of leveraging upcoming intergovernmental events to further the goals of the Bern Process.

The Bern III Conference successfully identified practical mechanisms to facilitate cooperation and strengthen the implementation of the Kunming-Montreal Global Biodiversity Framework, building on the foundations laid by previous Bern consultations and setting the stage for continued collaborative efforts among biodiversity-related conventions.

The urgent need for a Bern Process

Uniting various Multilateral Environmental Agreements (MEAs) under the Bern Process is urgently needed to address the multifaceted and global challenge of biodiversity loss. This holistic approach ensures that conservation efforts are coordinated and mutually reinforcing, avoiding fragmented and duplicative actions. By optimising resource use, the Bern Process enhances the impact of limited funding and expertise. It fosters synergies across different aspects of biodiversity, from species protection to pollution control, creating comprehensive strategies that are more effective. Strengthened governance results from aligning MEA objectives, promoting consistent policy implementation globally. This unified response amplifies individual actions, making a significant global impact. The Bern Process facilitates the sharing of knowledge and best practices, spreading innovative solutions and enhancing capacity to tackle biodiversity challenges. By fostering collaboration, it builds resilience and adaptability against environmental crises. Furthermore, the inclusive nature of the Bern Process ensures that diverse stakeholders, including governments, NGOs, indigenous communities, and the private sector, are involved, promoting equitable and just conservation strategies. This collective and coordinated approach is essential for preserving and sustainably managing global biodiversity, ensuring a healthier and more resilient planet for future generations.

Initiatives of coordination

Before the Bern Process, several initiatives and studies aimed to link different conventions and streamline their actions for more cohesive and effective biodiversity conservation. One significant effort was the creation of the Biodiversity Liaison Group (BLG) in 2004. This group brought together the heads of key biodiversity-related conventions—CBD, CITES, the Ramsar Convention, the World Heritage Convention, the Convention on Migratory Species (CMS), and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). The BLG aimed to enhance coherence and cooperation in the implementation of these conventions by fostering communication, identifying synergies, and developing joint activities.

Another important initiative was the Joint Liaison Group (JLG) established by the secretariats of the CBD, the United Nations Framework Convention on Climate Change (UNFCCC), and the United Nations Convention to Combat Desertification (UNCCD). Formed in 2001, the JLG's purpose was to explore opportunities for synergistic action and to address interlinked issues such as biodiversity, climate change, and desertification. This group worked to harmonise national reporting processes and

promote integrated approaches to implementing these conventions at the national level.

The Collaborative Partnership on Forests (CPF), established in 2001, also sought to improve coordination among international organisations working on forest-related issues. It included 14 international organisations, including the Food and Agriculture Organization (FAO), the United Nations Development Programme (UNDP), and the World Bank. The CPF aimed to streamline efforts to conserve and sustainably manage forests, directly contributing to biodiversity conservation.

The Millennium Ecosystem Assessment (MEA), conducted between 2001 and 2005, provided a comprehensive scientific appraisal of the condition and trends of the world's ecosystems and the services they provide. This assessment highlighted the interconnectedness of various environmental issues and underscored the need for integrated management approaches that cross the boundaries of individual conventions.

Additionally, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), established in 2012, serves as a global mechanism to strengthen the science-policy interface for biodiversity and ecosystem services. IPBES assessments synthesise knowledge from multiple sources, facilitating informed decision-making that aligns with the goals of various biodiversity-related conventions.

These initiatives collectively paved the way for more integrated and coordinated approaches to biodiversity conservation, addressing the fragmentation often seen in the implementation of international environmental agreements. They set the stage for the Bern Process by highlighting the importance of synergy and cooperation among conventions to tackle global biodiversity challenges effectively.

Conclusion

The Bern Process provides for a new approach in the global fight against biodiversity loss, symbolising the power of unity and cooperation among international conventions. As highlighted throughout the Bern III Conference, this process is not merely about dialogue but about actionable steps that translate into real-world impacts. The Bern Process has laid a robust foundation for the implementation of the Kunming-Montreal Global Biodiversity Framework (GBF), demonstrating that cohesive efforts can yield significant strides in biodiversity conservation.

The successful outcomes of the Bern III Conference underscore the potential of coordinated actions. By bringing together representatives from 16 multilateral environmental agreements (MEAs) and various stakeholders, the conference fostered a collaborative environment where shared goals and practical solutions took centre stage. The emphasis on strengthening cooperation, sharing best practices, and aligning national and international efforts has set a clear path forward. These actions are critical for addressing the multifaceted challenges of biodiversity loss, ensuring that the strategies implemented are not isolated but interconnected and mutually reinforcing.

The initiatives and recommendations stemming from the Bern III Conference, such as enhancing cooperation among MEA secretariats, establishing national platforms for stakeholder engagement, and contributing to

global reviews of GBF implementation, highlight the proactive approach needed to tackle biodiversity loss effectively. These steps are vital for building resilience and adaptability against environmental crises and for promoting equitable and just conservation strategies.

The Bern Process's inclusive nature ensures that diverse voices, including those of governments, NGOs, indigenous communities, and the private sector, are heard and integrated into the conservation strategies. This inclusivity is essential for crafting comprehensive and effective biodiversity policies that are responsive to the needs of various stakeholders.

In conclusion, the Bern Process exemplifies the potential of global cooperation in addressing one of the most pressing issues of our time. It fosters a unified response to biodiversity loss, amplifying individual actions into a significant global impact. By continuing to build on the foundations laid and embracing the collaborative spirit of the Bern Process, we can pave the way for a sustainable and biodiverse future, ensuring a healthier and more resilient planet for generations to come.

ARTICLE

The evolution of livelihoods within CITES: a historical perspective

The origins

The integration of livelihood considerations within the framework of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) represents a significant shift, marked by Resolution Conf. 8.3 adopted at CoP8 in 1992, which recognised the benefits of wildlife trade, especially in developing countries where many protected species reside. This resolution acknowledged the economic viability of sustainable wildlife use while emphasising the need to balance conservation efforts with the socio-economic needs of local communities. It laid the groundwork for subsequent resolutions and discussions that underscored the importance of responsible trade practices, legal frameworks, and community involvement in wildlife management. The recognition of livelihoods gained further traction during subsequent COP meetings, such as CoP11 in 2000 and CoP13 in 2004, where proposals for species listing took into account potential impacts on the livelihoods of impoverished harvesters. Resolution Conf. 13.2 provided a framework for promoting sustainable use of biodiversity, aligning CITES efforts with the principles outlined in the Convention on Biological Diversity (CBD). This holistic approach emphasises collaboration between CITES and CBD authorities, sharing of best practices, and policy alignment at the national level to ensure effective implementation of conservation and sustainable use measures.

Overall, the evolution of livelihoods discourse within CITES reflects a broader recognition of the interdependence between conservation goals, socio-economic development, and community well-being, paving the way for more inclusive and sustainable conservation practices.

Navigating socio-economic realities: livelihoods in contemporary CITES discourse

The inclusion of livelihoods considerations within the agenda of CoP14 marked a significant step in recognising the ethical, political, and practical importance of addressing the impacts of CITES regulations on impoverished communities. While the primary goal of CITES remains the conservation of biodiversity through trade regulation, acknowledging the socio-economic implications of its decisions reflects a more holistic approach to conservation. The utilisation of livelihood arguments during discussions, such as those surrounding the proposed listing of the Banggai cardinalfish, demonstrates a growing awareness of the need to balance conservation goals with local livelihood concerns. However, tensions emerged regarding the prioritisation of livelihoods over species conservation, highlighting the need for clarity in decision-making processes. The establishment of a working group to develop tools and guidelines for assessing and addressing the impacts of CITES decisions on livelihoods represents a proactive step towards integrating socio-economic considerations into conservation efforts. Despite challenges, such as funding shortages affecting the continuation of initiatives like the Bushmeat Working Group, CoP14's directives underscore a commitment to addressing livelihood concerns within the framework of CITES, albeit alongside ongoing conservation efforts.

Proactive engagement: Establishing the Working Group on CITES and Livelihoods

The establishment of the working group on CITES and livelihoods, as outlined in Decision 14.3, represents a proactive effort to address the socio-economic impacts of implementing CITES listing decisions on impoverished communities. The proposed approach, which involves gathering technical contributions from various stakeholders and establishing a working group with diverse representation, reflects a comprehensive strategy to guide the implementation process. The terms of reference for the working group outline clear objectives, including the preparation of background papers, identification of assessment tools, and development of draft guidelines. The involvement of Parties and organisations that participated in the 2006 Workshop on CITES and Livelihoods ensures a continued commitment to assessing and addressing impacts on livelihoods. Despite some initial delays, progress has been made with financial contributions facilitating the appointment of a consultant and engagement with UNEP-WCMC to develop background papers. The establishment of a forum on the CITES website further promotes collaboration and information exchange among working group members and interested parties. Overall, the establishment of the working group demonstrates a concerted effort to integrate livelihood considerations into CITES decision-making processes and ensure that the impacts

on local communities are adequately addressed.

Sustaining momentum: Progress towards CoP15 and beyond

The discussions at SC58 and SC59, leading up to CoP15, demonstrate an ongoing commitment to integrating livelihood considerations into CITES decision-making processes. At SC58, concerns about the timeline for developing the toolkit and guidelines prompted a decision to present the documents at SC59 instead of CoP15, indicating a desire for thorough consideration and broader consultation. The proposal to extend the working group's mandate at SC59 reflects a recognition of the importance of continuing efforts to address livelihood impacts.

At CoP15, livelihoods emerged prominently on the agenda, with a draft resolution and decisions aimed at addressing the socio-economic impacts of CITES listings. The proposed resolution outlined key principles and recommendations for empowering impoverished communities and mitigating negative impacts. It emphasised the need for collaboration between development and conservation agencies and called for support from international financial institutions and cooperation agencies.

While there was general support for the draft decisions and resolution, there were also suggestions for revisions to ensure alignment with CITES objectives and core issues. The rejection of the draft resolution underscores the need for further refinement and consensus-building within the Working Group.

Regarding bushmeat, discussions focused on whether to retain or delete Decisions 14.73 and 14.74, with some advocating for retention to foster collaboration and await the completion of the Bushmeat Working Group's work. Ultimately, it was agreed to maintain the Decisions with proposed amendments, indicating a recognition of the ongoing importance of addressing the bushmeat trade within the CITES framework.

Overall, the discussions at CoP15 reflect a nuanced approach to integrating livelihood considerations into CITES decision-making processes, balancing the need for conservation with the socio-economic realities of affected communities. The continued engagement of Parties and stakeholders demonstrates a commitment to addressing these complex issues collaboratively.

Continued progress and challenges: From SC61 to SC62

The evolution of the Working Group on CITES and livelihoods, as observed from SC61 to SC62, reflects a proactive approach towards addressing the socio-economic dimensions of wildlife conservation within the CITES framework. The expansion of the group's scope to include community-based natural resource management (CBNRM) and bushmeat issues demonstrates a recognition of the interconnectedness between conservation efforts and rural livelihoods. The incorporation of case studies and feedback from involved Parties underscores a commitment to inclusivity and responsiveness to diverse perspectives. Moreover, the emphasis on broader participation from mega-biodiversity countries highlights a concerted effort to ensure representation from regions

with significant conservation challenges. The development of a new draft resolution, with a focus on empowering poor rural communities, signifies a nuanced understanding of the socio-economic dynamics at play and a commitment to promoting equitable conservation outcomes. By endorsing the new draft resolution and supporting the continuation of the Central Africa Bushmeat Working Group, the Standing Committee reaffirms its commitment to addressing the complex challenges posed by the wildlife trade while striving to ensure the well-being of affected communities. Overall, these developments underscore a progressive and inclusive approach to integrating livelihood considerations into CITES decision-making processes.

Milestones and momentum: CoP16 and Beyond

The adoption of Resolution Conf. 16.6 at CoP16 marks a significant milestone in the integration of livelihood considerations into the CITES framework. By acknowledging the real impacts of CITES trade regulation on people and emphasising the duty of Parties to mitigate negative impacts, the resolution underscores a growing recognition of the socio-economic dimensions of wildlife conservation. The widespread support for the resolution among diverse countries reflects a shared commitment to addressing livelihood issues within the CITES framework, despite differing perspectives on implementation and inclusivity. The resolution's recognition of land and resource tenure rights associated with CITES-listed species aligns CITES with other MEAs and underscores the importance of indigenous and local knowledge in biodiversity conservation. Additionally, Decisions 16.17 to 16.19 provide a roadmap for further work on CITES and livelihoods, emphasising the importance of rapid assessments, case studies, and stakeholder exchanges to inform conservation and sustainable use programs. However, challenges remain, particularly concerning the Central Africa Bushmeat Working Group. While progress has been made at the national and regional levels, the Working Group's effectiveness and engagement have been called into question by the Secretariat. Despite these challenges, the retention of Decisions 14.73 and 14.74 and the directive to review Resolution Conf. 13.11 demonstrate a continued commitment to addressing bushmeat conservation within the CITES framework, albeit with a need for enhanced coordination and engagement moving forward.

Advancements and reflections: Inter-sessional Progress Towards CoP17

The inter-sessional period leading up to CoP17 witnessed significant progress in addressing livelihood-related issues within the CITES framework, particularly through the work of the Working Group on CITES and Livelihoods. With the support of external funding from the European Union and collaborations with key organisations such as the Organization of American States (OAS) and the Amazon Cooperation Treaty Organization (ACTO), the Working Group made substantial strides in implementing Resolution Conf. 16.6 and associated decisions. The establishment of collaborations and initiatives, such as the international workshop organised by OAS in the Peruvian Amazon and the integration of "CITES and livelihoods" into ACTO's work plan, demonstrated a commitment to advancing the

objectives set forth at CoP16. Additionally, the development of a handbook on CITES and livelihoods, informed by case studies and insights shared during workshops and discussions, provided practical guidance for conducting impact assessments and implementing mitigation strategies.

The decision at SC65 to continue the work of the Working Group despite changes in its composition reflected ongoing commitment to addressing livelihood issues within the CITES framework. The persistence of the Working Group facilitated the implementation of case studies testing the applicability of guidelines and toolkits in various countries, including Colombia, Costa Rica, and Guatemala, as well as initiatives focusing on bushmeat conducted by the Center for International Forestry Research (CIFOR). These efforts, supported through collaborative partnerships and funding, underscored a concerted effort to better understand the complex dynamics between wildlife conservation policies and community well-being.

The presentation of the Handbook on CITES and Livelihoods at SC66 highlighted a valuable resource for stakeholders involved in addressing livelihood-related impacts of CITES decisions. The handbook's comprehensive approach, encompassing swift impact assessments and mitigation strategies, was informed by participatory rural appraisal techniques and input from development and cooperation organizations. Moreover, the translation of the handbook into multiple languages, facilitated by funding from the CITES Secretariat, demonstrated a commitment to making the resource accessible to a broader audience.

Overall, the inter-sessional period leading up to CoP17 witnessed significant progress in integrating livelihood considerations into the CITES framework, driven by collaborative efforts, external funding, and practical initiatives aimed at addressing the socio-economic impacts of wildlife trade regulation.

CoP17: Prioritising livelihoods and community engagement

Livelihoods have increasingly become a focal point within the CITES framework, as evidenced by their prominence on the agenda of CoP17 in Johannesburg. The discussions and resolutions surrounding livelihoods at CoP17 underscored the recognition of the real impacts of CITES trade regulations on people, particularly rural communities. The documents and resolutions presented at CoP17 aimed to address these impacts comprehensively, emphasising the need for rapid assessments, mitigation measures, and integration of livelihood issues into national socio-economic plans. Moreover, the inclusion of food security concerns within the livelihood discourse further highlighted the interconnectedness between wildlife conservation, sustainable resource management, and human well-being. The proposed establishment of a Rural Communities Committee within CITES, although met with mixed reactions, reflected a significant step towards enhancing the participation of indigenous peoples and rural communities in decision-making processes. While not fully realised, the agreement to explore effective methods of involving rural communities through an intersessional working group demonstrated a commitment to addressing socio-economic dimensions within the CITES framework, aiming for a more inclusive and holistic approach to

conservation and sustainable use of wildlife resources.

Navigating diverse perspectives towards CoP18

The inter-sessional period towards CoP18 saw a nuanced exploration of livelihoods within the CITES framework, with discussions unfolding along two distinct lines: the impact of CITES listing decisions on livelihoods and the potential food security implications thereof. The divergence in perspectives was evident during the 69th Standing Committee meeting, where agenda items specifically addressing livelihoods and food security took center stage. China's proposal to establish a working group on CITES Livelihoods and Food Security signalled a shift in focus, aiming to delve deeper into the intricate connections between wildlife trade, food security, and livelihoods. Despite concerns voiced by some countries and NGOs regarding the potential diversion from CITES' core objectives, Antigua and Barbuda, along with Namibia, advocated for the formation of an intersessional working group to integrate food security concerns into existing resolutions. Simultaneously, discussions surrounding the engagement of rural communities gained traction, with significant steps taken to strategise their involvement in CITES processes. The establishment of an intersessional working group on rural communities aimed to devise strategies for effective engagement and terminology consistency across resolutions and decisions. However, diverging views emerged on the primary methods for enhancing community participation, highlighting the complex interplay between inclusivity, logistical challenges, and existing frameworks within CITES. The discussions underscored the intricate balance required to effectively engage rural communities while staying true to CITES' conservation mandates and operational pragmatism.

CoP18: Again prioritising livelihoods and community engagement

The 18th Conference of the Parties (CoP18) marked a significant milestone in the advancement of livelihood considerations within the CITES framework, with a particular focus on engaging rural communities in decision-making processes. The agenda encompassed discussions on participatory mechanisms for rural communities, led by Namibia, aiming to introduce considerations for local communities into the amendment process. Proposed amendments to existing resolutions, such as Resolution Conf. 4.6 (Rev.CoP17) and Resolution Conf. 9.24 (Rev. CoP17), sought to enhance the integration of rural communities' perspectives and interests into CITES decision-making processes. These amendments aimed to ensure that the impacts on rural communities are duly considered by requiring Parties to account for their perspectives and document consultations with them. While diverse perspectives emerged during discussions, reflecting the complexity of the issue, the Secretariat recommended adopting proposed revisions to Resolution Conf. 4.6 (Rev. CoP17) but expressed reservations regarding amendments proposed by China to Resolution Conf. 9.24 (Rev. CoP17). Ultimately, the CoP decided to delete certain decisions concerning livelihoods and food security, recognising the integration of food security into the broader discussion on

livelihoods. However, the CoP also adopted decisions aimed at facilitating the work of the CITES and Livelihoods working group, including establishing a working group to monitor progress in engaging Indigenous Peoples and Local Communities (IPLCs) and conducting a survey on this engagement. These decisions underscored the ongoing commitment to integrate livelihood considerations into CITES decision-making processes and ensure the meaningful participation of rural communities therein.

Inter-sessional progress towards CoP19

As preparations for CoP19 unfold, the discourse on livelihoods and the engagement of rural communities within CITES remains dynamic. At SC77 in November 2023, these topics were once again at the forefront, reflecting a broader shift towards integrating social dimensions into CITES deliberations. Progress within the working group on livelihoods and engagement of Indigenous Peoples and Local Communities (IPLCs) has been notable, with focused efforts on developing non-binding guidance for proponent Parties and formulating recommendations for IPLC engagement. Through email exchanges and in-person meetings, the group has laid the groundwork for drafting guidance and exploring avenues to enhance IPLC involvement in CITES processes. The Secretariat's report underscores the importance of terminology consistency and inclusivity, urging clarity on the scope of IPLCs to prevent inadvertent exclusions. Stakeholders have voiced support for expanding the working group's mandate to include terminology examination, recognising the complexity of terminology choice and the imperative of inclusive dialogue. Meanwhile, progress in the livelihoods working group, marked by refined case study templates and substantive discussions on benefit maximisation for IPLCs, underscores a commitment to empowering communities reliant on CITES-listed species. As discussions persist and strategies evolve, the focus on livelihoods and community engagement promises to shape the agenda for CoP20 and beyond, affirming CITES' evolving role in addressing socio-economic dynamics alongside conservation imperatives.

CoP19: Prioritising IPLCs and livelihoods

Livelihoods within the framework of CITES encompass a broad spectrum of activities and considerations crucial for sustainable wildlife management and trade, particularly concerning the involvement of Indigenous Peoples and Local Communities (IPLCs). Through engagements at different levels, IPLCs play diverse roles in the production and value chain for CITES-listed species, ranging from collection to sale. The reinvestment of trade proceeds into conservation and community development programs underscores the intertwined relationship between livelihoods and conservation efforts. However, challenges such as resource constraints, cultural diversity, and low awareness of CITES hinder effective engagement with IPLCs. To address these challenges and foster an enabling environment, key strategies have been proposed, emphasising the importance of supportive domestic policies, increased awareness, and financial and technical support. Despite setbacks due to the COVID-19 pandemic and language barriers,

efforts to extend the mandate of the working group underscore the commitment to enhancing IPLC participation and maximising their benefits from CITES implementation and trade. Additionally, discussions surrounding the distinction between indigenous peoples and local communities highlight the evolving nature of terminology and the need for nuanced approaches tailored to different contexts. Ultimately, the ongoing dialogue and proposed decisions aimed at CoP19 reflect the collective endeavour to advance livelihood considerations within the CITES framework and ensure meaningful engagement with IPLCs in sustainable wildlife management and trade.

CoP19: Upholding commitments to livelihoods and conservation

Livelihoods hold significant importance within the context of CITES, as evidenced by the discussions and decisions made at the 19th Conference of the Parties (CoP19) held in Panama City in 2022. The conference dedicated considerable attention to addressing the engagement of Indigenous Peoples and Local Communities (IPLCs) in CITES processes, recognising their vital role in wildlife management and trade. Decision 17.57 (Rev. CoP19) highlighted the need for consistency in terminology regarding IPLCs across CITES documents, reflecting a commitment to inclusivity and clarity. Additionally, Decision 18.31 (Rev. CoP19) established an intersessional working group to explore effective methods for engaging IPLCs, emphasising the importance of their participation in decision-making processes. The proposed establishment of a Rural Communities Advisory Subcommittee within the Standing Committee further underscored the recognition of IPLCs' perspectives and the integration of traditional knowledge into conservation efforts. Despite differing opinions and challenges, including concerns about disproportionate influence and potential alterations to CITES' scope, the discussions at CoP19 reflected a collective endeavour to prioritise livelihood considerations and ensure sustainable wildlife management that benefits local communities. While some proposals faced rejection, the dialogue and deliberations demonstrated a commitment to addressing socio-economic interactions and integrating livelihoods and food security into CITES decision-making frameworks, thus advancing the holistic conservation goals of the convention.

Conclusion

The integration of livelihood considerations within the framework of CITES represents a profound evolution in the approach to wildlife conservation and trade regulation. From the adoption of Resolution Conf. 8.3 at CoP8 in 1992 to the ongoing initiatives leading up to CoP19 and beyond, the emphasis on balancing conservation goals with the socio-economic needs of local communities has become a central tenet of CITES deliberations.

The historical perspective illustrates a significant shift towards recognising the economic viability of sustainable wildlife use, particularly in developing countries where many protected species reside. This recognition has been further solidified through subsequent COP meetings, where the impacts of species listing on impoverished communities were carefully considered. The establishment of the Working Group on

CITES and Livelihoods has been pivotal, providing a structured approach to integrating these socio-economic dimensions into CITES decision-making processes.

Throughout the years, various resolutions and decisions have underscored the importance of involving local communities and indigenous peoples in conservation efforts. This inclusive approach ensures that conservation strategies are not only effective but also equitable, promoting sustainable development alongside biodiversity preservation. The proactive engagement in developing tools and guidelines for assessing the impacts of CITES decisions on livelihoods represents a commitment to practical and inclusive conservation solutions.

Despite challenges such as funding shortages and the complexities of balancing conservation with socio-economic needs, the progress made through intersessional periods and COP meetings demonstrates a steadfast commitment to these goals. The evolution of the CITES framework to include livelihoods considerations reflects a broader recognition of the interdependence between conservation and human well-being.

As CITES continues to navigate these complex issues, the ongoing dialogue and collaboration among Parties, stakeholders, and local communities are crucial. By maintaining this inclusive and holistic approach, CITES can effectively address the socio-economic realities of wildlife conservation, ensuring that both biodiversity and human livelihoods are safeguarded for future generations.

ARTICLE

Dark extinction: unveiling the hidden loss of biodiversity

Introduction

Dark extinction, a term gaining traction in contemporary biodiversity discussions, refers to the phenomenon where species go extinct before being discovered or described by science. This concept highlights a significant gap in our understanding of biodiversity loss, emphasising the species that vanish without leaving a trace in scientific records. Unlike well-documented extinctions, dark extinctions occur silently, often exacerbated by human activities and environmental changes. This paper delves into the intricacies of dark extinction, exploring its implications, historical context, current understanding, and potential solutions to mitigate its impact.

Understanding dark extinction

The essence of dark extinction lies in the unknown. These are species that become extinct without ever being known to science, thus never receiving taxonomic classification. This phenomenon severely undermines our ability to catalog global biodiversity accurately and assess the full extent of human impact on ecosystems. The concept of dark extinction extends back to prehistoric times and continues into the modern era, affecting a wide range of organisms from megafauna to microorganisms.

Historical context and phases of dark extinction

Prehistoric dark extinction

Prehistoric dark extinction refers to the loss of species driven by early human activities before the advent of written records or systematic scientific study. This phase includes the extinction of megafauna in regions such as North America and Australia, primarily due to overhunting and habitat alteration by early humans. Fossil and subfossil evidence provide glimpses into these ancient extinctions, but many species undoubtedly vanished without leaving any trace.

The concept of dark extinction during prehistoric times highlights the significant impact early humans had on biodiversity. For instance, the arrival of humans in Australia around 50,000 years ago coincided with the extinction of many large animal species, such as the giant kangaroo and the diprotodon, a massive marsupial. These extinctions likely resulted from a combination of hunting pressure and habitat changes induced by human activities, such as the use of fire to manage landscapes.

Similarly, in North America, the arrival of humans around 15,000 years ago corresponded with the extinction of numerous megafaunal species, including mammoths, mastodons, and giant ground sloths. The exact causes of these extinctions remain debated, but it is clear that human activities played a significant role. The loss of these species had profound effects on ecosystems, as they were often keystone species that played crucial roles in maintaining the structure and function of their habitats.

Early modern (pre-taxonomic) dark extinction

The period from 1500 CE onwards marked significant changes as European explorers began discovering and colonising distant lands. This era saw the introduction of invasive species and drastic habitat changes, leading to rapid environmental degradation and species loss. However, many of these extinctions predated the formal establishment of taxonomic sciences, meaning numerous species disappeared without ever being documented. Examples include the dodo and the Ascension crake, which are known only from fragmentary remains and scant historical records.

The early modern period was characterised by the expansion of European colonial empires, which brought profound ecological changes to many parts of the world. The introduction of non-native species, such as rats, cats, and goats, had devastating impacts on island ecosystems that had evolved in isolation and lacked defences against these new predators and competitors. For instance, the dodo, a flightless bird native to Mauritius, went extinct in the late 17th century due to a combination of hunting by humans and predation by introduced animals.

Another example is the Ascension crake, a small flightless bird from Ascension Island in the South Atlantic. It is known only from subfossil remains and a brief sketch by an early traveler. The species likely went extinct shortly after the island was discovered by Europeans in the early 16th century, driven to extinction by introduced predators and habitat destruction.

Taxonomic period (1800–present)

From the 19th century onwards, scientific

nomenclature and methods became more established, leading to increased documentation of species. Despite this progress, many species continued to go extinct before they could be described, particularly in remote and less-studied regions. The taxonomic backlog and the slow pace of species discovery meant that extinctions often outpaced scientific documentation.

The development of modern taxonomy in the 19th century, led by figures such as Carl Linnaeus, revolutionised our understanding of biodiversity. However, the sheer scale of undiscovered species, especially in diverse and understudied regions like tropical rainforests and deep oceans, means that many species still go extinct without ever being recorded. For example, numerous species of amphibians, insects, and plants have likely gone extinct in the Amazon rainforest and other biodiversity hotspots due to deforestation and other human activities.

The taxonomic backlog, where newly discovered species await formal description and classification, exacerbates the issue of dark extinction. Taxonomists face immense challenges in cataloging the world's biodiversity, and the slow pace of this work means that many species are never formally recognised before they disappear. This backlog is particularly pronounced in groups with high species diversity and complex taxonomy, such as insects and fungi.

Estimating dark extinction

Estimating the number of species lost to dark extinction is inherently challenging due to the lack of direct evidence. Various statistical methods have been developed to infer these numbers indirectly.

E/MSY (extinction per million species-years)

This metric calculates extinction rates by considering the number of species and the time over which they have been observed. By applying this method to known extinctions, researchers can estimate the number of species that may have gone extinct without being documented. The E/MSY metric provides a standardised way to compare extinction rates across different taxa and time periods.

For example, researchers have used E/MSY to estimate that approximately 13 species of birds have gone extinct since 1900, based on the known extinctions and the cumulative number of species-years. By extrapolating these data, they suggest that several additional bird species may have gone extinct without being documented. This approach highlights the importance of considering both documented and undocumented extinctions in assessing biodiversity loss.

The Tedesco method

A more formal approach, the Tedesco method, uses parametric models to estimate the number of undescribed species that have gone extinct. This method assumes a constant rate of species discovery and extinction, providing a framework for understanding the scale of dark extinction. By incorporating data on species descriptions and known extinctions, the Tedesco method can estimate the proportion of species that have gone extinct without being documented.

The Tedesco method has been applied to various taxa, including freshwater fish and amphibians. For instance, a study using this method estimated that up to 59% of all extinctions within certain taxonomic groups

may be undocumented. This finding underscores the significant gap in our knowledge of biodiversity loss and the need for improved efforts to document and protect species.

Chisholm's SEUX Model

The SEUX model offers a non-parametric approach, categorising species into detected extant, undetected extant, detected extinct, and undetected extinct groups. This model allows for varying extinction and discovery rates over time, offering a more flexible and potentially accurate estimation of dark extinction.

The SEUX model has been applied to various taxa, including birds and butterflies. For example, a study using this model estimated that approximately 9.6 additional bird species in Singapore have gone extinct without being documented. This approach highlights the importance of considering temporal variability in extinction and discovery rates when estimating dark extinction.

Real-world implications of dark extinction

The implications of dark extinction extend beyond the loss of individual species. These undocumented extinctions can have cascading effects on ecosystems and human societies, highlighting the urgent need for comprehensive conservation strategies.

Ecological consequences

Dark extinction can lead to the loss of key ecosystem functions and services. Many species play critical roles in their ecosystems, such as pollination, seed dispersal, and pest control. The extinction of these species can disrupt ecological interactions and lead to further biodiversity loss.

For example, the extinction of pollinators, such as certain species of bees and butterflies, can have far-reaching effects on plant reproduction and ecosystem stability. Plants that rely on these pollinators may experience reduced reproductive success, leading to declines in plant populations and the animals that depend on them.

Economic and social impacts

Biodiversity loss, including dark extinction, can have significant economic and social impacts. Many communities, particularly in developing countries, rely on biodiversity for their livelihoods, including agriculture, forestry, and fisheries. The loss of species can undermine these livelihoods and exacerbate poverty and food insecurity.

For instance, the decline of fish populations due to overfishing and habitat destruction can reduce the availability of a crucial food source and economic resource for coastal communities. Similarly, the loss of medicinal plants and other natural resources can limit access to traditional medicines and reduce opportunities for sustainable development.

Conservation challenges

Dark extinction presents significant challenges for conservation efforts. Without knowledge of the species that are disappearing, it is difficult to prioritise conservation actions and allocate resources effectively. This lack of information can hinder efforts to protect critical habitats

and implement targeted conservation strategies.

To address these challenges, conservationists must adopt a proactive approach that includes habitat preservation, species monitoring, and community engagement. By focusing on biodiversity hotspots and involving local communities in conservation efforts, it is possible to mitigate the impacts of dark extinction and protect the world's biodiversity.

Case studies and examples

Birds

Birds are a well-studied group, yet significant dark extinctions are inferred from historical data. For instance, extrapolations suggest that many bird species may have gone extinct between 1500 and 1800, a period with sparse documentation. The cumulative extinction curves for birds indicate a higher number of undocumented extinctions than previously recorded.

One notable example is the passenger pigeon, which went extinct in the early 20th century. Once numbering in the billions, passenger pigeons were driven to extinction by hunting and habitat loss. While the passenger pigeon is well-documented, many other bird species likely disappeared without leaving any trace in scientific records.

Invertebrates and other taxa

Invertebrates, particularly arthropods, present an even greater challenge. Their high diversity and often cryptic nature mean that many species go unrecorded before disappearing. Estimates suggest that up to 260,000 invertebrate species may have been lost over the past 500 years, highlighting the inadequacies of current biodiversity records.

For example, the St. Helena giant earwig, an invertebrate species, was last seen in the 1960s and is now presumed extinct. Despite targeted search efforts, no individuals have been found, and the species is only known from a few museum specimens. This case illustrates the difficulties in detecting and documenting invertebrate extinctions.

Plants

Plants are also vulnerable to dark extinction, particularly those in biodiversity hotspots and specialised habitats. Many plant species are endemic to small geographic areas and are highly susceptible to habitat destruction and environmental changes.

One example is the St. Helena olive, a plant species that went extinct in the wild in the early 1990s. Despite efforts to cultivate the species in botanical gardens, the last known individual died in 2003. The St. Helena olive's extinction underscores the importance of preserving native habitats and maintaining ex situ conservation efforts.

Mitigating dark extinction

Preventing dark extinction requires a multi-faceted approach focusing on habitat conservation, increased taxonomic efforts, and the collection of physical records of species.

Habitat conservation

Preserving and restoring habitats is crucial for preventing both known and unknown extinctions. This includes protecting

biodiversity hotspots and creating ecological corridors to maintain genetic flow between isolated populations.

For instance, the Atlantic Forest in Brazil is a biodiversity hotspot that has experienced significant habitat loss and fragmentation. Conservation efforts in this region focus on restoring forest patches and establishing corridors to connect isolated populations. By enhancing habitat connectivity, it is possible to improve the chances of survival for many species, including those that are yet to be discovered.

Taxonomic efforts

There is a pressing need to ramp up taxonomic research. Increased funding and resources for taxonomy can accelerate the discovery and documentation of species. Collaborative efforts between taxonomists, conservationists, and local communities can enhance the efficiency and scope of biodiversity studies.

Initiatives such as the Global Taxonomy Initiative (GTI) aim to address the taxonomic impediment by supporting taxonomic research and capacity building in developing countries. By training local taxonomists and enhancing infrastructure, the GTI seeks to improve our understanding of global biodiversity and reduce the occurrence of dark extinction.

Collection and documentation

Systematic collection efforts in vulnerable regions can ensure that even if species go extinct, their existence is recorded. This can involve targeted expeditions to biodiversity hotspots and the establishment of comprehensive biological collections in museums and research institutions.

The establishment of the Barcode of Life Data Systems (BOLD) has revolutionised species identification by providing a DNA barcode for each species. This initiative enables researchers to identify and catalog species more efficiently, even from small or damaged specimens. By integrating DNA barcoding with traditional taxonomy, it is possible to enhance species discovery and reduce the likelihood of dark extinction.

Ethical considerations and challenges

Efforts to mitigate dark extinction raise several ethical considerations and challenges that must be addressed to ensure effective and equitable conservation outcomes.

Balancing conservation and collection

There is an inherent tension between the need to collect specimens for scientific documentation and the risk of contributing to species decline through over-collection. Ethical guidelines, such as the "rule of 20," suggest that researchers should refrain from collecting specimens from populations with fewer than 20 individuals to avoid exacerbating extinction risks.

In addition, conservationists must consider the potential impacts of their actions on local communities. Engaging with indigenous peoples and local communities in conservation planning and decision-making can help ensure that conservation efforts are culturally sensitive and do not disproportionately impact vulnerable populations.

Funding and resource allocation

Addressing dark extinction requires significant investment in taxonomy, habitat conservation, and species monitoring. However, funding for biodiversity research and conservation is often limited, leading to difficult decisions about resource allocation.

Policymakers and funding agencies must prioritise investments in high-biodiversity regions and underrepresented taxa. By strategically targeting funding to areas with high conservation value and potential for species discovery, it is possible to maximise the impact of limited resources.

Integrating traditional knowledge

In many regions, indigenous peoples and local communities possess valuable traditional knowledge about local biodiversity. Integrating this knowledge with scientific research can enhance our understanding of species distributions, ecological interactions, and conservation needs.

Collaborative initiatives that involve local communities in biodiversity monitoring and conservation can provide a more holistic approach to addressing dark extinction. These partnerships can also promote the equitable sharing of benefits derived from biodiversity conservation and ensure that local communities are actively involved in safeguarding their natural heritage.

Future directions and recommendations

To effectively address dark extinction, it is essential to adopt a comprehensive and proactive approach that combines scientific research, community engagement, and policy advocacy.

Enhancing taxonomic capacity

Building taxonomic capacity is critical for reducing dark extinction. This includes training and supporting a new generation of taxonomists, particularly in biodiversity-rich regions. Enhancing collaboration between taxonomists, conservationists, and local communities can facilitate the discovery and documentation of species.

Strengthening legal and policy frameworks

Robust legal and policy frameworks are necessary to protect biodiversity and prevent dark extinction. Governments and international organisations must strengthen environmental regulations, enforce habitat protection, and promote sustainable land-use practices.

Promoting public awareness and education

Raising public awareness about the importance of biodiversity and the risks of dark extinction can foster greater support for conservation efforts. Educational programs and outreach initiatives can engage communities and inspire collective action to protect biodiversity.

Integrating biodiversity conservation into development planning

Biodiversity conservation should be integrated into broader development planning and policy-making processes. This includes incorporating biodiversity considerations into

land-use planning, infrastructure development, and agricultural practices to ensure that economic growth does not come at the expense of biodiversity.

Fostering international collaboration

Global collaboration is essential for addressing dark extinction, as biodiversity loss is a transboundary issue. International agreements, such as the Convention on Biological Diversity (CBD), provide a framework for coordinated action and resource sharing. Strengthening international cooperation and support for biodiversity conservation can enhance efforts to document and protect species worldwide.

Conclusion

Dark extinction represents a significant yet often overlooked aspect of biodiversity loss. The silent disappearance of species before they are discovered underscores the limitations of our current understanding and highlights the urgent need for comprehensive conservation strategies. By focusing on habitat preservation, enhancing taxonomic research, and ensuring systematic documentation, we can mitigate the impacts of dark extinction and safeguard the planet's biodiversity for future generations. The challenge is immense, but through concerted global efforts, we can strive to illuminate the dark corners of extinction and ensure a more complete understanding of the world's natural heritage.

In conclusion, addressing dark extinction requires a multifaceted approach that combines scientific research, community engagement, policy advocacy, and international collaboration. By enhancing our taxonomic capacity, strengthening legal frameworks, promoting public awareness, and integrating biodiversity conservation into development planning, we can mitigate the impacts of dark extinction and protect the world's biodiversity. The task is daunting, but with concerted global efforts and a commitment to preserving our natural heritage, we can strive to illuminate the dark corners of extinction and ensure a more complete understanding of the world's biodiversity.

MEETING REPORT

Summary of the 31st NAMMCO Council Meeting

Opening procedures

The 31st Meeting of the Council of the North Atlantic Marine Mammal Commission (NAMMCO) took place from 19 to 21 March 2024 at Hotel Reykjavík Grand in Iceland, with participation both in person and remotely. The Chair, Jón Þrándur Stefansson from Iceland, welcomed the participants and observers from various countries and organisations, including Japan, the United States, and several international bodies.

Admission of observers and opening statements

Observers from Japan, the United States, Makivvik Corporation, the Arctic Council Working Group on the Conservation of Arctic Flora and Fauna (CAFF), the International Whaling Commission (IWC), the Association of Fishers and Hunters in Greenland (KNAPK), and the World Conservation Trust (IWMC) were admitted. Notably, the IWC and IWMC, the delegation of which also comprised Dr Nikolas Sellheim, participated online.

Theme Session: Welfare issues in marine mammal hunting

The theme session focused on welfare issues associated with marine mammal hunting. Dr. Kathrine Ryeng and Dr. Snjólaug Árnadóttir presented on animal welfare and legal aspects respectively. Dr. Ryeng emphasised the challenging conditions of marine mammal hunting and the importance of minimising animal suffering, while Dr. Árnadóttir discussed international and domestic legal frameworks governing animal welfare in whaling.

The session highlighted the need for robust welfare assessments by independent observers and the development of international standards for animal welfare in marine mammal hunting. The discussion also covered the feasibility of achieving high instant death rates (IDR) in hunting practices and the potential role of NAMMCO in shaping customary international law related to marine mammal welfare.

National and annual progress reports

Member countries submitted their National Progress Reports (NPR) for 2023, which were reviewed without specific remarks. The Chair thanked delegations for their input and encouraged continued reporting.

Financial and administrative issues

The Finance and Administration Committee (FAC) presented its report, including the 2023 audited accounts, budget proposals for 2024,

2025, and 2026, and a proposal for a vocabulary amendment to the Rules of Procedure to adopt gender-neutral terms. The Council approved the audited accounts and budgets, noting the importance of carefully weighing the necessity of physical meetings against virtual ones from both financial and environmental perspectives.

Scientific Committee report

Aqqalu Rosing-Asvid, Chair of the Scientific Committee (SC), presented the SC's activities since the last Council meeting. Key topics included the narwhal and beluga situation in East Greenland, the establishment of a working group on user involvement in NAMMCO decision-making, and the planning for the North Atlantic Sighting Survey (NASS) 2024.

The SC's proposed workplan for 2024–2026 was discussed, with adjustments made to the timing of working group meetings and surveys to accommodate logistical challenges and ensure thorough data analysis. The Council endorsed the SC's workplan, emphasising the importance of timely data collection and analysis.

MINTAG Project

The MINTAG (Miniature Tag) Project aims to develop smaller and lighter satellite transmitters for long-distance deployment on lesser-known rorqual species and pilot whales. Martin Biuw reported on the project's progress, including performance tests of prototype tags and the logistical and functional difficulties encountered during summer 2023 deployments. The Steering Group decided to conduct further tests in 2024 and delay large-scale deployments to 2025 and 2026. The Council acknowledged the challenges and reiterated the importance of continued financial and scientific support from all partners.

Committee on Hunting Methods

The Committee on Hunting Methods (CHM) reported on its activities, including the development and review of training videos for hunters. The second training video focused on the importance of target location and shooting angle in large whale grenade hunts. The CHM recommended translating the video into Greenlandic and Norwegian and including optional subtitles to increase its accessibility. The Council supported these recommendations and discussed the potential for future videos on other hunting methods.

Committee on Inspection and Observation

The Committee on Inspection and Observation (CIO) presented its report, highlighting the importance of cooperation with hunters' associations and the need for updated and translated information materials. The Council adopted the CIO's proposed workplan for 2024–2026 and stressed the necessity of maintaining high standards in observation activities to ensure transparency and accountability in marine mammal hunting practices.

Management Committees

The Management Committees discussed proposals for conservation and management

to the Parties, recommendations for scientific research, and new or modified requests for advice from the Scientific Committee. The Council adopted several proposals aimed at enhancing cooperation and improving the management of marine mammal populations in the North Atlantic.

Environmental questions and ecosystem approach

The Council addressed environmental questions and the ecosystem approach to management, focusing on the need for comprehensive strategies to mitigate the impacts of climate change and human activities on marine mammal populations. The importance of integrating ecosystem-based management principles into conservation efforts was emphasised.

External relations and cooperation

The Council discussed cooperation with non-member countries and international organisations, including the Arctic Council, ASCOBANS, and ICES. The importance of fostering international collaboration to address shared challenges in marine mammal conservation was highlighted.

Communication and outreach

The Council reviewed NAMMCO's communication and outreach activities, including updates to the website, social media engagement, and educational projects. The importance of effective communication in raising public awareness and support for marine mammal conservation was underscored.

Closing procedures

The meeting concluded with a press release summarising the key outcomes and decisions. The next meeting was scheduled for March 2025. The Chair thanked all participants for their contributions and reiterated the importance of continued collaboration and dialogue to achieve NAMMCO's conservation goals.

Conclusion

The 31st NAMMCO Council Meeting underscored the importance of international cooperation, robust scientific research, and effective management strategies in conserving marine mammal populations. The participation of Sellheim Environmental and other remote attendees highlighted the value of inclusive and accessible meetings in fostering global collaboration. The discussions and decisions made during the meeting set a clear path forward for NAMMCO's efforts to address the complex challenges facing marine mammal conservation in the North Atlantic.

ARTICLE

Navigating the BBNJ Agreement: implications for Nauru's deep sea mining ambitions

Introduction

The BBNJ (Biodiversity Beyond National Jurisdiction) Agreement represents a landmark international legal framework aimed at ensuring the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction. This agreement has significant implications for various activities conducted in these vast and often unexplored regions of the ocean, including deep sea mining. For Nauru, a small island nation in the Pacific with a keen interest in deep sea mining as a potential revenue stream, the BBNJ Agreement poses both challenges and opportunities. This paper examines the impact of the BBNJ Agreement on Nauru's interest in deep sea mining, taking into account the country's economic aspirations and the specific provisions of Articles 4 and 5 of the Agreement.

Nauru's economic landscape

Nauru, with its limited land area and population, faces significant economic challenges. Historically, the island's economy has been heavily reliant on phosphate mining, which has led to severe environmental degradation. As phosphate reserves have dwindled, Nauru has been compelled to seek alternative sources of revenue to sustain its economy. Deep sea mining has emerged as a promising avenue, given the island's proximity to rich mineral deposits on the ocean floor.

The phosphate legacy

Phosphate mining began on Nauru in the early 20th century, driven by the island's rich deposits of high-grade phosphate rock. This industry became the backbone of Nauru's economy, providing substantial revenues that funded public services and infrastructure. However, decades of intensive mining have left much of the island environmentally degraded, with a landscape marred by mining pits and devoid of vegetation. As the phosphate reserves dwindled, so did Nauru's primary source of income, leading to economic instability and the urgent need for diversification.

Deep sea mining — a new frontier with potential

Deep sea mining offers a potential solution to Nauru's economic challenges, promising access to valuable minerals such as polymetallic nodules, which contain metals like nickel, cobalt, and manganese. These resources are critical for various high-tech and renewable energy applications, making them highly sought after in global markets.

Deep sea mining could significantly contribute to Nauru's economic diversification efforts. By tapping into underwater mineral resources, Nauru can reduce its dependence on phosphate mining, which has historically been the backbone of its economy but is now facing depletion. This shift could create new revenue streams, providing the country with a more stable and sustainable economic foundation. The diversification into deep sea mining is not

merely about adding another industry but about transforming the economic landscape of Nauru to be more resilient and adaptable to global market changes.

Engaging in deep sea mining would necessitate the adoption of advanced technologies and expertise. This engagement can catalyse technological development within the country, fostering an environment where innovation thrives. The technological advancements required for deep sea mining are extensive, involving sophisticated underwater robotics, enhanced data collection and analysis techniques, and improved environmental monitoring systems. As Nauru develops these capabilities, it can also build local capacity, equipping its workforce with new skills and knowledge that can spill over into other sectors. This capacity building is crucial as it lays the groundwork for future industrial growth and diversification.

Moreover, deep sea mining can integrate Nauru more deeply into global supply chains for critical minerals. These minerals, such as nickel, cobalt, and manganese, are in high demand for various high-tech and renewable energy applications, making them highly valuable on the global market. By becoming a significant player in the extraction of these minerals, Nauru can enhance its economic resilience. The integration into global supply chains means Nauru could secure a stronger position in international trade, increasing its leverage and influence in the global market. This deeper integration would also expose Nauru to global standards and practices, potentially raising the overall quality and sustainability of its mining operations.

The BBNJ Agreement: articles 4 and 5

Article 4: Relationship with the Convention and relevant legal instruments and frameworks and relevant global, regional, and sectoral bodies

Article 4 of the BBNJ Agreement outlines the relationship between the BBNJ Agreement and existing international frameworks, including the United Nations Convention on the Law of the Sea (UNCLOS) and the International Seabed Authority (ISA). This article emphasises the need for the BBNJ Agreement to be implemented in a manner that is consistent with these existing instruments, avoiding duplication and ensuring coherent and cooperative governance.

For Nauru, this means that while the BBNJ Agreement introduces new regulations, it must harmonise with the existing mandates of the ISA. The ISA's primary responsibility is to regulate mineral-related activities on the seabed to ensure they are conducted in an environmentally sustainable manner. The BBNJ Agreement, by reinforcing the need for coherence, aims to ensure that new measures, such as the establishment of marine protected areas (MPAs) and the requirement for environmental impact assessments (EIAs), do not conflict with the ISA's regulatory framework but rather complement it.

Article 5: General principles and approaches

Article 5 lays down the general principles and approaches that guide the BBNJ Agreement, emphasising the precautionary principle, ecosystem-based management, and the use of best available scientific information. These

principles are intended to guide all activities in areas beyond national jurisdiction, including deep sea mining.

The precautionary principle, in particular, could have significant implications for Nauru's deep sea mining ambitions. This principle advocates for caution in the face of scientific uncertainty, potentially leading to stricter regulations and more comprehensive environmental assessments before mining activities can proceed. Ecosystem-based management ensures that the potential impacts on the entire marine ecosystem are considered, rather than focusing solely on the mining site.

The relationship between the BBNJ Agreement and the CBD

The BBNJ Agreement also aligns closely with the Convention on Biological Diversity (CBD). The CBD is a multilateral treaty aimed at conserving biological diversity, promoting sustainable use of its components, and ensuring fair and equitable sharing of benefits arising from genetic resources. The principles of the CBD are deeply interwoven with those of the BBNJ Agreement, reflecting a shared commitment to environmental stewardship and sustainable development.

The relationship between the BBNJ Agreement and the CBD is particularly significant in the context of marine biodiversity. Both frameworks emphasise the importance of protecting marine ecosystems and ensuring sustainable use of marine resources. The CBD's Aichi Biodiversity Targets, for instance, include goals such as protecting at least 10% of coastal and marine areas and reducing the rate of loss of all natural habitats, including marine habitats. These targets are echoed in the BBNJ Agreement's provisions for establishing MPAs and conducting EIAs.

The CBD provides a broader context for the BBNJ Agreement by addressing biodiversity conservation on a global scale, which includes both terrestrial and marine environments. The BBNJ Agreement, on the other hand, focuses specifically on areas beyond national jurisdiction, which are not covered by the sovereign jurisdiction of any state. This focus allows the BBNJ Agreement to address gaps in marine conservation that the CBD alone cannot cover.

For Nauru, the interplay between the BBNJ Agreement and the CBD means that its deep sea mining activities must align with global biodiversity conservation goals. This alignment requires integrating best practices from both frameworks into national policies and regulations. Nauru must ensure that its mining activities do not adversely impact marine biodiversity, adhering to both the precautionary principle and ecosystem-based management.

The cooperation between the BBNJ Agreement and the CBD can also facilitate access to international support and resources for conservation efforts. Through the CBD, Nauru can engage in global biodiversity initiatives, accessing funding, scientific expertise, and technical assistance. These resources can help Nauru conduct thorough EIAs, implement effective conservation measures, and monitor the environmental impacts of its mining activities.

The CBD's emphasis on fair and equitable sharing of benefits aligns with the BBNJ Agreement's goals of ensuring that the benefits of marine resources are shared globally. For Nauru, this means participating

in mechanisms that distribute the economic benefits derived from deep sea mining to support sustainable development and conservation efforts both locally and internationally.

Impact on Nauru's deep sea mining interests

Potential challenges

The requirement for rigorous environmental impact assessments (EIAs) under the BBNJ Agreement poses a significant challenge for Nauru. While the International Seabed Authority (ISA) already mandates EIAs, the BBNJ Agreement could introduce additional layers of scrutiny, particularly from states and stakeholders advocating for stronger environmental protections. This heightened scrutiny could lead to delays and increased costs for obtaining mining licences and conducting exploratory activities. Moreover, the BBNJ Agreement's provision for establishing marine protected areas (MPAs) in areas beyond national jurisdiction could directly impact Nauru's mining activities. If MPAs are designated in regions where Nauru has mining interests, it could restrict or prohibit mining activities in those areas. The process for establishing MPAs under the BBNJ Agreement is expected to be inclusive and based on scientific evidence, which might result in areas of high biodiversity being prioritised for protection over exploitation.

Additionally, the need for enhanced cooperation and coordination between the BBNJ Agreement and existing frameworks like the ISA could create bureaucratic complexities. Nauru will need to navigate these overlapping jurisdictions to ensure its mining activities comply with both sets of regulations. This could require additional diplomatic efforts and resources to effectively advocate for its interests within these international bodies. The alignment and harmonisation of these regulations will be crucial for Nauru to successfully pursue its deep sea mining ambitions without facing insurmountable regulatory barriers.

Opportunities for Nauru

Aligning with the principles of the BBNJ Agreement could significantly enhance Nauru's reputation as a responsible actor on the international stage. By committing to sustainable practices and robust environmental assessments, Nauru can position itself as a leader in sustainable development, potentially attracting support and investment from international partners committed to environmental stewardship. This commitment to sustainability can help Nauru secure financial and technical assistance to bolster its mining operations while maintaining high environmental standards.

Furthermore, the BBNJ Agreement promotes the sharing of scientific knowledge and technology, which presents a valuable opportunity for Nauru. Enhanced access to cutting-edge scientific research and technological innovations in deep sea mining can improve the efficiency and sustainability of its mining operations. Collaborating with international research institutions and technology providers can provide Nauru with the expertise needed to overcome technical challenges and minimise environmental impacts.

While deep sea mining offers significant economic opportunities, the BBNJ Agreement's emphasis on environmental

sustainability encourages Nauru to diversify its economic activities. By investing in other sectors such as fisheries, tourism, and renewable energy, Nauru can build a more resilient and diversified economy less dependent on a single industry. This diversification can reduce economic vulnerability and create multiple revenue streams, ensuring long-term economic stability and growth.

The role of the International Seabed Authority (ISA)

The International Seabed Authority (ISA) plays a pivotal role in regulating mineral-related activities on the seabed, ensuring that such activities are conducted in an environmentally sustainable manner. The BBNJ Agreement must harmonise with the ISA's regulatory framework to avoid conflicts and ensure coherent governance.

Mandate and functioning

The ISA was established under the United Nations Convention on the Law of the Sea (UNCLOS) to manage mineral resources in areas beyond national jurisdiction, known as the Area. The ISA's mandate includes the regulation of exploration and exploitation activities, the protection of the marine environment, and the equitable sharing of financial and other economic benefits derived from deep sea mining.

Environmental protection measures

The ISA has developed a comprehensive set of regulations to govern deep sea mining activities, including requirements for environmental impact assessments (EIAs), monitoring programmes, and the establishment of preservation reference zones. These measures are designed to minimise the environmental impact of mining activities and ensure the protection of vulnerable marine ecosystems. For Nauru, interacting with the ISA means complying with these stringent regulations and incorporating them into national legislation. By doing so, Nauru can ensure that its deep sea mining activities are sustainable and environmentally responsible.

Nauru's interaction with the ISA

Nauru's engagement with the ISA offers an opportunity to gain valuable insights and expertise. Collaborating with the ISA allows Nauru to benefit from international best practices and advanced scientific knowledge, which can enhance the efficiency and sustainability of its mining operations. This collaboration also positions Nauru as a responsible actor on the international stage, committed to aligning its economic ambitions with global environmental standards.

Future prospects

Looking ahead, Nauru's engagement with deep sea mining under the framework of the BBNJ Agreement presents a mix of challenges and promising opportunities. As Nauru seeks to capitalise on its rich underwater mineral resources, it must navigate a complex regulatory landscape that demands rigorous environmental safeguards and adherence to international standards. The BBNJ Agreement, with its emphasis on the precautionary principle and ecosystem-based management, compels Nauru to adopt stringent environmental practices. This

alignment with global standards can elevate Nauru's standing in the international community as a responsible and forward-thinking nation, committed to sustainable development.

The future of deep sea mining in Nauru also hinges on the nation's ability to integrate cutting-edge scientific knowledge and advanced technologies into its operations. The BBNJ Agreement encourages the sharing of scientific research and technological innovations, which can significantly benefit Nauru. By collaborating with international research institutions and leveraging global expertise, Nauru can enhance the efficiency and sustainability of its mining activities. This technological integration not only boosts mining operations but also fosters broader technological advancement within the country, contributing to economic diversification and resilience.

Moreover, the establishment of marine protected areas (MPAs) under the BBNJ Agreement could pose both challenges and opportunities. While the designation of MPAs might restrict mining activities in certain high-biodiversity areas, it also presents an opportunity for Nauru to balance resource extraction with conservation efforts. Engaging in the establishment and management of MPAs can showcase Nauru's commitment to preserving marine biodiversity, attracting international support and potentially leading to new economic avenues such as eco-tourism and conservation funding.

In terms of regional and international cooperation, Nauru stands to gain significantly from strengthened ties with neighbouring Pacific Island nations and broader global partnerships. Collaborative efforts in scientific research, environmental protection, and capacity building can enhance Nauru's negotiating power in international forums. These alliances can facilitate the sharing of resources, knowledge, and best practices, contributing to more effective and sustainable management of deep sea resources.

The integration of deep sea mining into Nauru's economy also offers substantial prospects for economic diversification. While the nation has historically relied on phosphate mining, the shift towards deep sea mining provides an opportunity to reduce this dependence and create multiple revenue streams. By investing in complementary sectors such as fisheries, tourism, and renewable energy, Nauru can build a more resilient and diversified economy, better equipped to withstand global market fluctuations.

Conclusion

The BBNJ (Biodiversity Beyond National Jurisdiction) Agreement represents a landmark international framework for conserving marine biodiversity in areas beyond national jurisdiction. For Nauru, a small island nation with significant economic challenges and a dwindling phosphate mining industry, deep sea mining offers a promising alternative. However, the BBNJ Agreement introduces both challenges and opportunities for Nauru's aspirations.

Nauru's historical reliance on phosphate mining has led to severe environmental degradation and economic instability. As these reserves deplete, the nation seeks to diversify its economy by tapping into the rich mineral deposits on the ocean floor. Deep sea mining could provide new revenue streams, reduce dependence on phosphate mining, and foster

technological development within the country.

The BBNJ Agreement, particularly Articles 4 and 5, emphasises the precautionary principle, ecosystem-based management, and the integration of international frameworks like the United Nations Convention on the Law of the Sea (UNCLOS) and the International Seabed Authority (ISA). This alignment requires Nauru to adopt stringent environmental practices and robust regulations. The establishment of marine protected areas (MPAs) and rigorous environmental impact assessments (EIAs) could introduce delays and increased costs, but they also offer a pathway to sustainable development.

The relationship between the BBNJ Agreement and the Convention on Biological Diversity (CBD) further underscores the importance of aligning deep sea mining activities with global biodiversity conservation goals. By committing to these principles, Nauru can position itself as a responsible actor on the international stage, attracting support and investment from international partners. Through careful navigation of the BBNJ Agreement's requirements and strategic engagement with global conservation efforts, Nauru can leverage its marine resources for sustainable economic growth, ensuring long-term resilience and prosperity.

ARTICLE

Distinguishing zoonotic diseases from human rights considerations in CITES' mandate

Introduction

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a pivotal treaty aimed at ensuring that international trade in specimens of wild animals and plants does not threaten their survival. While CITES has a clear conservation mandate, recent debates have emerged regarding the inclusion of broader socio-political issues within its framework. Two such issues are zoonotic diseases and human rights. This article explores why zoonotic diseases fall outside the primary scope of CITES, whereas human rights considerations are integral to its implementation due to their universal, inalienable, indivisible, and interrelated nature.

The mandate and functioning of CITES

CITES was established in 1973 with the primary goal of regulating international trade in endangered species to prevent their over-exploitation and ensure their survival. The treaty categorises species into three appendices based on the level of protection they need. Appendix I includes species threatened with extinction, Appendix II lists species not necessarily threatened but that could become so without trade control, and Appendix III

includes species protected by individual countries requesting cooperation from other nations to control trade.

The core focus of CITES is on conservation and the sustainable use of wildlife. It is fundamentally an environmental treaty, not a public health or human rights instrument. This focus shapes its activities, guidelines, and the expertise required to implement its mandates effectively.

Zoonotic diseases and the scope of CITES

Zoonotic diseases are diseases that can be transmitted from animals to humans. They include illnesses such as avian influenza, Ebola, and COVID-19, which have had significant global impacts. The outbreak of COVID-19, believed to have originated from a wildlife market, has intensified discussions around wildlife trade and zoonotic diseases. However, including zoonotic diseases within the CITES framework presents several challenges and contradictions with the treaty's core objectives.

The need for expertise

CITES is designed to address the conservation of species and the regulation of their trade to prevent extinction. Its primary concern is the ecological and biological aspects of wildlife trade. The regulation and management of zoonotic diseases, on the other hand, involve complex public health issues that require specialised knowledge in epidemiology, virology, and public health response. These areas are typically outside the expertise of CITES authorities and more appropriately fall under the jurisdiction of health organisations like the World Health Organisation (WHO).

International health instruments

The regulation of zoonotic diseases is governed by international health instruments such as the International Health Regulations (IHR), which provide a global framework for preventing and responding to public health risks that have the potential to cross borders and threaten people worldwide. The IHR are legally binding on 196 countries, including all WHO member states. They aim to help the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide.

By focusing on zoonotic diseases, CITES would be expanding its mandate beyond conservation into the realm of public health, potentially diluting its effectiveness in its primary mission. This expansion could lead to resource allocation challenges and conflicts of interest between conservation goals and public health priorities.

Case study: CITES and COVID-19

The COVID-19 pandemic has highlighted the need for better regulation of wildlife trade to prevent the emergence of zoonotic diseases. This regulation is best achieved through collaboration between CITES and health authorities rather than by expanding the mandate of CITES itself. Health authorities are better equipped to manage the complexities of disease prevention, monitoring, and response.

In response to the COVID-19 pandemic, CITES has taken several significant steps to

address the risks associated with zoonotic diseases. During the 19th Conference of the Parties (CoP19), several key decisions were made to enhance cooperation and develop strategies aimed at mitigating these risks.

CITES recognised the importance of a multi-sectoral approach to manage and mitigate the risk of zoonotic diseases. This approach involves collaboration with other international bodies such as the World Health Organisation (WHO), the Food and Agriculture Organisation (FAO), and the World Organisation for Animal Health (WOAH). These organisations provide the necessary public health expertise and resources to effectively address the zoonotic disease risks associated with wildlife trade.

The CITES CoP19 discussions led to the formation of a working group that decided to consider the One Health high-level expert panel's approach. This approach integrates animal, human, and environmental health to reduce pathogen spillover and transmission of zoonotic diseases. This initiative aims to ensure that live animals are traded under conditions that minimise health risks, as defined by CITES articles regulating the trade in specimens and their species.

The implementation of these decisions involves developing new guidelines and protocols for the preparation and shipment of live specimens to reduce injury and health impacts. This also includes strengthening cooperation between national and international animal and public health authorities to ensure the safe trade of wildlife and compliance with health standards.

The European Union has played a crucial role in advocating for stricter trade regulations to combat illegal wildlife trade and reduce the risk of zoonotic diseases. The EU's revised Action Plan against Wildlife Trafficking, adopted in 2022, emphasises the need for increased cooperation and enforcement to prevent future pandemics linked to wildlife trade. This plan supports the CITES framework by providing capacity building and strengthening actions against wildlife crime, particularly those linked to online platforms.

Incorporating zoonotic disease considerations into CITES' framework requires substantial changes to its operational structure. This includes additional training for personnel, new guidelines, and protocols, as well as possibly restructuring the organisation to include health expertise. Such changes are resource-intensive and could detract from CITES' core conservation activities.

Human rights: integral to CITES implementation

Human rights are universal principles that recognise and protect the inherent dignity and equal and inalienable rights of all members of the human family. They are enshrined in numerous international treaties and declarations, including the Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights (ICCPR), and the International Covenant on Economic, Social and Cultural Rights (ICESCR). These instruments are widely ratified and provide a comprehensive framework for protecting human rights globally.

Universality and relevance to CITES

Human rights are universal, inalienable, indivisible, and interrelated. These principles mean that human rights must be respected in

all contexts, including environmental conservation and international trade. CITES, while primarily focused on wildlife conservation, operates in a context that directly impacts human communities, particularly indigenous peoples and local communities who rely on wildlife for their livelihoods, cultural practices, and survival.

Human rights instruments

The UDHR, ICCPR, and ICESCR establish a broad range of rights, including the right to a standard of living adequate for health and well-being, the right to work, and cultural rights. These rights are directly relevant to the implementation of CITES. For instance, regulations that restrict access to wildlife resources can impact the livelihoods and cultural practices of indigenous communities. Therefore, human rights considerations must be integrated into CITES' decision-making processes to ensure that conservation measures do not violate these fundamental rights.

Socio-economic impacts

Human rights considerations in CITES are crucial for addressing the socio-economic impacts of conservation measures. For example, restrictions on wildlife trade can have significant implications for the livelihoods of people who depend on these resources. Ensuring that these measures are implemented in a way that respects human rights helps to balance conservation goals with the needs and rights of local communities.

Ethical implementation

Integrating human rights into CITES ensures that the treaty's implementation is ethical and just. This involves recognising the rights of indigenous peoples and local communities, respecting their traditional knowledge and practices, and ensuring that conservation measures do not disproportionately harm vulnerable populations. Such an approach not only aligns with international human rights norms but also enhances the legitimacy and effectiveness of CITES by fostering cooperation and support from affected communities.

Case study: indigenous rights and wildlife conservation

Indigenous peoples play a crucial role in wildlife conservation due to their deep connection with and extensive knowledge of their natural environments. Their traditional ecological knowledge, developed over generations, offers invaluable insights into sustainable resource management and biodiversity conservation. This knowledge encompasses various practices, such as controlled burning, rotational hunting, and the use of sacred groves, which contribute to ecosystem health and resilience.

Protecting the rights of indigenous peoples is essential for several reasons. Indigenous communities often practice sustainable use of natural resources, which helps maintain ecological balance and biodiversity. Their practices can complement scientific conservation methods and enhance overall conservation outcomes. Additionally, indigenous peoples' cultural identities and livelihoods are deeply intertwined with their natural environments. Recognising and respecting their rights ensures the preservation of their cultural heritage and traditional ways of life. Excluding or marginalising indigenous

communities in conservation efforts can lead to conflicts and resistance. Inclusive conservation strategies that involve indigenous peoples can foster cooperation and reduce tensions, leading to more effective and lasting conservation outcomes. Furthermore, indigenous rights are human rights. International frameworks, such as the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), affirm the rights of indigenous peoples to their lands, territories, and resources. Ensuring these rights aligns with global human rights standards and promotes social justice.

CITES recognises the importance of integrating human rights considerations, including indigenous rights, into its conservation framework. By doing so, CITES aims to ensure that its measures do not adversely affect the rights and livelihoods of indigenous communities. Key aspects of this integration include consultation and participation, benefit-sharing, and legal recognition and protection. Involving indigenous peoples in decision-making processes related to wildlife trade regulations and conservation measures ensures that their perspectives and knowledge are considered. This participatory approach can lead to more culturally appropriate and effective conservation strategies. Ensuring that indigenous communities benefit from conservation efforts, such as through eco-tourism or sustainable use of wildlife resources, can incentivise their participation and support for conservation initiatives. This approach also helps to address socio-economic disparities and improve community well-being. Strengthening the legal recognition and protection of indigenous lands and resources is crucial for the success of conservation efforts. Secure land tenure rights enable indigenous communities to manage and protect their territories more effectively, contributing to biodiversity conservation and sustainable development.

Several case studies demonstrate the positive impact of integrating indigenous rights into wildlife conservation. In the Amazon rainforest, indigenous communities have successfully managed vast tracts of rainforest, contributing to its conservation. Recognising their land rights and involving them in conservation initiatives has helped to protect this critical ecosystem from deforestation and biodiversity loss. In Australia, indigenous fire management practices, known as "cool burning," have been recognised for their effectiveness in reducing wildfire risks and maintaining ecosystem health. These traditional practices are now being integrated into broader fire management strategies, showcasing the value of indigenous knowledge in conservation. The collaboration between indigenous communities and environmental organisations in managing the Great Bear Rainforest in Canada has led to a successful conservation model that balances ecological protection with sustainable development and cultural preservation.

By integrating human rights considerations, particularly indigenous rights, CITES can ensure that its conservation measures are inclusive, respectful, and effective. This approach not only aligns with international human rights norms but also enhances the legitimacy and sustainability of conservation efforts by fostering cooperation and support from affected communities. The protection of indigenous rights is integral to the success of wildlife conservation efforts. Indigenous peoples' traditional knowledge and sustainable practices offer valuable contributions to biodiversity conservation. By ensuring the

inclusion and respect of indigenous rights, CITES can achieve more sustainable and equitable conservation outcomes, fostering a collaborative and just approach to protecting the world's wildlife.

Comparative analysis

Fundamental differences

Integrating zoonotic diseases and human rights into the CITES framework presents fundamentally different challenges and implications due to the distinct nature of these issues. Zoonotic diseases are specific health concerns that arise from pathogens transmitted between animals and humans, requiring specialised knowledge in epidemiology, virology, and public health. Managing these diseases involves complex public health issues, which are outside the primary expertise and mandate of CITES. In contrast, human rights are universal principles that recognise and protect the dignity and rights of all individuals. These rights are enshrined in numerous international treaties and declarations, making them relevant in all contexts, including environmental conservation.

Legal obligations and existing frameworks

Human rights instruments, such as the Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights (ICCPR), and the International Covenant on Economic, Social and Cultural Rights (ICESCR), create legal obligations for the states that have ratified them. These instruments mandate the protection and promotion of a broad range of rights, including those directly relevant to the implementation of CITES. For example, regulations that restrict access to wildlife resources can impact the livelihoods and cultural practices of indigenous communities. Integrating human rights considerations into CITES ensures that conservation measures do not violate these fundamental rights, aligning with the legal and ethical obligations of the member states.

In contrast, the regulation of zoonotic diseases is governed by international health instruments such as the International Health Regulations (IHR), which provide a global framework for preventing and responding to public health risks that have the potential to cross borders. The IHR are legally binding on 196 countries, including all WHO member states, aiming to help the international community prevent and respond to acute public health risks. By focusing on zoonotic diseases, CITES would significantly expand its mandate beyond conservation into public health, potentially diluting its effectiveness in its primary mission. Organisations like the WHO, FAO, and WOAH already possess the necessary expertise and frameworks to address zoonotic disease risks, making them better suited for this role.

Resource allocation and operational challenges

Integrating zoonotic disease considerations into CITES' framework would require substantial changes to its operational structure, including additional training for personnel, new guidelines and protocols, and possibly restructuring the organisation to include health expertise. Such changes are resource-intensive and could detract from CITES' core conservation activities. This expansion could lead to conflicts of interest between

conservation goals and public health priorities, ultimately undermining the effectiveness of CITES in achieving its primary objective of species conservation.

Conversely, integrating human rights considerations into CITES involves aligning conservation measures with existing international human rights norms. This integration is a necessary and complementary aspect of CITES' implementation, ensuring that its measures are ethical, just, and respectful of the rights of affected communities. By incorporating human rights into its framework, CITES enhances the legitimacy and sustainability of its conservation efforts, fostering cooperation and support from indigenous and local communities.

Practical examples and outcomes

The COVID-19 pandemic has underscored the need for better regulation of wildlife trade to prevent the emergence of zoonotic diseases. However, this regulation is best achieved through collaboration between CITES and health authorities, rather than by expanding the mandate of CITES itself. CITES has taken significant steps to address zoonotic disease risks by enhancing cooperation with international health organisations and adopting a multi-sectoral approach. For instance, during the 19th Conference of the Parties (CoP19), CITES decided to consider the One Health high-level expert panel's approach, integrating animal, human, and environmental health to reduce pathogen spillover and transmission of zoonotic diseases. This initiative aims to ensure that live animals are traded under conditions that minimise health risks, as defined by CITES articles regulating the trade in specimens and their species.

In contrast, the integration of human rights considerations into CITES has already demonstrated positive impacts on wildlife conservation. For example, recognising the land rights of indigenous communities in the Amazon rainforest has contributed to the conservation of vast tracts of rainforest. Similarly, indigenous fire management practices in Australia, known as "cool burning," have been recognised for their effectiveness in reducing wildfire risks and maintaining ecosystem health. By involving indigenous peoples in decision-making processes and ensuring that they benefit from conservation efforts, CITES can achieve more sustainable and equitable conservation outcomes.

Conclusion

The inclusion of zoonotic diseases within the scope of CITES is not appropriate due to the treaty's specific conservation mandate, the expertise required for public health management, and the existence of specialised health instruments and organisations better suited to address these issues. In contrast, human rights considerations are integral to the ethical and sustainable implementation of CITES. Human rights are universal, inalienable, indivisible, and interrelated, and their respect is essential in all contexts, including wildlife conservation and international trade.

By focusing on its core mandate of conservation while collaborating with health authorities on zoonotic disease issues, CITES can effectively contribute to global wildlife conservation efforts. Simultaneously, by integrating human rights considerations,

CITES ensures that its regulations are just, ethical, and supportive of the rights and livelihoods of affected communities. This balanced approach enhances the legitimacy and effectiveness of CITES in achieving its conservation goals while respecting fundamental human rights.

TOOL

Exploring future climate projections with CityApp

Introduction

As climate change continues to reshape our world, understanding its future impact on local environments has become crucial. The CityApp web application offers a sophisticated approach to visualising how climate change might affect various cities over the next 60 years. Created by Matt Fitzpatrick at the University of Maryland Center for Environmental Science, this app uses advanced data analysis to predict future climate conditions based on current trends and different emissions scenarios.

Purpose and applications

CityApp is designed to provide users with a glimpse into the future climate of their hometowns or any other city worldwide. It addresses key questions such as how hot summers will become, whether winters will still bring snow, and how precipitation patterns will change. By comparing current climates of different locations with predicted future climates, the app allows users to understand how their city's climate might evolve. This information can help urban planners design cities better suited for future climatic conditions, policymakers develop strategies to mitigate the impacts of climate change, and residents prepare for potential changes in their living environments.

Urban planners can utilise CityApp to make informed decisions about infrastructure and

zoning. For example, areas expected to experience increased temperatures might prioritise building materials and designs that enhance cooling. Similarly, cities facing reduced winter snowfall can adjust water resource management plans and winter weather preparedness strategies.

Farmers and agricultural experts can use CityApp to anticipate shifts in growing seasons and crop viability. Understanding future climate conditions allows for proactive adjustments in crop selection, irrigation planning, and pest management practices. This foresight helps ensure food security and agricultural sustainability in a changing climate.

Health officials can prepare for new challenges related to climate change, such as heatwaves or increased air pollution. By understanding how climate change will affect their regions, they can develop public health strategies to mitigate adverse effects. This might include enhancing heat emergency response plans, improving air quality monitoring, and increasing public awareness campaigns about climate-related health risks.

Educators and activists can use the app to raise awareness about climate change impacts, using concrete data to illustrate potential futures. This data-driven approach helps in communicating the urgency of climate action and fostering a deeper understanding of climate science among the public.

Methodology

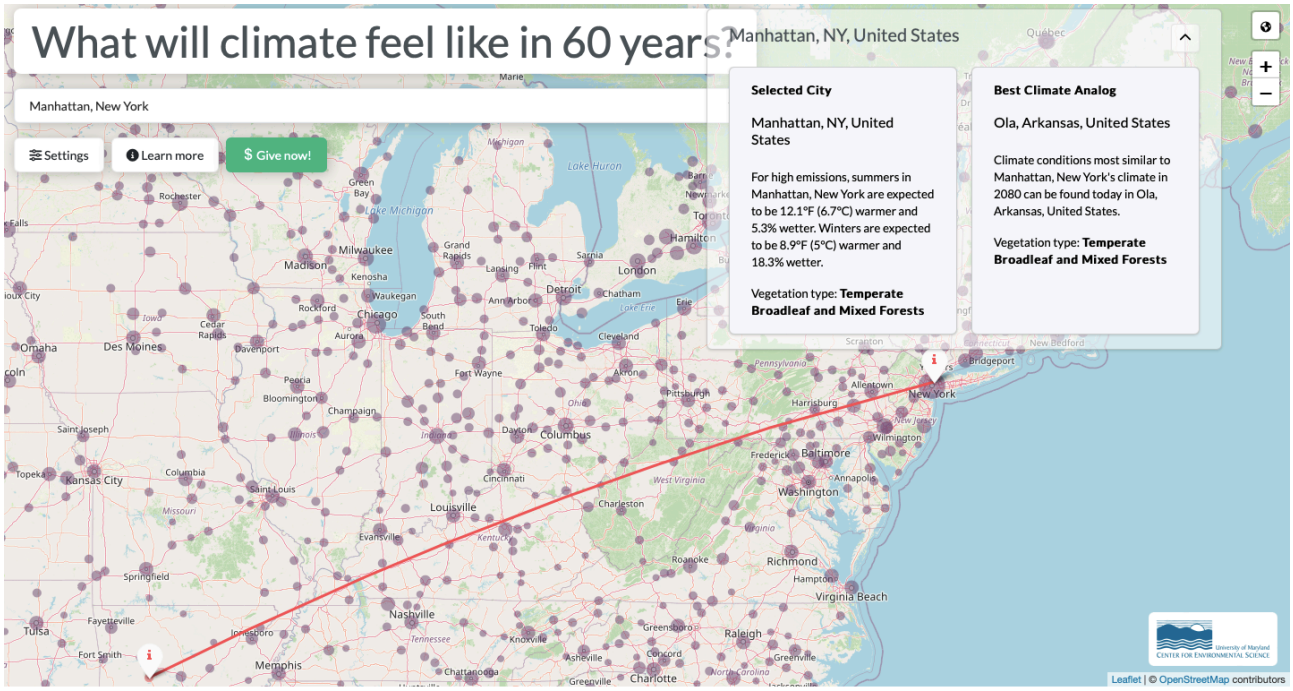
CityApp's methodology involves complex data analysis and climate modelling. The app aggregates climate data from thousands of cities, towns, and suburbs around the globe. It uses several climate models to forecast future conditions under different greenhouse gas emissions scenarios, both high and reduced emissions. By comparing future climate projections with present-day climates elsewhere, the app identifies locations that currently experience similar conditions to those expected in the future for a given city.

The app employs a variety of climate models, each incorporating different variables and assumptions to predict future conditions. This multi-model approach provides a range of possible outcomes, enhancing the robustness of the projections. Users can select different models to explore how variations in assumptions and data inputs might influence future climate scenarios.

Interpreting the results

The application provides users with interactive maps to visualise the data. Climate matching identifies present-day locations with climates most similar to the predicted future climate of the selected city. For instance, New York City's future climate might resemble that of northern Mississippi, with hotter summers and minimal snowfall. The app allows exploration of different emissions scenarios, comparing high-emission futures with reduced-emission ones to see how proactive climate action might alter outcomes. It uses five different climate models, allowing users to view the average projection or specific model outcomes for a comprehensive understanding. Each match comes with a similarity score indicating how closely the future climate matches the present-day climate of the comparison location. Lower scores suggest less similarity, highlighting the unique challenges many cities will face.

To interpret the results effectively, users need



Screenshot of CityApp *on desktop computer using the example of Manhattan, New York.*

to consider the context and implications of these projections. For urban planners, understanding the specific challenges posed by future climate conditions enables the development of resilient infrastructure. For policymakers, the app provides critical insights into the long-term impacts of current emissions policies, guiding more sustainable decision-making.

Practical applications

CityApp serves various practical applications. Urban planners can use the app to design resilient infrastructure, considering future climate conditions such as increased heat or changes in precipitation. Farmers can anticipate shifts in growing seasons and crop viability, adjusting practices to align with future climate conditions. Health officials can prepare for new challenges related to climate change, such as heatwaves or increased air pollution. Educators and activists can use the app to raise awareness about climate change impacts, using concrete data to illustrate potential futures.

Beyond these specific uses, CityApp offers broader societal benefits by fostering a deeper understanding of climate change. By making complex climate data accessible and relatable, the app empowers individuals and communities to take proactive steps in addressing climate challenges. This collective awareness and action are essential in mitigating the effects of climate change and adapting to its inevitable impacts.

Limitations and considerations

While CityApp offers valuable insights, it is important to recognise its limitations. Climate models involve inherent uncertainties, meaning the exact future climate can vary based on numerous factors not fully predictable. For many cities, especially those closer to the equator, the future climate may

not have a perfect present-day counterpart, indicating unprecedented changes that require adaptive strategies. The app relies on available climate data, which may have varying resolutions and accuracies depending on the region.

Moreover, the projections provided by CityApp should be viewed as one of many tools in climate planning. Integrating these insights with local knowledge and additional data sources can enhance the accuracy and relevance of climate adaptation strategies. Policymakers and planners should use CityApp in conjunction with other resources to develop comprehensive, context-specific responses to climate change.

Conclusion

CityApp is an essential tool for visualising and preparing for future climate scenarios. By providing detailed projections and comparative analyses, it empowers users to make informed decisions about urban planning, policymaking, and personal preparedness in the face of climate change. As the planet continues to warm, tools like CityApp will become increasingly valuable in our efforts to adapt and mitigate the impacts of a changing climate.

For further reading and to explore the app yourself, visit the CityApp website here. This tool represents a significant step forward in making climate data accessible and actionable for all.

NEWS

Sellheim Environmental expands its reach with new social media outlets

Sellheim Environmental has recently expanded its digital presence by launching several social media outlets, including TikTok, X (formerly Twitter), Instagram, and YouTube. This strategic move aims to enhance public engagement and education on critical topics such as biodiversity, environmental and conservation law, human rights in conservation, and the sustainable use of resources.

By leveraging the widespread use of social media platforms, *Sellheim Environmental* intends to reach a broader audience and foster greater awareness and understanding of environmental issues. The organisation will be sharing educational videos and content that cater to a diverse range of interests and demographics, making complex subjects more accessible and engaging for the general public.

On TikTok, *Sellheim Environmental* will utilise the platform's short-form video format to deliver quick, impactful messages and tips related to conservation and sustainability. This approach aims to capture the attention of younger audiences and encourage them to take an active interest in environmental stewardship. To broaden the audience even more, the videos will be produced primarily in English, but some also in German.

In an innovative twist, *Sellheim Environmental* will extend the reach of its TikTok videos by sharing them across Instagram, X and YouTube. This seamless integration allows the

organisation to maximise the impact of its educational content, ensuring that these insightful videos reach users on multiple platforms. By adapting TikTok's engaging and dynamic format to suit each platform, Sellheim Environmental enhances its ability to inspire and inform a wider audience.

The expansion into these social media

Cover of an educational video uploaded to social media.

platforms represents a significant step forward for *Sellheim Environmental* in its mission to promote environmental awareness and conservation. By embracing digital tools and technologies, the organisation is poised to reach a wider audience and inspire collective efforts to protect and sustain the natural world.

As *Sellheim Environmental* continues to grow its online presence, it invites the public to follow its social media channels, engage with the content, and join the conversation on environmental issues. Through education and outreach, *Sellheim Environmental* hopes to foster a global community of informed and motivated individuals dedicated to preserving the planet for future generations. The QR-codes below lead you to the respective profile.

TikTok:

Instagram:

YouTube:

X (formerly Twitter):

IN THE MEDIA

ÖVP accuses Environment Minister of approving EU law

— *Die Zeit*, 20 June 2024, here

Austria's Green Environment Minister voted for the EU nature restoration law – against the will of the ÖVP (Austrian People's Party, Österreichische Volkspartei). Now the coalition partner has filed a complaint for abuse of office.

In the Austrian coalition dispute over a comprehensive EU environmental law, the ÖVP has accused Climate Protection Minister Leonore Gewessler (Greens) of alleged abuse of office. A criminal complaint has been filed with the Vienna Public Prosecutor's Office. However, Chancellor Karl Nehammer assured that he does not intend to dissolve the coalition before the election in September.

Gewessler's approval of the EU nature restoration law was deemed "illegal and unconstitutional," according to the complaint seen by the news agency dpa. According to the constitution, the minister was bound by the opposing stance of the Austrian federal states. From the perspective of the ÖVP lawyers, she should have also coordinated her step with the conservative Agriculture Minister Norbert Totschnig.

Gewessler's approval brought a narrow majority for the law, which aims to restore forests, moors, and other natural areas. The minister remained calm and pointed out that

ÖVP ministers had also made decisions at the EU level against the will of the Greens in the past. Conservatives and agricultural representatives fear negative impacts on farmers and food production in the EU.

Do farmers now have to count butterflies?

— *FAZ*, 22 June 2024, here.

The renaturation law does not reinvent ecosystem protection. However, it ensures that Germany finally implements old goals. The scepticism of farmers is often unfounded.

The fact that the thyme blue butterfly, a small butterfly, has gained European political significance has to do with a behaviour that does not quite match its bluish shimmer: as a caterpillar, it nests in ant nests, where it devours the brood. Additionally, it is picky about where it lays its eggs, preferring a specific type of thyme. These peculiarities make it an indicative species for the ecological condition of a habitat: where it thrives, other rare insect and plant species also find good conditions.

In the future, the presence of the thyme blue butterfly will be one of the measures used to determine whether Germany is fulfilling the obligations of the newly passed renaturation law that applies to every EU member state. By 2030, actions must be initiated to restore 30 percent of ecosystems – equivalent to 20 percent of the EU's area – to a good condition. By 2040, 60 percent of ecosystems must be targeted, and by 2050, 90 percent.

It's not just about more protected areas

The excitement surrounding the law, which almost caused it to fail, is likely due to its name: the renaturation law or, alternatively, the "Nature Restoration Law." It sounds like reclaiming an area previously used by humans. However, it's not just about creating protected areas but tackling what seems like an even greater challenge: using nature in a way that it does not lose its ability to provide what humans also need to live – air, water, food.

This is where the thyme blue butterfly comes back into play. And carbon in the soil, deadwood in the forest, birds in the fields – all factors whose presence or absence indicates the condition of the forest, grassland, and arable land habitats. These are listed in the new law as indicators for achieving renaturation goals.

Expropriation is already being discussed

Germany, like all EU countries, now faces the task of developing a national restoration plan. There are two years to decide on the measures to contribute to the goals. The Federal Environment Ministry emphasises that this will be a participatory process involving all stakeholders: land and forest owners, federal states. The scepticism of farmers, not always based on facts, persists, with talk on social media of expropriation and claims that farmers will now also have to count butterflies. This is not true.

In the first implementation phase of the law, most farmers will not be directly affected. It primarily concerns the so-called Natura 2000 areas, a network of ecologically valuable, also

agriculturally used areas that already have a protection status and cover about 15 percent of Germany's terrestrial area and 45 percent of its marine area. In many aspects, the renaturation law is not a new concept but a means to enforce what often remained a good intention.

Germany has previously planned nature conservation ambitiously but pursued it with less ambition. Seventy percent of Flora-Fauna-Habitat areas, which together with bird protection areas form the Natura 2000 network, are in poor condition, and for grassland, meaning pastures and meadows, it's even 90 percent.

Farmers explicitly affected

Farmers who practice agriculture on drained moors are now explicitly affected. Renaturation of moors means changing a condition that was considered desirable for several centuries and turning peat soils, which become massive CO2 emitters when drained, back into water-saturated areas. Germany has already laid the groundwork with the Action Programme for Natural Climate Protection (ANK), which aims to make ecosystems more resilient to climate change and more effective CO2 sinks, a necessity for the renaturation law.

The ANK, currently endowed with a substantial 3.5 billion euros, also contains the economic incentives generally needed for farmers to switch to more nature-friendly practices. However, a significant willingness to change is required with moors: not only must a farmer get used to working on wet soil, but they must also trust value chains that are still being established – for example, that reed and cattail will become insulation materials.

More nature in urban areas

The ANK funding programmes for forest restructuring and urban greening, which have already started, align with the goals of the restoration regulation. Bringing more nature into urban areas may be the easiest goal to achieve. Already, there is a significant concentration of biodiversity there, and few need convincing about the benefits of more trees in urban spaces. The ANK specialist at the Environment Ministry reports enormous demand from municipalities.

That the renaturation law is the first pro-nature news from Brussels in a long time, while other measures – fewer pesticides or removing arable land – have been withdrawn, does not make achieving the goals any easier. Progress can only be made when the EU's Common Agricultural Policy is also oriented towards more nature conservation – and farmers are paid to protect nature.

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ENVIRONMENTAL
CONSULTANCY FOR NATURE AND CULTURE