July 2019 Proposal for Nagoya Protocol Learning Portal Website Support

Background

The Nagoya Protocol to the Convention on Biological Diversity (CBD) calls for sharing of benefits from the use of genetic resources, defined by the CBD as "genetic material of actual or potential value, and their associated information." The implementation of the Nagoya Protocol is to obtain prior informed consent and share benefits with provider communities, where the nature of how genetic material and information can be shared and physically curated may vary country-to-country depending on their policies, and where benefits and conditions of consent are mutually agreed terms generated by a dialogue between researchers/collectors and providers. This is a change that gives more agency to providing communities and countries who may harbor a wealth of species and heritage of biodiversity knowledge but lag in access to technology, economic resources, and institutional infrastructure needed to harness the potential benefits from the study of and exploitation of biodiversity (a global inequality; Deplazes-Zemp et al., 2018; Rabitz et al., 2015). The spirit of the Nagoya Protocol is to slow biodiversity loss — which better scientific understanding can help with — while also making access to materials and benefit sharing of research products more fair. Coupling science with fairness can influence biodiversity conservation in many different ways such as by broadening participation and collaboration in science, management, and innovation and by making biodiversity value and ecosystem services more quantifiable and transparent.

An official tool exists to track country policies and facilitate the registration of projects such as research or biological collections management: The Access an Benefit Sharing Clearing House (ABSCH; https://absch.cbd.int/). This new protocol and project management system is a substantive change in the workflow, nature of relationships, and reporting mechanism that directly affects members of our research, education, and collections management communities. They need immediate help to learn the Nagoya Protocol and how to work with the ABSCH structure.

The current information in the CBD website and the ABSCH presents a huge learning curve and is often not written in accessible introductory language. Further, the United States is not a signatory to the Nagoya Protocol, but nonetheless needs to adhere to the policies of the signatory countries in order to work with genetic resources from them, creating a situation where there is ambiguity that can confuse and discourage people to try to work within this structure. Finally, despite that the Nagoya Protocol was adopted as a supplement agreement of the CBD nearly two decades ago in year 2000, it only entered into force in 2014 and many countries are still in very nascent stages of developing the infrastructure, resources, and national policies to support to implement the Protocol. Several major issues pertinent to the implementation of the Nagoya Protocol remain unresolved, such as whether Digital Sequence Information falls under the jurisdiction of the protocol (https://www.cbd.int/abs/dsi-gr-whatdone.shtml). Stepping stone educational tools are sorely needed to help people understand the reason the Nagoya Protocol exists, how to implement the protocol and use the ABSCH at the current stage of development, and how to voice their experiences, ideas, considerations and concerns to guide future policy. Many people fear that without help, scientific progress may slow, and the intentions of the Nagoya Protocol could backfire (Welch et al., 2013; Marden 2018).

In 2017, a National Science Foundation grant was made to the Ecological Society of America from the Division of Environmental Biology for the purpose helping our country gain competence to handle the Nagoya Protocol. The ESA convened a workshop of biological professional society leaders and representatives to learn about the requirements of the Nagoya Protocol, explore its current effects on research, identify issues that may affect biological research in the future, and identify and implement future outreach and communications efforts to help researchers navigate the Protocol. An inclusive cross-society group formed called the USA Nagoya Protocol Action Group (USANPAG), which decided to support the creation of the Nagoya Protocol Learning Portal that would serve the needs of individuals and the needs of research networks and societies to help their constituents as cohorts. BSA member Rachel Meyer has been leading the effort to create the learning portal and is requesting funds to support its initial construction, growth, and maintenance. All efforts have been done under the guidance and approval of the ESA investigators and the US Dept of State Nagoya Protocol focal points.

Current Situation: Developing the learning portal, seeking seed funding

The USANPAG group and Meyer hired a team of Information Architects to perform user experience (UX) research that systematically investigated membership of the societies represented in the workshop and investigated the landscape of information and learning resources currently available in order to propose a smart design for the Nagoya Protocol Learning Portal. The team acted in good faith that funding for their work would come later after the work was done. Detailed summaries and presentations of the results are available by request, but briefly, the team found most people in the research

and collections management communities were unaware of the Nagoya Protocol, or confused about how to change their practice to be compliant with the protocol. Nonetheless, most people who were aware of the Nagoya Protocol were supportive of the spirit of the Protocol. They identified three target 'personas' for users who would be expected to use the Learning Portal: a senior professor who does teaching and research using biological materials from diverse sources, a graduate student developing a new international or national project, and a collections curator with historic collections from different places and times. The Information Architects developed a the entire website functionality structure that was refined and optimized through dialogue with the USANPAG group that took place over multiple conference calls in 2018 and early 2019. The wireframes are available here: https://adobe.ly/2XPz73z

Meyer hired a web developer (Wai-Yin Kwan) and an artist (Maya Edelman) who built learnnagoya.com with visual content that is welcoming and educational. Figure 1 shows an example of the site and the visual content.

Figure 1.

A Excerpts from the website. Left: Example of simple breakdown of concepts with short text and pictures. Middle: Wireframe of Use Case page developed by the UX team. Right: Clip of the actual built site with example of content-moderated functions.

B Hypothetical implementation of the Nagoya Protocol inspired by the work of Dr. Angelica Cibrian that was made for the website, including considerations of the cultural value of cycads, the evolutionary history of cycads, the potential for improving agriculture with information from providers, and the potential for discoveries about plant-animal-microbe interactions arising from the study of cycads.

The website is currently under an intense phase of content development. The plan is to develop example content and eventually the web user community will sustain the regular addition of new content with some moderation for quality and appropriateness. The USANPAG group provided helpful contacts to inspire 'Use Cases' from past or ongoing projects that can be explained to show how work can be done that is compliant with the Nagoya Protocol rules and ethics. A guide team was developed for the website. The team includes Attorney Emily Marden, who has extensive experience examining the management of biological resources and associated intellectual property, and has provided additional guiding information. Marden has offered to mentor a law student to develop and optimize additional written content for the site, such as 'Use Cases' or responses to questions in 'Ask the Community', and is supervising the development of a 'decision tree' tool. Marden also has experience with the International Treaty and advises on how the website can help point people to resources on the International Treaty where relevant. The team also includes Katharine Barker, the Program Manager of the Global Genome Initiative, who also develops content about the Nagoya Protocol for the Global Genome Biodiversity Network, including FAQ and vocabulary educational resources, and comment on issues related to the Nagoya Protocol. Marden and Barker are volunteering their time. The Ecological Society of America recipients of the NSF 2017 award have requested a grant supplement to pay for the law student stipend and expect it will be granted.

The team who worked on the website understands the project is being built in tandem with fundraising for the work. USANPAG members have requested financial support from their societies to help pay for the initial development of the website. The requests are for $1-3000. The Society for Preservation of Natural History Collections, The Phycological Society of America, and the American Society of Mammologists have supported us so far. In addition, the Global Genome Biodiversity Network has expressed interest in supporting the website as well, under the pretense that we build the site to have relevance for global communities and not just the United States, which we are intend to do. We expect that with a few more societies providing support, that we will be able to fully pay the information architects, web developer, and artist. If there is a surplus

of funds available, we can put it toward hiring an additional law student to develop and optimize text content for the website.

Growing the Community: Potential solutions

LearnNagoya.com can be sustained for nearly no cost so long as there is someone willing to moderate content uploaded by users. Site management and moderation is simple through WordPress and aGmail account that gets notifications of user posts requiring approval for publication. We have pre-paid for high security site management that will protect passwords and other user information. We will engage with the BSA Public Policy Committee to develop ideas together with USANPAG and their societies' Public Policy Committees on how to make moderating the site content an enriching and rewarding experience for volunteers. Many people have offered to help identify interested young scholars, scientists, and curators or have offered to mentor volunteers. The website is an experiment that Meyer and USANPAG are committed to growing, sustaining and semi-annually evaluating for the next 4 years, at which point it may be appealing to move the management of the site to a new host community or institution. The next 4 years are critical because countries that do not have their implementation plans in place yet do plan to complete their plans by 2022; we want the website resources to have lasting importance with relevant and stable information. In addition, these years where policies are in flux or poorly described may be the most difficult for researchers and curators to navigate on their own. It is a sensitive time for the global community but also a time where the work we do can set examples and inspire reactions and decisions by policymakers and stakeholders.

Several members of the USANPAG group are developing infographics, slides, and posters for distribution that can promote the website and grow the user base. The NSF supplement request also includes development of several webinars about the website and the issues surrounding the Nagoya Protocol and International Treaty that can serve as archived educational resources. We hope to have 300 registered users interacting with the site by the end of 2019, and an additional 1000 by the end of 2020. We aim to have all non-use case content completed in 2019 and to have 20 use cases available in 2019. We will use Google Analytics to monitor web traffic and share reports with statistics and feedback regularly with our supporters.

Contingency Plan: If we fail to raise sufficient funds from societies or the National Science Foundation, we will pursue crowdfunding. Meyer has experience running a successful crowdfunding campaign on Kickstarter. In order to maintain neutrality we will not be seeking corporate sponsorship.

Recommendation

We recommend that the BSA contribute $1000-3000 this year to become a supporter of the Nagoya Protocol Learning Portal and ask that the BSA President recommend inclusion of this website's activities as part of the purview of the BSA Public Policy Committee. Last year, the BSA President Andi Wolfe recommended the BSA form a task force, which was a success. The task force that came together was built simply by reaching out to the BSA networks on social media and asking for help. The task force provided guidance, interviews, site testing, use cases, and photographs to help get the website off the ground. However, it is not an entity like an organized committee. We request the BSA charge the Committee on Committees and the Public Policy Committee to help form a task force that is lasting, if that is still of interest from the BSA President and Board.

Cost: We request a one-time investment of $1000-3000, with an option to request investment again in future years.

Total Budget: Information Architects: $2000. Artwork: $3200. Website Services: $100. Website Development: $7000. Law student stipends (pending): $7000.

References

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