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How does the Nagoya Protocol on Access and Benefit-Sharing affect biological conservation research? An example from Guatemala

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Introduction

The Nagoya Protocol on Access and Benefit-Sharing took effect in 2014 to establish clear procedures for access to genetic resources. This protocol seeks to promote fair and equitable sharing of benefits derived from genetic resources, which is especially relevant for commercial benefits. Scientists are concerned about its effect on research to produce scientific, societal and environmental benefits rather than commercial gains. If countries don't develop specific procedures for non-commercial research, their implementation of the Nagoya Protocol may unintentionally create legal barriers and cumbersome and costly procedures that constrain such research. This would delay or even paralyze the generation of new knowledge needed to achieve biodiversity conservation and sustainable development goals. A pilot exercise of the Nagoya protocol in the Maya Biosphere Reserve (MBR) of Petén revealed for the first time in Guatemala how it would function in practice for biological conservation research. We document the steps required to approve a request to extract DNA from mahogany samples and ship them out of the country for a microsatellite molecular (nSSR) analysis, which is much cheaper in a foreign lab than in Guatemala.



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Steps for obtaining access to mahogany DNA

- January, 2014:** First meeting among stakeholders and participatory exercises to map intended outcomes of the study
- September, 2014:** Request for access submitted to CONAP by the Universidad del Valle Guatemala
- October, 2014:** CONAP creates a technical team to implement Nagoya Protocol procedures
- December, 2014:** Revised request submitted responding to comments from CONAP's technical team
- March, 2015:** Permission issued by CONAP to collect seeds and leaf samples
- May, 2015:** Mutually agreed terms (MATs) established among communities, UVG, Bioversity and CONAP during a Prior Informed Consent (PIC) meeting. The communities and CONAP agreed to grant access to seeds for germination trials in Guatemala and to permit shipment of DNA samples to Belgium. The benefits requested and granted
- November, 2015:** Meeting of CONAP council to review the request and MATs
- January, 2016:** Resolution issued approving permission
- February, 2016:** Research advances presented to Community representatives and CONAP
- March, 2016:** Community members trained in seed germination and genetic diversity monitoring
- May, 2016:** Final agreement signed by UVG
- July, 2016:** CONAP drafts procedures to implement the Nagoya Protocol and develops manual for research requests under CONAP on the basis of this case study
- August, 2016:** Final agreement for contract signed by CONAP.

Community forestry in the Maya Biosphere Reserve (MBR)

Communities play an important role in protecting the forests of the MBR by managing concessions in the multiple use zone of the reserve. ACOFOP supports the communities to help them achieve environmental and economic sustainability. Mahogany (*Swietenia macrophylla* King) timber is the most economically-important product extracted from the forests. Bioversity International, UVG and ACOFOP implemented a study using nSSR markers and germination trials to determine how mahogany harvesting affects outcrossing rates among remaining mother trees and the genetic diversity and fitness of the next generation of mahogany trees. This evidence will help the communities justify the sustainability of their management regime, or adjust it if necessary as part of their request for renewal of their concession.

Key facts of the Nagoya Protocol related to biological conservation

- 72 parties including Guatemala have so far ratified the protocol.
- Users who request genetic resources are required to inform and consult the providers of the intended use of the genetic resources through a Prior Informed Consent (PIC) process.
- Mutually agreed terms (MATs) must be established between providers and users before requestors can obtain the solicited genetic resources.
- The parties agree in clause 8a to "create conditions to promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries, including through simplified measures on access for non-commercial research purposes".

Conclusions

It took almost 2 years between the first request and the signing of the final agreement to use these genetic resources for non-commercial research. This extended timeline resulted in part from several changes of the Executive Secretary at CONAP and the fact that the topic of genetic resources is political. In addition, these procedures were being implemented for the first time. This case study helped CONAP to start developing short and standardized procedures for implementing the Nagoya Protocol in Guatemala and to develop guidelines for researchers to request permissions for non-commercial research to CONAP.

The Nagoya Protocol requires that scientists engage more closely with national authorities, communities and other relevant actors. This process may delay research and add costs, but it also represents an opportunity for researchers to better connect with society, which needs scientific support to address major challenges of the 21st century on sustainable production and biological conservation. By contributing to society's understanding and positive attitude towards biodiversity research, scientists will also contribute to increased support for scientific research.

Mahogany pod with semi-mature seeds



Credit: Bioversity International/Maarten van Zonneveld

Four recommendations for facilitating biological conservation research under the Nagoya Protocol

1. Short and standardized procedures

We encourage governments to consult scientists, communities and other relevant stakeholders when implementing the Nagoya Protocol. This helps build trust among actors and incorporates different viewpoints in the codes of conduct defined.

2. Common understanding

We recommend that researchers and community members meet one or more times before a PIC event to review research goals and discuss expectations. Participatory tools can help stakeholders define together achievable objectives and realistic benefits during and after the project.

3. Science communication

We encourage conservation biologists and geneticists to communicate with non-scientists in governments, communities and society to explain the relevance and value of their research. This is vital because many people may not understand what genetics studies are, nor realize their potential benefits for communities and society.

4. Participatory research

Conservation genetics studies don't usually provide direct benefits for local people. They may understand this, but nevertheless want to be recognized or involved. Participatory research benefits local people through knowledge sharing and training, and benefits researchers by fostering local support for their investigations.