

United Nations Decade on Biodiversity

Living in harmony with nature

Overview of International oversight - Experiences with CBD and other discussions of gene drives

Wadzanayi Goredema-Mandivenyi

Head of Unit: Biosafety

Secretariat of the Convention on Biological Diversity



Convention on
Biological Diversity



Convention on Biological Diversity



United Nations Decade on Biodiversity
Programmes Information Secretariat

The Convention Cartagena Protocol Nagoya Protocol



About the Convention

Conference of the Parties

Strategic Plan

Aichi Biodiversity Targets

Implementation

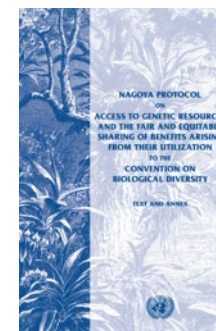
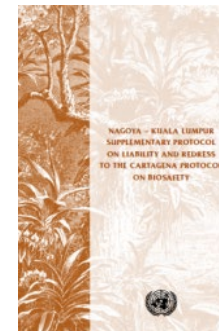
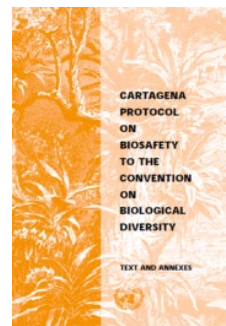
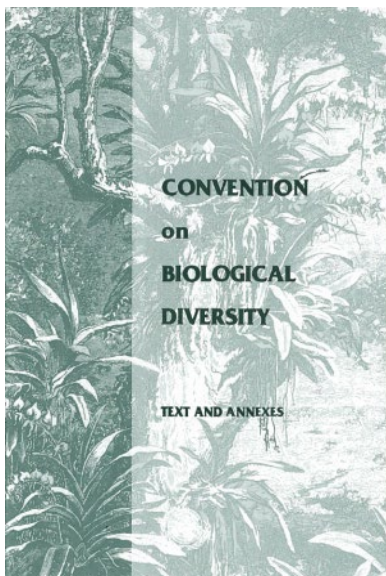
UN Decade on Biodiversity

1 of the three Rio Conventions, emerging from the UN Conference on Environment and Development in 1992. Entered into force on 29 December 1993

3 objectives: Conservation of biological diversity
Sustainable use of its components

Fair and equitable sharing of the benefits arising out of the utilization of genetic resources

3 Protocols





Convention on
Biological Diversity



Context

Two programmes of work under the Secretariat that involve organisms containing engineered gene drives:

- 1) Synthetic biology under the Convention on Biological Diversity
- 2) Risk Assessment under the Cartagena Protocol on Biosafety

Scope of discussions are similar, but different

- Synthetic biology discussions are broader and include discussion of potential benefits and risks, as well as products, organisms and components of synthetic biology
- Risk assessment discussions focus on potential adverse effects of living modified organisms (LMOs)

Convention on Biological Diversity - Key Decision



- COP-14 passed the most recent decision concerning engineered gene drives
- Decision:
 - **urges** precaution
 - **reinforces** the need to seek free, prior and informed consent or approval from all potentially impacted communities and Indigenous Peoples before considering environmental release of gene drive organisms
- Decision also places three preconditions before “considering release of engineered gene drives”: **States need to**
 - do scientifically-sound risk assessment
 - ensure risk management measures are in place to “prevent or minimize adverse effects,”
 - seek consent of “potentially affected Indigenous Peoples and Local Communities” (where appropriate and according to national circumstances and legislation)
- Decision notes that a release of engineered gene drives may affect the “traditional knowledge, innovation, practices, livelihood and use of land and water” of Indigenous Peoples and Local Communities.

Convention on Biodiversity - Processes



- Submission of information on specific topics of synthetic biology
 - The current state of knowledge by analysing information, including but not limited to peer-reviewed published literature, on the potential positive and negative environmental impacts, taking into account human health, cultural and socioeconomic impacts, especially with regard to the value of biodiversity to indigenous peoples and local communities, of current and near-future applications of synthetic biology, **including those applications that involve organisms containing engineered gene drives**, taking into account the traits and species potentially subject to release and the dynamics of their dissemination;
- Open-ended Online Forum on Synthetic Biology to support the work of the AHTEG.
 - Topic 1: New developments in synthetic biology
 - Topic 3: Review of the current state of knowledge on the potential positive and negative environmental impacts of current and near-future applications of synthetic biology, including those applications that involve organisms containing engineered gene drives
 - Topic 4: Possible impact of synthetic biology applications that are in early stages of research and development on the three objectives of the Convention;
- Synthetic Biology AHTEG

Cartagena Protocol on Biosafety – Key Decision



- Study on risk assessment: application of annex I of Decision CP-9/13 to living modified organisms containing engineered gene drives
- Decision CP-9/13, annex I provides criteria for structured analysis for prioritization and identification of risk assessment issues that needs consideration
 - Elements/Criteria
 - Issue identified by Parties as priority
 - Issue within the scope and objective of the Cartagena Protocol
 - Issue poses challenges to existing risk assessment frameworks
 - Issue for which the challenges are clearly described
 - Specific issues for engineered gene drives
- Risk assessment and risk management AHTEG recommendations to SBSTTA-24 include consideration of guidance on engineered gene drives
- COP-MOP10 will consider if guidance on engineered gene drives is required

Risk Assessment AHTEG key considerations against criteria



- LMOs containing engineered gene drives fall within the scope and objective of the Cartagena Protocol on Biosafety
- Existing risk assessment methodology may still be applicable for LMOs containing engineered gene drives – however there are some methodological considerations
- Specific challenges identified related to:
 - the engineered gene drive system
 - target organism/species
 - receiving environment
 - risk assessment methodologies
 - data collection and analysis
 - risk management and monitoring

Decision CP-9/13 stock-taking exercise



- EFSA GMO Panel (2013)
- UNEP/CBD/BS/COP-MOP/8/8/Add.1
- NASEM (2016)
- Australian Academy of Science (2017) “Discussion paper – Synthetic gene drives in Australia: Implications of emerging technologies”
- High Council for Biotechnology (HCB), France (2017) Scientific Opinion of the High Council for Biotechnology concerning use of genetically modified mosquitoes for vector control in response to the referral of 12 October 2015 (Ref. HCB-2017.06.07).
- Roberts 2017, report of a workshop convened by the FNIH
- James et al. (2018) Guidance on best practices for development of gene drive LMO mosquitoes, including some considerations for risk assessment.
- Rüdelsheim and Smets (2018) Commissioned by the Netherlands COGEM
- Teem et al. (2019) Report on 4 workshops in Africa,

Next Steps



- Open-ended working group on the Post-2020 Global Biodiversity Framework
- In-depth review of Synthetic Biology under the CBD will take place at COP-15
- SBSTTA-24 to consider the Risk Assessment AHTEG report and make recommendations to COP-MOP10
- COP-15 and COP-MOP10 may request additional work



Thank you

**Secretariat of the
Convention on Biological Diversity**
World Trade Centre
413 St. Jacques street, Suite 800
Montreal, Quebec, Canada H2Y 1N9
Tel. 1 (514) 288 2220
secretariat@cbd.int
www.cbd.int



facebook.com/UNBiodiversity



twitter.com/UNBiodiversity



instagram.com/unbiodiversity



linkedin.com/company/unbiodiversity



Convention on
Biological Diversity