Environment Canada Environnement Canada

December 05, 2013

Dr. Braulio Dias
Executive Secretary
Convention on Biological Diversity
393 Saint-Jacques Street, Suite 300
Montréal, Québec, CANADA H2Y 1N9

Dear Mr. Dias:

Canada is pleased to have the opportunity to review the document entitled *New and Emerging Issues Relating to the Conservation and Sustainable Use of Biodiversity – Potential Positive and Negative Impacts of Components, Organisms and Products Resulting from Synthetic Biology Techniques on the Conservation and Sustainable Use of Biodiversity,* which was prepared in response to decision XI/11 requesting the Executive Secretary to undertake some preparatory work on synthetic biology with a view to enabling the Subsidiary Body on Scientific, Technical and Technological Advice to consider this proposal.

We appreciate and thank the Executive Secretary for their preparatory work on this complex issue. The document provides a good starting point. However, much more work will have to be done before SBSTTA-18 can consider this proposal.

In Canada's view an analysis, as requested in decision XI/11, of whether the criteria set out in paragraph 12 of decision IX/29 apply to synthetic biology, was not completed. Therefore SBSTTA-18 will not be able to consider the merits of synthetic biology as a new and emerging issue until a full analysis of each criteria is carried out. Below you will find Canada's detailed comments on the draft document: *New and Emerging Issues Relating to the Conservation and Sustainable Use of Biodiversity – Potential Positive and Negative Impacts of Components, Organisms and Products Resulting from Synthetic Biology Techniques on the Conservation and Sustainable Use of Biodiversity.*

In general, the background document needs to be re-organized. The title of Parts 1, 2, 3, 4 are identical and they should either be rewritten to illustrate the content of the chapters or be re-organized around the seven criteria laid out in paragraph 12 of decision IX/29, to produce a clearer analysis.

Synthetic biology is an expansive field, as demonstrated in box 1: definitions of synthetic biology, on page 4 of the proposal. The document acknowledges that there is no global, agreed upon definition of synthetic biology. However, many of the definitions presented are very broad in scope and could potentially include "non-synthetic biology" issues, such as general biotechnology and crop breeding. The definitions also go beyond the scope of an overview of how synthetic biology may impact conservation and sustainable use of biological diversity. For example, the document discusses biosecurity considerations (page 24) and Intellectual Property (page 32). It is important that any definition for synthetic biology strikes a balance between inclusiveness of the technology

as a whole and not being too far-reaching, as failing to do so could have impacts on other areas of work. To minimize this potential, Canada recommends selecting an interim definition, while acknowledging the difficulty in creating a permanent definition and committing to dedicate future efforts to do so.

The seven criteria in paragraph 12 of decision IX/29 and how the document meets/does not meet them are detailed below:

(a) Relevance of the issue to the implementation of the objectives of the Convention and its existing programmes of work:

The analysis of the relevance of synthetic biology to the three objectives of the Convention and its existing programmes of work is incomplete. Part 2 of the document tries to address the potential impacts on the conservation of biodiversity, however, its arguments are not supported by peer reviewed scientific literature, as laid out in IX/11. In addition, the second and third objectives of the convention are not covered within this analysis.

(b) New evidence of unexpected and significant impacts on biodiversity:

The paper looks at 'potential' direct and indirect impacts of synthetic biology, but the potential impacts are supported by only a handful of peer reviewed papers. CBD Decision IX/29 states that "proposals for emerging issues should, where possible, be accompanied with... credible sources of information, preferably from peer-reviewed articles". Many of the sources cited come from documents prepared by special interest groups.

(c) Urgency of addressing the issue/imminence of the risk caused by the issue to the effective implementation of the Convention as well as the magnitude of actual and potential impact on biodiversity;

Urgency of addressing the issue and imminence of the risk caused by synthetic biology to the implementation of the Convention is not discussed in the document. In addition, the magnitude of the actual impact on biodiversity is lacking. The document covers potential direct/indirect impacts on the conservation of biodiversity, but again does not support its statements with peer reviewed sources and provides very few sources.

(d) Actual geographic coverage and potential spread, including rate of spread, of the identified issue relating to the conservation and sustainable use of biodiversity;

Not analyzed but should be.

(e) Evidence of the absence or limited availability of tools to limit or mitigate the negative impacts of the identified issue on the conservation and sustainable use of biodiversity;

The document details strategies for containment of unintentional release of synthetic biology organisms (pages 14-18) but falls short of providing details on tools to limit or mitigate the negative impacts of intentional release of synthetic biology organisms. The document does acknowledge that microbes engineered for environmental release raise much larger concerns than contained organisms, although again, this statement is not supported by peer reviewed sources.

(f) Magnitude of actual and potential impact of the identified issue on human well-being;

The document does a good job of describing the potential impacts of synthetic biology on human well-being but does not analyze the magnitude of the potential impacts. For example, the document goes into detail on the displacement of natural products by synthetic biology-produced versions and the likely impact on developing countries (page 23). However, the magnitude of the impact is not analyzed.

(g) Magnitude of actual and potential impact of the identified issue on productive sectors and economic well-being as related to the conservation and sustainable use of biodiversity;

The document goes into detail on economic considerations. For example, the author discusses that the global market for Synthetic Biology products is growing rapidly and predictions are that by 2016 it will reach $10.8 billion. However, analysis of the impact of synthetic biology on productive sectors and economic well-being as related to the conservation and sustainable use of biodiversity needs to be completed.
I hope that these comments are beneficial and I look forward to reviewing the next iteration of the proposal on synthetic biology.

Sincerely,

Robert McLean
Executive Director Wildlife Program Policy,
Environment Canada
National Focal Point for the
Convention on Biological Diversity