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UN biodiversity conference to debate synthetic biology, financial resources mobilization

Cancún, 5 Dec (Lim Li Ching) – The United Nations Biodiversity Conference opened in Cancún, Mexico on 4 December. The largest global gathering that convenes every two years to discuss biodiversity issues will meet over the next two weeks until 17 December.

It was preceded by a High Level Segment, which saw Ministers of Environment issuing the Cancun Declaration on Mainstreaming the Conservation and Sustainable Use of Biodiversity for Well-Being, which focused on the agriculture, forestry, fisheries and tourism sectors.

For the first time, the meetings of the Governing Bodies of the three biodiversity-related treaties – the Convention on Biological Diversity (CBD) and its two protocols, the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization – will be held concurrently in an integrated manner.

Previous meetings of the Conference of the Parties serving as the Meeting of the Parties (COP-MOP) to the Cartagena Protocol on Biosafety were held one week prior to the Conference of the Parties (COP) of the CBD. The Nagoya Protocol entered into force in 2014 and its first COP-MOP was held for a week during the second week of the CBD COP that same year.

Concurrent meetings of the three bodies (COP13 of the CBD, COP-MOP8 of the Cartagena Protocol and COP-MOP2 of the Nagoya Protocol) during a two-week period would be an organizational and logistical challenge, but this was viewed by the Parties as necessary to promote better integration and efficiency in the work of the COP and the COP-MOPs.

Synthetic biology: multi-faceted challenges

One issue that cuts across the mandates of all three treaties is that of synthetic biology, which has been discussed at the CBD since 2010. Most recently, Parties in 2014 adopted a decision on synthetic biology that emphasized the need for precaution, effective risk assessment and management procedures and/or regulatory systems, socio-economic considerations, and the full participation of indigenous peoples and local communities in the assessment of synthetic biology organisms, products and components.

Parties also established an Ad Hoc Technical Expert Group (AHTEG) on Synthetic Biology, whose report was deliberated at the 20th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 20) earlier this year. The draft decision on synthetic biology, considered under the COP13 agenda, contains several square brackets, indicating disagreement, and is expected to be among the most hotly debated issues at Cancún.

With regard to access and benefit-sharing, synthetic biology's cheaper and faster gene sequencing combined with gene synthesis technologies are opening the possibility of 'digital

biopiracy', in which companies and others use sequence data without a benefit-sharing agreement with the biodiversity's country of origin.

This 'digital DNA' threat to the CBD and the Nagoya Protocol's access and benefit sharing provisions needs especially fast action because of rapid technological changes. Bracketed language in the draft decision on synthetic biology would charge the AHTEG on Synthetic Biology to make recommendations to the Nagoya Protocol on how to do so.

Meanwhile, the AHTEG on Risk Assessment of Living Modified Organisms established under the Cartagena Protocol was also tasked to discuss synthetic biology. The AHTEG on Risk Assessment has developed an outline of guidance on "Risk Assessment of LMOs developed through synthetic biology".

The Cartagena Protocol on Biosafety is the only international treaty that specifically regulates genetic engineering and genetically modified organisms (GMOs) or living modified organisms (LMOs), as they are known in the Protocol. The AHTEG on Synthetic Biology concluded that living organisms developed through current and near future applications of synthetic biology, are similar to LMOs as defined in the Cartagena Protocol, thus giving the Cartagena Protocol an important role to play in providing Parties with the tools to deal with the risks posed by living organisms – and to a limited extent – components and products, of synthetic biology.

Parties to the Cartagena Protocol are asked to consider establishing a process for the development of guidance on the basis of the outline developed, in coordination with relevant processes under the CBD. In order to do so, the future of the risk assessment inter-sessional process, the AHTEG on Risk Assessment and Risk Management under the Cartagena Protocol, has to remain intact.

While risk assessment of the organisms, components and products of synthetic biology is critical to addressing their adverse effects, the socio-economic, cultural and ethical impacts of synthetic biology also need to be fully assessed and understood. The impacts of synthetic biology on indigenous peoples and local communities, including the development and marketing of synthetic biology organisms, components and products intended to replace traditional agricultural, harvested, marine and forest products are likely to be great, and would not only affect livelihoods, but also the conservation of biological diversity. The draft decision on synthetic biology regrettably brackets the reference to these considerations, as well as language referring to the work of the Cartagena Protocol on socio-economic considerations.

Other bracketed text in the draft decision on synthetic biology centres on the operational definition of synthetic biology as proposed by the AHTEG on Synthetic Biology. There are two alternative bracketed paragraphs; the first merely notes that the definition was developed, while the second clearly proposes to use the definition for future work. Unless the operational definition is formally adopted by COP13 as an operational definition for the work within the CBD and its Protocols, future work will be unnecessarily obstructed.

Meanwhile, civil society organizations are calling for a moratorium on the applied research, development and release of one application of synthetic biology, i.e. genetically engineered gene drives. Such gene drives are designed to deliberately spread transgenes and are very likely to cross national borders. Given the lack of international governance on the issue and

the serious ecological, cultural and societal effects, and in accordance with the Precautionary Principle, such a call is warranted.

Genetically engineered gene drives are almost certain to cause unintentional transboundary movements, either by deliberate or accidental release. Therefore the discussions under Article 17 of the Cartagena Protocol are also very relevant. Further clarity is needed as to the implications of such gene drives on the rights and obligations of Parties under Article 17, which deals with unintentional transboundary movement and emergency measures.

Other key issues that are being discussed under this agenda item include the operational definition of ‘unintentional transboundary movement’ and ‘illegal transboundary movement’, adoption of which would provide clarity for Parties and useful guidance for their implementation of the Cartagena Protocol and national biosafety laws.

Also on the agenda of the COP-MOP of the Cartagena Protocol, and one that is likely to face contention, is risk assessment. While risk assessment is central to the implementation of the Protocol, disagreement has dogged the work of the AHTEG on Risk Assessment and Risk Management, particularly its main outcome document, the ‘Guidance on Risk Assessment of Living Modified Organisms and Monitoring in the Context of Risk Assessment’. An improved version of the Guidance is up for endorsement at COP-MOP8 and this would facilitate its further use by Parties.

Parties to the Cartagena Protocol are also asked to extend the AHTEG to develop guidance on risk assessment of LMOs developed through synthetic biology, and on living modified fish based on its outlines, and to take into account additional topics, including those identified by Parties in their submissions and by the AHTEG. It is critical that this process continues so that the necessary technical guidance can be provided to Parties.

COP-MOP8 of the Cartagena Protocol will also be asked to welcome the revised Framework for Conceptual Clarity prepared by the AHTEG on Socio-Economic Considerations, a matter of high contention at COP-MOP7 two years ago. Parties are urged to provide the necessary funds for a face-to-face meeting of the AHTEG on Socio-Economic Considerations so that it can continue its mandate on developing an outline for guidance on socio-economic considerations, one that has been temporarily aborted due to the lack of funds to hold a meeting of the AHTEG.

Financial resources

Another key issue on the agenda for COP13 that can be expected to generate heated discussion is on financial resource mobilization to implement the CBD.

Parties will review progress towards the targets agreed at COP12 in 2014 for resource mobilization and the adequacy of the targets, as well as consider the need for appropriate action, based on information provided by Parties through the Financial Reporting Framework, including their respective identified resource needs, and taking into account their absorption capacities.

At COP12 Parties agreed to the following targets for resource mobilization (paragraph 1 of COP12 decision on this issue):

- Double total biodiversity-related international financial resource flows to developing countries, in particular Least Developed Countries and Small Island Developing States, as well as countries with economies in transition, using average annual biodiversity funding for the years 2006-2010 as a baseline, by 2015, and at least maintain this level until 2020;
- Endeavour for 100%, but at least 75%, of Parties to have included biodiversity in their national priorities or development plans by 2015 and have therefore made appropriate domestic financial provisions;
- Endeavour for 100%, but at least 75%, of Parties provided with adequate financial resources to have reported domestic biodiversity expenditures, as well as funding needs, gaps and priorities, by 2015, in order to improve the robustness of the baseline;
- Endeavour for 100%, but at least 75%, of Parties provided with adequate financial resources to have prepared national financial plans for biodiversity by 2015, and that 30% of those Parties have assessed and/or evaluated the intrinsic, ecological, genetic, socio-economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components; and
- Mobilize domestic financial resources from all sources to reduce the gap between identified needs and available resources at the domestic level, for effectively implementing by 2020 Parties' National Biodiversity Strategy and Action Plans, in accordance with Article 20 (of the CBD).

Given the limited funds that have been mobilized and the various ways developed countries in particular account for their financial contributions this agenda item is expected to generate considerable debate.

As the integrated and concurrent meetings of the three biodiversity-related treaties get underway, it remains to be seen if Parties will truly act in the interest of biodiversity and the indigenous peoples and local communities that have nurtured this biodiversity. One hopes that the innovations and creative organization of the meetings will also find resonance in substantive and concrete action.

(With contribution from Zhu Zhenyan.)