



Global Decision Making on Synthetic Biology at the UN Convention on Biological Diversity.

Submitted by [Molly Bond](#) on 26/05/2016 - 14:08

As a researcher exploring global decision-making *and knowledge-making* on synthetic biology, attending the meetings of the UN convention on Biodiversity offers a fascinating window on the multi-faceted international relations, tensions and contestations regarding the future vision for this emerging field as research and innovation is pushed toward commercialisation. As the only global governance platform addressing potential benefits and negative impacts of synthetic biology, in which countries from as far and wide as Egypt, Mexico, the Philippines, Zambia, Bolivia and Saudi Arabia contribute to the debate, it is surprising that the CBD receives so little attention from the Responsible Research and Innovation community.

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Synthetic biology first entered international negotiations at the Convention on Biological Diversity (CBD) during the subsidiary bodies' 14th pre-COP meeting (SBSTTA-14) in 2010, the same week, perhaps coincidentally, that Dr Craig Venter controversially announced his (first) construction of a "self-replicating synthetic bacterial cell" popularly referred to as 'Synthia'.

Six months later at COP-10 (the 10th meeting of the Conference of the Parties) held in Nagoya, Japan, a decision was passed under the 'New and emerging Issues' (NEI) framework urging parties to apply the precautionary approach to the field release of synthetic life, cells or genomes into the environment, and inviting the submission of further evidence to be considered at SBSTTA-15 (the 15th meeting of the Subsidiary Body for Scientific, Technological and Technical Advice) to assess the potential positive and negative effects of Synthetic Biology in relation to the three objectives of the Convention, which are;

1. The **conservation** of biological diversity.
2. The **sustainable use** of the components of biological diversity.
3. The **fair and equitable sharing of the benefits** arising out of the utilization of genetic resources.

COP 10 marked the beginning of the first global dialogue on synthetic biology as well as an ongoing process of inter-governmental oversight, information sharing, and intensive debate related to the promises, risks and uncertainties of this emerging technoscientific field.

Since its initiation at the 1992 Rio Earth Summit, virtually every country in the world has become a party to the CBD, all except for the USA and North Korea. As a legally binding convention, requiring countries to create and enforce national strategies and action plans, it's scope extends beyond traditional conservation efforts aimed at halting species loss or protecting ecosystems, and include highly relevant and cross-cutting issues such as; biosafety, agro-biodiversity, trade, technology transfer, traditional knowledge, sustainable livelihoods, risk assessment, as well as a central focus on more internationally controversial issues related to genetic resources such as bioprospecting and biotechnology.

The Convention now has two legally-binding protocols; The Cartagena Protocol *on Biosafety* -adopted in 2002, and The Nagoya Protocol *on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization* adopted in 2010. Each of these protocols represent important scientific and political milestones for the global governance of biotechnology and the conservation and sustainable use of biodiversity. The Cartagena Protocol ensures countries legislate against potential risks posed by living modified organisms (LMOs) such as genetically engineered seeds and animals. While The Nagoya

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Protocol sets out regulations to mitigate the appropriation of genetic resources and associated traditional knowledge from Indigenous Peoples or Local Communities for commercial purposes without ensuring ABS (Access and Benefit Sharing) arrangements such as Prior Informed Consent (PIC) and Mutually Agreed Terms (MATs) with relevant community or country.

It wasn't until COP-12 in 2014 that the parties to the convention agreed that the heated debates on synthetic biology were going nowhere, while some parties wanted the issue completely removed from the CBD, others wanted to discuss it only in relation to LMOs under the Cartagena Protocol, whilst many more pushed to pursue a process on synbio as an issue in its own right. The parties agreed to convene an 'Ad Hoc Technical Expert Group' (AHTEG) on synthetic biology with a mandate to produce an operational definition of SynBio, to identify Gaps and Overlaps in regulatory instruments nationally, regionally or internationally, to explore the potential benefits and risks associated with the Organisms, Components and Products (OCPs) of synthetic biology in relation to the 3 objectives of the convention and related human health and socioeconomic impacts, as well as to assess whether existing arrangements including work on risk assessment and management constitute a comprehensive framework for addressing impacts of OCPs of synbio.

Having recently returned from observing over 18 hours of country-on-country synbio negotiations on the outcome of this AHTEG at the SBSTTA-20 in Montreal, I can say from experience, international decision-making on SynBio, is a long, slow and painstaking process, it can go on late into the night, and just when you think a conclusion has found consensus, one country's stubbornness can lead to a frustrating piece of ambiguous text. Never-the-less, my initial impressions were that the decision-making process was – for at least those who were able to attend the negotiations – participatory, each party was allocated a fair amount of floor time and voice, and by allowing Civil Society, NGOs, Academics, Indigenous Peoples groups and other official observers access to the meetings, the process by which countries produce recommendations for COP appeared relatively transparent.

However in response to questions about participation, some delegates responded more pessimistically, highlighting that not all countries participate to the same extent as other countries, and it is often Less Developed Countries (LDCs) or Small Island Developing States (SIDS) that face difficulty obtaining VISAs, face much heavier workloads often being the single party delegate sent to negotiate on numerous different topics, or simply the lack of funds of some governments mean that no delegates are sent at all. One party delegate I met told me he had self-funded his own trip in order to participate. Whilst other countries, such as Brazil and Australia were able to send a team of 5 and 3 respectively to focus solely on the synbio negotiations. In the Plenary session however, 33 countries (including a representative from the Africa group as a whole), 4 NGOs and a representative from the

Indigenous Peoples and Local Communities (IPLC) group, all stood up to make a statement about their national or group perspective on synthetic biology.

Following the same format as the UN Convention on Climate Change, the SBSTTA meeting plays an important role in synthesizing the state of current scientific and technological knowledge on the subject in order to put forward a recommended text to be decided upon at the COP. Despite the supposed scientificity of the meeting, politics, of course played a decisive role in the interpretation of appropriate and current scientific knowledge, with countries who have financial stakes in synthetic biology frequently coming up against those countries who have little research or industrial capacities in synthetic biology.

Considering this, a certain amount of progress was made, and the outcomes and key decisions which will put at the table at COP13 this coming December in Cancun include a potential 'UN-level' internationally-agreed 'operational' definition;

"Synthetic biology is a further development and new dimension of modern biotechnology that combines science, technology and engineering to facilitate and accelerate the understanding, design, redesign, manufacture and/or modification of genetic materials, living organisms and biological systems"

Agreeing upon a definition would be a milestone for a field that has so many. A second key issue will be to decide whether the growing use of digital sequence information on genetic resources falls within the convention's 3 objectives and in particular necessitates Access and Benefit Sharing (ABS) rules under the Nagoya Protocol. Another key decision to be made at COP relates to the extent to which so-called 'Socio-economic, cultural and ethical considerations' (SECE) should be encouraged as a central part of research efforts, public engagement, multistakeholder dialogues and development of guidelines in addressing the potential benefits and adverse effects of the OCPs of synthetic biology. Finally it is expected that the COP will decide to convene another AHTEG on SynBio to further explore these and other governance issues where there is a lack of consensus regarding risks and benefits.

The CBD has been referred to as the "soft" treaty due to its lack of strict compliance mechanisms unlike those of the World Trade Organisation (WTO) or Convention on Biological Weapons, however what may start soft, does have ability to harden over time. We have seen this with the implementation of the Nagoya protocol in EU and UK law over the past 18 months, with real sanctions now facing those who commit "biopiracy". Likewise in 2000, a moratorium on field-testing and commercial sale of what the industry refer to as 'Terminator Technology' or GURTS (Genetic Use Restriction Technology) which produce sterile GM seeds was globally enforced through the CBD.

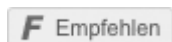
From my research, I believe the CBD is a vitally important platform for participatory global decision-making and knowledge-making on SynBio, and although levels of inclusivity could

be improved (especially those from small island or less developed states), it provides a stage upon which synbio can be assessed in relation to the fundamental pillars of sustainable development; environmental and social justice and wellbeing. For those who are a part of the growing RRI movement, or those simply following the politics of Synthetic Biology, the CBD is, without doubt, an arena that deserves closer attention.

by *Molly Bond*

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