



Volume 39,  
Issue 3  
Wednesday, 9 Nov 2011  
www.cbdalliance.org

In this edition:

1. Synthetic Biology
2. Ecosystem restoration

*ECO is currently being published at the 15th SBSTTA meeting of the Convention on Biological Diversity coordinated by the CBD Alliance.*

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*Submissions are welcome from all civil society groups.*

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## Synthetic Biology

### Where does it concern the Convention and its Protocols?

*Jim Thomas (ETC Group) & Christine Weizsäcker (ECOROPA)*

It sounds almost like the opposite of the natural biological diversity and sustainable use traditions that the CBD is entrusted to protect. Synthetic Biology, the artificial construction of lifeforms from synthetic genetic parts, is now leaving the lab and rapidly ballooning into a multibillion dollar industry. As it does so the CBD is now beginning to move towards discussing oversight of synthetic biology. The issue will be raised at SBSTAA 16 as a new and emerging issue, and a comprehensive set of submissions with concerns raised by civil society groups are now available on the CBD website. However the issue links directly to much of what will be discussed here at SBSTTA 15 under several items as Christine Weizsäcker laid out during yesterday's side event and as they are listed below.

Almost all major energy, chemical and grain companies have investments in a clutch of new 'synthetic biology' startups, and their business plans will gobble up large quantities of biomass feedstocks fueling land use change and land grabs. Those proprietary vats of synthetic organisms may displace the production of natural commodities in farmers fields (such as vanilla, licorice or rubber) by moving that production into microbes rewired to act as cellular factories. Those synthetic organisms may escape into the environment, contaminating waterways and soil or worse yet may intentionally be released into the environment either for experimental bioremediation or in the form of synthetic algae species. Two companies, Synthetic Genomics Inc working hand in hand with Exxon Mobil, and Sapphire Energy with funding from Monsanto are attempting to scale up its outdoor production of synthetic algal species in the next few years to facilities covering hundreds of acres.

### **SBSTA 15 agenda items concerned include:**

#### **Agenda Item 3.1: Strategic Plan/Indicators, Docs 15/2 and 3**

At least nine of the Aichi Targets are impacted by Synthetic Organisms: *Target 3*: no to perverse subsidies; *Target 4*: impacts of production and consumption to be well within safe ecological limits; *Target 6*: fish and aquatic plants are managed applying ecosystem based approaches; *Target 7*: areas under aquaculture; *Target 8*: pollution; *Target 9*: invasive alien species; *Target 14*: restoration; precaution against counterproductive measures; *Target 18*: customary sustainable use; and *Target 19*: knowledge and science base on biodiversity.

#### **Agenda Item 3.2: Ecosystem Restoration, Doc 15/4**

In the context of Ecosystem Restoration, Synthetic Biology impacts on the Precautionary Approach; Ecosystem Approach; Defense against measures that cause severe problems whilst pretending to solve them; and the Problem of Offsets.

#### **Agenda Item 4.1: Invasive Alien Species, Docs 15/6 and 7**

Invasive Alien Species are already identified as one of the drivers of biodiversity loss.

#### **Agenda Item 4.2: Inland Water Biodiversity, Docs 15/9 and 10**

Synthetic algae form specific problems for Inland Water Biodiversity, especially Pollution problems; Additional competition for access to water; Ecosystems impacted by

aquaculture; Invasive Alien Species; and Transboundary effects along watersheds.

### Preparation for SBSTTA 16 Agenda Items

**Cartagena Protocol on Biosafety:** Even more than LMOs Synthetic organisms touch on the Precautionary principle as basis for decision; Containment; and Risk assessment.

**Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress:** Will there be financial security/insurance? Or will countries have to struggle alone with investment ruins and negative impacts on biodiversity and livelihoods?

**Nagoya Protocol on Access and Benefit-Sharing:** Digital divide leads to increasing asymmetries regarding equity. How will provider and user be defined when „Utilization“ involves digital information on genetic resources? How about Ccompliance, Monitoring, and Check-points?

### Convention on Biological and Chemical Weapons

Synthetic organisms can take advantage of a loophole in the Non-proliferation of Biological Weapons since the DNA sequences of B-weapons can be found on the internet, while the machines for synthesizing DNA sequences are available second-hand on ebay.

## Ecosystem Restoration or Biodiversity Offsets

*Simone Lovera (Global Forest Coalition) & Helena Paul (EcoNexus)*

Innocent though it may appear, ecosystem restoration could provide the opportunity for a move into market instruments such as biodiversity offsets. How can this be?

After all, many Indigenous Peoples have long been building sustainable livelihoods on the self-restoring capacity of ecosystems. From Kuna Yala in Panama to the hill tribes in Thailand, Indigenous Peoples have developed shifting cultivation practices that were based on the natural restoration capacity of ecosystems. As long as there was enough land available, these practices were perfectly sustainable, not only from the ecological point of view, but also from the social and cultural point of view. Indeed, the latest research suggests that such Indigenous conserved territories and community conserved areas are actually more effective forms of conservation than protected areas. It is sad that, once again, this traditional knowledge is being ignored in a CBD paper.

This is where the innocent part of the story ends. The Secretariat paper rightfully points out that the first step to restoration is to remove policies and other factors that

“Is a hectare of degraded land a hectare of potentially restored ecosystem, or a hectare of biomass production on marginal land?”

trigger the continued degradation of ecosystems. However, thanks at least in part to policies meant to mitigate climate, the world has embarked on a global war over land. Landgrabbing for large-scale bio-energy development has become a daily evil in many countries. To add insult to injury, such monoculture tree plantations may also attract carbon offsets. As the FAO noted in its submission to the Climate negotiations in June 2011, both bioenergy expansion and REDD projects are

causing unsustainable pressures on land. This battle over land has not only triggered a global food price crisis causing hunger and starvation, it has also caused a global land rush that makes it very hard to find land that can be set aside for restoration purposes.

In this respect, the term ‘degraded land’ probably forms one of the biggest threats to ecosystem restoration policies. From a biodiversity perspective, a piece of degraded land is land that urgently needs ecosystem restoration. However, bioenergy, biochar and forest carbon offset promoters have been using the term to identify land for large-scale monoculture expansion.

Current bioenergy policies and the biomass economy could lead to the disappearance of all primary forests and most native grasslands by the year 2065. Halting this trend requires us to use land in a way that does not lead to ecosystem degradation.

We also need to avoid large-scale exploitation such as oil and mineral extraction. However, for some proponents of the “green economy”, the expansion of these industries creates the opportunity to offset their impacts in one region by proposing restoration initiatives in other areas, so attracting biodiversity offsets. This sheds a new light on partnerships between nature conservation unions and oil companies.

Mother Earth herself, however, does not need that kind of “green economy”. She just needs people who care for her, who address the factors that cause ecosystem degradation and use her ecosystems in a sustainable manner. Aside from that she mainly needs rest, so that she can restore herself.