

Rio: From Earth Summit to Earth Grab?

At Rio+20 governments can create a more responsive and representative Multilateral Environmental Network ... or enthrone a new Environmental Empire. Three issues:

	An Earth Grab The rushed negotiating timetable could lead to...	...Or an Earth Agenda That is participatory and precautionary and...
Green Governance	Construction of a more centralized, pseudo-UN, 'green governance' mechanism, that privileges the private sector and Bretton Woods institutions while disenfranchising much of the global South as it commandeers control over the environment, natural resources (including agriculture) and climate change;	Creates a new, broad, participatory and transparent UN environmental network within which South governments, and civil society, can address the full range of climate and environmental issues now managed by 500 disparate agreements and institutions; and ... welcomes the reformed UN Committee on World Food Security (CFS) as its interlocutor for food, agriculture and rural development policies and programmes;
Green Economies	Implicit entrenchment of a suite of untested, so-called "clean technologies" as the basis for a "Green Economy" (including synthetic biology, nanotechnology, genomics and geoengineering) that will dominate the South's natural resources (again, agriculture included), and...	Commits the UN, in 2012 – as a central element in the development of socially, economically and culturally appropriate and diverse green economies – to a negotiating process leading to an international technology assessment and information mechanism that strengthens national sovereignty and technology policy choices;
Climate Change Strategies	Acquiescence to a technology transfer regime (possibly finalized in either Durban or in Rio) that will impose industry's monopoly control over the deployment of untried technologies—including, especially, geoengineering.	Asserts the integrity of the multilateral community and the priority of the precautionary principle as being at the core of technology regulation and transfer; and affirms UN control over all technologies intended to impact climate change by establishing a legally-binding prohibition of all forms of geoengineering; including, possibly through the convening of an early meeting of state parties to ENMOD (UN Environmental Modification Treaty, 1978).

The Long (half-century) Road to Rio+20

Rio+20 is, more accurately, Stockholm+40 – or, more philosophically, *Silent Spring*-50 (2012 being the 50th anniversary of the publication of Rachel Carson’s famous book). The 1972 Stockholm Conference established UNEP and the institutional framework for the UN response to environmental issues and the Rio Earth Summit of 1992 set the global environmental agenda for the 21st century. Rio+20 must review and, then, implement an updated agenda. **Some states wish to avoid a review of the original Rio commitments, arguing that Rio+20 must be forward-looking. This is a mistake. Governments must avoid false premises if they are not to be fooled by false promises.**

Current governance structures for both the environment and agriculture in the UN system suffer from a lack of coordination among institutions; a lack of effective representation for most governments; and an absence of involvement of civil society and social movements. Rio+20 offers a real opportunity to strengthen democracy and peoples’ participation within the UN system.

Genuinely green economies must be based upon the appropriate use of biodiversity to meet human needs and safeguard planetary systems. Governments and civil society especially welcome the strengthening and formation of diverse, locally-centered, socially, culturally and ecologically appropriate green economies and encourage communities and countries to actively explore this important goal. However, in the absence of careful intergovernmental debate and extensive people’s involvement, the idea that a sustainable “Green Economy” is the means to harness and develop the biological and other natural resources of the global South – supporting its peoples and protecting the planet – could turn into the most massive resource grab in more than 500 years.

Three Initiatives to Counter the New Biomasters

The months ahead are a time of risk and opportunity. The risks, however, are obvious while the opportunities often go unrecognized. We propose three broad initiatives...

1. Governing Green- A New UN Environmental Network

Create a new, broad, participatory and transparent UN environmental network within which South governments and civil society, can address the full range of climate and environmental issues managed by 500 disparate organizations and agreements; and, welcome the reformed UN Committee on World Food Security (CFS) as its interlocutor for food, agricultural and rural development policies and programmes.

The Problem:

Since the Stockholm Conference of 1972, there has been a proliferation of treaties, agreements and institutions, but the money hasn't matched the meetings and the decisions haven't been matched with democratic participation. The multilateral system's environmental response has been incongruously *ad hoc* and also *ad nauseum*. Among the indicators...

Democratic deficit: Post-Stockholm (1972), UNEP says there are at least 500 international environment-related conventions - of which 70% are regional. Forty-five of these global deals have 72 members or more. In the 15 years between the Earth Summit and 2007, just 18 of the 45 major environmental agreements convened 540 meetings reaching 5,084 decisions. Extrapolating roughly - and assuming that the other 27 conventions were less active - South governments have been under-resourced to participate in, probably, 1000 major conferences at which, perhaps, 10,000 decisions, important to their national sovereignty, were reached.

Financial deficit: The total funding available for international environmental governance is unknown. Five years ago, UNEP worked with \$136.5 million and the UN had another \$301 million to manage MEA's (multilateral environmental agencies) for which it is responsible—a total of \$437.5 million out of the UN's then budget of \$1.65 billion - roughly 25%. About the same time, according to the OECD, much less than 2% --\$1.85 billion of the \$ 111.2 billion bilateral ODA (official development assistance) spending was on identifiable environmental activities. Importantly, UN managed conventions are less expensive than other non-UN "partnership" arrangements. Costs for UN MEAs have risen (roughly) by a factor of 1.2 since the Earth Summit whereas costs for non-UN MEAs has jumped by a factor of 4.7. This is important for governments to remember as they discuss new environmental umbrellas or institutions.

The Response:

While there are dozens of permutations and perturbations, proposals for restructuring the multilateral environmental community boil down to three basic formats:

1. **UNEP Upgrade:** turning the Nairobi-based "program" into a full-membership UN "agency" (à la UNDP, for example) with increased authority, resources and an expanded mandate;
2. **Environmental Empire:** creating a new, post-UN, super-body (possibly either in Paris or Rio) bringing together key UN actors with Bretton Woods institutions, Big Biz and Big Philanthropy in a loose pact or partnership that would marginalize most governments, most treaties/agreements, and most of civil society;
3. **iPlanet convergence:** adding on a few cheap apps to tweak and twitter the existing structures into a more coherent and collaborative configuration and, hopefully, achieve some governance and financial efficiencies and effectiveness.

There is logic to upgrading UNEP and giving it the resources and authority necessary to harmonize the multilateral community's environmental efforts. All UN member states would have an equal role in the new UNEP and nothing would prevent UNEP from structuring whatever formal or informal arrangements governments wish in order to bring in the voice of non-UN actors (as has been done recently with the UN Committee on World Food Security, discussed later). The only reason, then, to introduce a new Environmental Empire (a.k.a. World Environment Organization) would be to weaken the influence of governments by "Rio-engineering" the kind of informal compact that inevitably benefits those with wealth and power. Still, it will be difficult (impossible?) to get agreement on a UNEP upgrade before Rio. iPlanet's tweaks and twitters are eminently more doable...and, perhaps, safer.

Rio-engineering of the environmental infrastructure should:

1. Assure the universal participation of all member states of the United Nations on the basis of one country - one vote;
2. Strengthen the UN's capacity to support regional and national action;
3. Recognize the expertise and special relationship of social movements – especially indigenous, farming and local communities – and other civil society organizations with the environment through new arrangements supporting their full participation;
4. Facilitate effective participation by synchronizing and streamlining the number of intergovernmental meetings needed to oversee treaties and agreements;
5. Force and facilitate rationalized treaty secretariats – including global and regional offices and operations – to improve coherence and optimize financial management.

Governments and civil society organizations could unite to propose a constructive iPlanet that meets these criteria – a multi-institutional network that combines the best-practices established through the three UN chemicals and wastes conventions (Basel, Rotterdam and Stockholm) and the template of the four agricultural agencies within the reformed Committee on World Food Security (CFS) and the proposals for civil society participation (accepted, in 2004, by Sec. Gen. Kofi Annan). These three initiatives together could lead to a very creative, more coordinated – but still responsive and flexible – environmental network.

Chemical attractions: Recently, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989), the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998), and the Stockholm Convention on Persistent Organic Pollutants (POPs, 2001) have begun to merge their secretariats and coordinate meetings of their Governing Bodies to maximize their efficiencies in monitoring hazardous waste and chemicals from cradle to grave. UNEP provides the secretariat for the Basel and Rotterdam conventions and UNEP and FAO jointly staff the Stockholm convention. The three conventions are also looking at the possibility of joint capacity-

building and funding mechanisms. Although each convention has its own membership and treaty obligations, the collaboration has, thus far, been constructive.

Family farm: As a second model, following tough external evaluations, beginning in 2009, the UN Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD), and the World Food Programme (WFP) have begun to coordinate their program and planning during the weeklong annual meeting of the UN/FAO Committee on World Food Security (CFS, 1974). Interestingly, they have been joined by a fourth non-UN multilateral institution: the Consultative Group on International Agricultural Research (CGIAR). The CFS also has a fledgling High-Level Panel of Experts charged with reporting on critical issues. While the HLPE has potential, it has thus far sidestepped the important work of the IAASTD and has not adequately engaged the smallholder farmers, fishers and pastoralists. This is surprising because, uniquely, CSOs and social movements – especially smallholder farm organizations – have the right to self-organize and participate fully in all aspects of the CFS. The only clear difference between their participation and states is that governments still have the prerogative of voting.

CSO/Freedom of Information: A third interesting initiative is the UN ECE's 1998 Aarhus Convention (Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters), which proposes the intergovernmental equivalent of national Freedom of Information requests. This is only being implemented in Europe so far. If governments bear in mind the Aarhus recommendations, consider CSO participation in the CFS, and also take into account the recommendations of the Cardoso Panel on CSO participation (2004), these three initiatives make a strong case for a much more inclusive CSO/social movement involvement in a new environmental network.

The new UN environmental network could include the major relevant treaties adopted since 1972 including the UNFCCC, CBD and Desertification conventions. Because of the importance of agriculture (including forestry and fisheries) to the environment, the reformed CFS, while maintaining its independence, should contribute to the new network as appropriate. **In the preparatory process leading to Rio, governments could establish a working group within the IFSD (Institutional Framework for Sustainable Development) to develop the new network based upon the above initiatives.**

The Importance of Agricultural Governance at Rio+20

In negotiations concerning carbon trading within the UNFCCC and in Rio+20 discussions about a "Green Economy," there is a worrisome tendency to subsume food and agriculture into a wider corporate "environmental" agenda that tends to ignore the recurring global food crises and the links between industrial agriculture and the climate crisis. There is also a tendency to overlook the importance of the restructured Committee

on World Food Security as a key partner in achieving socially and ecologically sustainable development within the framework of Food Sovereignty.

The food crisis that, in 2008, drove more than a billion people into hunger, is back again with some commodity prices now the highest in history. All proposals for new uses for land or biomass must be screened through the on-the-ground experience of smallholder producers and those who are hungry. The environmental or climate change lens is not enough.

The importance of agriculture and, within that, the importance of small producers must be central to any discussions about a new green economy. According to UNEP's recent report (*Toward a Green Economy*). There are 525 million small farms of which 404 million have less than two hectares. Small farmers account for 70% (and growing) of global agricultural production. UNEP's report says that there is substantial evidence that smaller farms have higher yields. 90% of African agricultural production – and 40% of India's cereal production - comes from small farms. Much of the data used by UNEP and others is disappointingly old – at least 6 to 20 years. In the light of the recurring food crisis, more up-to-date information on the role of smallholder farmers, farm size and productivity will be necessary. In considering global food production, green economists must also know the contribution of artisanal fishers and of hunters and gatherers – the “hidden harvest” that makes up one-third or more of rural caloric consumption in some seasons. Further, green economists must take into account the importance of urban and peri-urban food production, which is sometimes estimated at 25% of urban consumption. When it is all put together, “peasant” (non-industrial) production may be as high as 80 or 85% of global consumption and is, by far, the most important food source for the 1 billion hungry people who can't afford to shop at Carrefour or Wal-Mart.

At Rio+20, governments must recognize the CFS as its interlocutor on food and agricultural issues, and acknowledge the vital importance of small food producers, which are responsible for the majority of world's food supply. Further, governments should acknowledge that the starting point for the development of agricultural strategies must be the *Report of the International Assessment on Agricultural Knowledge, Science and Technology for Development (IAASTD)* and, especially, its emphasis on the role of smallholder producers in achieving sustainable food sovereignty.

Further information:

Aarhus Convention on Access to Information, Public Participation in Decision-Making and

Access to Justice in Environmental Matters: <http://www.unece.org/env/pp/treatytext.htm>

Basel, Rotterdam, Stockholm Conventions, “United Nations launches global campaign to strengthen synergies in chemicals and waste management,” February 2010

<http://www.unep.org/Documents.Multilingual/Default.Print.asp?DocumentID=612&ArticleID=6466&l=en>

Committee on Food Security Reform Report, October 2009:

<ftp://ftp.fao.org/docrep/fao/meeting/017/k3023e3.pdf>

Panel of Eminent Persons on United Nations–Civil Society Relations, “We the peoples: civil society, the United Nations and Global Governance,” (Cardoso report), 2004: <http://www.un-ngls.org/orf/UNreform.htm>

Report of the International Assessment on Agricultural Knowledge, Science and Technology for Development, “Agriculture at a Crossroads,” 2009: <http://www.agassessment.org/>

McKeon, Nora. 2009. *The United Nations and Civil Society: Legitimizing Global Governance - Whose Voice?* London: Zed Books, 255 p.

More and Better: <http://www.moreandbetter.org/index.html>

Millennium Institute: <http://www.millenniuminstitute.net/>

2. Green Economy? – *First, Technology Assessment*

Commit the UN, in 2012 – as a central element in the development of socially, economically and culturally appropriate and diverse green economies – to a negotiating process leading to an international technology assessment and information mechanism that strengthens national sovereignty and technology policy choices.

The Problem:

Transfer... or Dump? Technology transfer issues will figure large at COP 17 of the UNFCCC in Durban late in 2011. Many governments see access to new technologies as vital to their ability to respond to climate change and are anxious to ensure that intellectual property regimes and licensing arrangements don't make the technologies prohibitively expensive. Likewise, industry and some OECD states are keen to protect their intellectual property. Industrialized countries will inevitably argue that any IP concessions (reduced royalty payments, etc.) should be counted as part of their financial contribution. As it was at the 1992 Rio Earth Summit, technology will also be important at Rio+20. In the scramble for access, some governments are not asking if the technologies they want are safe, useful, or have strings attached. Since Copenhagen, the USA has blocked any intellectual property discussion signaling that it will be monopoly-as-usual post-Rio.

Nanotechnology, synthetic biology, meta-genomics and geoengineering are not discreet inventions but technology platforms that demand whole production and/or processing systems. They are also untested and their suitability to national needs is speculative. The global South – which is receiving the brunt of environmental deterioration and climate change – will also be the guinea pig for testing these powerful technological packages. The logical prerequisite to technology transfer is the creation, by the United Nations, of a technology assessment and information mechanism.

The Technologies:

The most disturbing statistic used by venture capitalists discussing the “Green Economy” is that only 23.8% of the Earth’s annual terrestrial biomass reaches their commercial market – meaning that 76.2% of the planet’s land-based biomass is available to be commodified and monopolized. Some governments and UN agencies have already expressed their concern over “land grabs” that threaten the national and food sovereignty of many countries. Little attention, however, is devoted to the proprietary “clean” technologies that may determine whose land will be exploited for what ends. The front cover of a recent issue of *The Economist* (Feb. 12–18, 2011) best describes the pace (but underestimates the scope) of technological change with its thought-provoking title, “Print me a Stradivarius.” In preparing for Rio+20, governments have substantially underestimated the speed of technological change or the impact some key technologies may have on the global environment, climate change, and the South’s economy. Four crucial developments are summarized below.

Nanotechnology – *Print me a Stradivarius*

The Economist’s headline story describes a revolution in manufacturing processes that could massively reduce energy costs and raw materials demand through the bottom-up, nano or microscale “desktop production” of finished goods and components. Since 2000, global public investment in nanotechnology research has exceeded \$50 billion. And the pace is increasing: public and private investment in nanotech was expected to top \$20 billion last year. More than 60 countries now have national nanotechnology initiatives. These new manufacturing methods will impact employment and manufacturing locations but will also impact the global market for natural resources ranging from copper to cotton or from natural fibers to vegetable oils. Although described as both “clean” and “green,” this Industrial Revolution is marching ahead almost entirely unmonitored and unregulated. Its impact on exporters could be profound and its import (especially in food and other consumer products) could be hazardous. Nanotechnology should not be designated a “clean” technology prematurely, especially in light of dozens of scientific studies showing toxic effects of some nanomaterials. The ILO and the ICCM have begun to study nanotech but much more work is required. Meanwhile, many civil society organizations have called for a moratorium on nanotechnology until the socio-economic and health and environmental implications are understood. **At Rio+20, governments could coordinate nanotechnology investigations with the various concerned agencies and agreements.**

Further information:

ETC Group, *The Big Downturn? Nanogeopolitics*, 2010: <http://www.etcgroup.org/en/node/5245>

ICTA, *Principles for the Oversight of Nanotechnologies and Nanomaterials*, 2008:

<http://www.icta.org/pubs/index.cfm>

International Forum on Chemical Safety, Sixth Session of the Intergovernmental Forum on Chemical Safety, Dakar, Senegal, 15 – 19 September 2008, Final Report:

<http://www.who.int/ifcs/documents/forums/forum6/report/en/index.html>

Synthetic biology – *Programme me a strawberry*

At the living end of the nano-scale, synthetic biology is making it possible to shift from moving single genes from one species to another (biotech or genetically-modified crops, for example) to building DNA from the bottom up to make unique algae and microbes that behave as tiny biological factories able to convert almost any biomass into almost any bioproduct. With billions of dollars of public and private investment over the past few years (including the world's largest energy and chemical companies), synthetic biology sees nature's biodiversity as biomass where the designer bugs can convert cellulose into fuels, chemicals, plastics, fibers, pharmaceuticals or even food – depending on market demand at harvest time. Using proprietary technologies, the new “Biomasters” don't need to own land or own the biomass as long as their microbes can determine the end product. Such a reductionist approach to biodiversity has no place in a truly green economy. The Biodiversity Convention is studying synthetic biology following proposals from its SBSTTA to consider a moratorium. **Once again, at Rio+20, governments could coordinate the study of synthetic biology with the various concerned agencies and agreements.**

Further information:

Convention on Biodiversity, SBSTTA, SBSTTA 14 Recommendation XIV/16:

<http://www.cbd.int/recommendation/sbstta/?id=12263>

ETC Group, *The New Biomasters: Synthetic Biology and the Next Assault on Biodiversity and Livelihoods*, 2010: <http://www.etcgroup.org/en/node/5232>

Friends of the Earth, *Synthetic Solutions to the Climate Crisis: The Dangers of Synthetic Biology for Biofuels Production*, September 2010:

<http://www.foe.org/healthy-people/synthetic-biology>

Meta-Genomics – *Pirate me a butterfly*

For many governments, the essence of the “Green Economy” is the sustainable use of biological diversity to improve crop and livestock production and to develop new pharmaceuticals and other high-value products. Recent agreements at the Biodiversity Convention and at FAO have attempted to guarantee equitable access and benefit sharing for this purpose. Even as these agreements were being finalized, however, developments in meta-genomics and computing are persuading some industries that biodiversity conservation is unnecessary. Whereas it took 13 years and \$3 billion to map the human genome eight years ago, it is now possible to map a complex genome in eight days for less than \$10,000 and – shortly after Rio+20 – to map any genome in 15 minutes for a few hundred dollars based on a single molecule...and to beam up the digital DNA map to an Internet cloud from just about anywhere. It will soon be possible to carry the digital map of every known species on a credit card-sized piece of plastic with a molecule of each species on the other side. Downloading genomes off the Internet onto their laptops,

scientists will redesign the DNA, e-mail the rejigged code to a commercial gene synthesizer and have the ready-to-use germplasm FedExed back in a couple of days. Meanwhile, meta-genomics is sequencing the genomes of communities of organisms in one fell swoop to exploit the microbial functioning of entire ecosystems. In tandem with these developments, new hyperspectral imaging technologies – using satellites and aircrafts – are making it scientifically and financially possible to map, measure and capture unique biodiversity. With these developments, the South’s sovereignty over its biodiversity becomes moot and the “Green Economy” becomes inequitable. **At Rio+20, governments could agree to review existing access and benefit sharing arrangements in relevant treaties and to investigate the implications of intellectual property over biological materials.**

Further information:

CBD, *Report of the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity* and “Decision X/1”: <http://www.cbd.int/cop10/doc/>

International Treaty on Plant Genetic Resources for Food and Agriculture:

<http://www.planttreaty.org/>

Pat Mooney, “Of InfraREDD and InfoREDD,” *Pambazuka News*, 7 October 2010, Issue 499:

<http://www.pambazuka.org/en/category/features/67536>

Geoengineering – *Paint me a sunset*

Industry, at Rio+20, will not only be attempting to impose nanotechnology, synthetic biology and meta-genomics as central to the “Green Economy,” it will also be proposing these technologies as integral to geoengineering strategies to dilute or delay climate change. Geoengineering is the intentional, large-scale intervention in planetary systems with the intention of affecting the climate. Since 2008, the UN Biodiversity Convention has unanimously adopted two moratoria blocking geoengineering: the first, in 2008, against “ocean fertilization” that intends (though has not been shown) to sequester carbon dioxide, and; in 2010, geoengineering, more generally – including various forms of so-called Solar Radiation Management such as cloud whitening through ocean salt sprays and the construction of artificial volcanoes to blast sulfates into the stratosphere, both to block sunlight. Despite these moratoria, several OECD governments are continuing to explore geoengineering options. Attractively, geoengineering allows governments that wish to do little or nothing about climate change to pretend that a technological “fix” means that they can act unilaterally (without multilateral agreement) to dampen global warming while maintaining their exorbitant lifestyles. Geoengineering, for these governments, could be politically popular at home and save them money abroad. Geoengineering is now being proposed as a quick fix for our other ecological crises, such

as ocean acidification, nitrogen and water cycle imbalances. This cannot be part of a Green Economy. **Geoengineering could be banned outright by the United Nations at Rio+20.**

Further information:

CBD COP 9, Decision IX/16.C, Ocean Fertilization under Biodiversity and climate change:

<http://www.cbd.int/decision/cop/?id=11659>

CBD COP 10, Decision X/33, Biodiversity and climate change: <http://www.cbd.int/cop10/doc/>

ETC Group, *Geopiracy: The Case Against Geoengineering*, 2010:

<http://www.etcgroup.org/en/node/5217>

ETC Group, *Who Will Govern? Rome's Food Summit may determine who decides who will eat*, 2009: <http://www.etcgroup.org/en/node/4922>

The Response:

Rio+20 must review Agenda 21 chapters 34 and 35 that call upon governments to pursue national and global technology assessment initiatives. In the years since Rio, the capacity of governments and the international community to undertake technology assessment has declined. Immediately following Rio, the UN Center on Science and Technology for Development (UNCSTD) first established in 1979 was drastically cut back from its significant New York offices to a tiny secretariat housed within UNCTAD in Geneva. Simultaneously, the UN Center for Transnational Corporations (UNCTC), which monitored the major industries developing new technologies, was eliminated altogether. Some national technology assessment facilities were also reduced. In the mid-1990s, the US Office of Technology Assessment (OTA), for example, was shut down.

The collapse in the ability of governments to assess new technologies took place exactly as the world experienced the most rapid – and broadest --expansion of new technologies in history. Public concern over the safety of new technologies and lack of confidence in the ability of governments to protect their interests rose with the discovery of, first, “Mad cow” disease, then Foot and Mouth disease (mostly in industrialized countries) and, later, the rapid spread of genetically-modified crops. Beginning in the new century, at least a dozen OECD governments have moved to resuscitate or strengthen their technology assessment capacity. For example, within the European Union, the Scientific Technology Options Assessment organization (STOA) has been most recently updated in 2004, and assessment facilities in at least nine European states – including Germany, Switzerland, Denmark, the United Kingdom, Finland, France, Greece, Italy, and the Netherlands – have been strengthened.

Nevertheless, the UN multilateral system has no credible capacity to assess technologies or to advise governments. Given that different countries experience extraordinarily different health, environmental and socioeconomic conditions within which technologies

operate, there is urgent need for both a national and global capacity to monitor and share information.

Opposition to technology assessment can be expected from some industries. However, there is reluctant recognition from many parties that “business as usual” is not a good idea. Some companies and governments would welcome a less disruptive process for introducing new technologies. Since 2000, the UN has had no structural alternative but to adopt three moratoria related to new technologies: GURTS (or Terminator seeds) in 2000; ocean fertilization in 2008; and, in 2010, a general moratorium on most forms of geoengineering. Some governments and companies are fearful that additional moratoria will be adopted for synthetic biology and nanotechnology.

There are several ways in which Rio +20 could move toward a technology assessment and information mechanism:

1. **Technology Assessment Service** – An upgraded UNEP or a new environmental network could establish a dedicated secretariat to service the needs of governments;
2. **UNCSTD – once more with feeling:** Alternatively, Rio+20 could opt to re-invigorate UNCSTD with more staff, resources and an enlarged mandate to monitor technologies and share information under the guidance of an intergovernmental committee. The multilateral system’s technology assessment capacity does not need to reside within an environmental network per se;
3. **ICENT**(See Annex 2) – Rio +20 could agree to begin negotiations on the creation of an International Convention for the Evaluation of New Technologies. Such a Convention would have the advantage of being able to address both the socio-economic and environmental aspects of technologies.

A draft ICENT text is being prepared and – although preliminary – is available as a discussion document for interested governments. See also the annex to this document.

In 2012, governments could accept the principle that the capacity must be created within the UN system to monitor, assess and provide information about new technologies and, further, to establish a negotiation process that will create this mechanism.

Further information:

Agenda 21, Section IV (Means of Implementation), Chapter 34, Transfer of Environmentally Sound Technology, Cooperation & Capacity-Building and Chapter 35,

<http://www.un.org/esa/dsd/agenda21/>

ICENT, see Appendix 2: An International Convention for the Evaluation of New Technologies (ICENT) in ETC Group, *Geopiracy: The Case Against Geoengineering*, 2010:

<http://www.etcgroup.org/en/node/5217>

3. Climate Change – *Ban on Geoengineering*

Assert the integrity of the multilateral community over technologies intending to impact climate change by establishing a legally-binding prohibition of all forms of unilateral (non-UN sanctioned) geoengineering; or, possibly through the convening of an early meeting of state parties to ENMOD (UN Environmental Modification Treaty, 1978);

The community of nations should be concerned to block geoengineering for six reasons:

1. Geoengineering may not require the concurrence of the UN or other governments since many geoengineering technologies (such as Solar Radiation Management) can be deployed within national boundaries but have vast regional or global impact;
2. Governments deploying geoengineering technologies may have no interest in joining multilateral climate change agreements;
3. Those deploying geoengineering technologies may argue that the costs are their contribution to the well-being of the most seriously affected countries;
4. Geoengineering represents a high risk gamble with the most likely negative impacts being felt in tropical and subtropical countries;
5. Governments who adopt climate techno-fixes will not devote political or financial capital to reduce their own GHG emissions;
6. The governments most interested in geoengineering have been those that have historically either denied or delayed climate change action and have failed to demonstrate either the integrity or the intelligence necessary to commandeer control over “the planetary thermostat” through their technologies.

COP 10 of the Convention on Biological Diversity adopted a unanimous moratorium on geoengineering at its meeting in Japan in October, 2010. However, since the moratorium falls short of an outright ban, governments could pass a specific resolution against geoengineering at Rio+20.

The Environmental Modification Treaty (ENMOD) text was jointly produced by the United States and the Soviet Union in the mid-1970s as a consequence of US efforts to manipulate weather conditions over the Ho Chi Minh trail and rice paddies during the Vietnam War. ENMOD prohibits member states from using the environment as a weapon. Despite this military limitation, the recent Bush administration acknowledged that ENMOD could also be invoked in the case of geoengineering for the purpose of climate change. 73 governments (including all permanent members of the Security Council as well as other governments with advanced technologies) have ratified the ENMOD. Any member government can claim that another member state is manipulating its environment and the UN Secretary-General is obliged to convene a meeting of treaty parties to address the complaint. It is also possible for the UN to go to the International Court of Justice to seek guidance from the Court as to what might be considered a violation of the treaty. In other words, the Court could be asked if geoengineering for the

purpose of climate change would amount to a violation of the treaty. In such instances, the Court normally offers its advice within 12 months.

At Rio+20, governments could, at least, invite the Secretary-General to seek the advice of the International Court of Justice as to whether or not geoengineering would be a violation of the Environmental Modification Treaty of 1978.

Further information:

Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques (ENMOD treaty text):

<http://www.fas.org/nuke/control/enmod/text/environ2.htm>

CBD COP 10, Decision X/33, Biodiversity and climate change: <http://www.cbd.int/cop10/doc/>

ETC Group, *Geopiracy: The Case Against Geoengineering*, 2010:

<http://www.etcgroup.org/en/node/5217>

Annex 1

GEOENGINEERING AND ENMOD: Could this treaty stop unilateral Geoengineering?

What is Geoengineering?

Geoengineering is the intentional and large-scale technological manipulation of the Earth's systems, proposed ostensibly as a response to anthropogenic climate change. It includes various high-risk technologies ranging from stratospheric aerosols to cloud whitening to ocean fertilization to weather modification. These technologies are under active research and development in a small number of countries (USA, UK, Canada, Australia, Russia, Germany) and are being discussed in policy circles as climate change "Plan B" in light of disappointing results in climate negotiations.

What is ENMOD?

ENMOD is the Convention on the Prohibition of Military or Any other Hostile Use of Environmental Modification Techniques, a treaty that has been in force since 1978 and has been ratified by 73 states. It prohibits the use of environmental modification and commits parties "not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party"(Article 1).¹

How is environmental modification defined in ENMOD?

Article II defines environmental modification techniques: "any technique for changing – through the deliberate manipulation of natural processes – the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space." This definition would encompass many geoengineering technologies currently under active research and development.

What international rules govern geoengineering?

The only clear expression of international will that exists on geoengineering is the moratorium that was adopted by 193 states at the Convention on Biological Diversity in Nagoya, Japan in

¹ According to Understanding 1, those are defined as follows (and any one of them is sufficient for a treaty violation):

- (a) "widespread": encompassing an area on the scale of several hundred square kilometres;
- (b) "long-lasting": lasting for a period of months, or approximately a season;
- (c) "severe": involving serious or significant disruption or harm to human life, natural and economic resources or other assets.

October 2010. This [moratorium](#) prohibits geoengineering activities until a number of conditions are met (examination of impacts, proper regulatory mechanism, etc.) but it is bound to be challenged by powerful interests anxious to step out of the lab and get on with real-world experimentation. The moratorium is a vital first step, but it is a stop-gap measure until more legally-binding and enforceable rules are devised that can ban any unilateral attempts to re-engineer the Earth's climate. Invoking ENMOD, as explained below, could strengthen international oversight over these controversial technologies.

Could ENMOD be invoked to stop geoengineering?

While the treaty was not designed to govern contemporary geoengineering technologies, there are several ways in which ENMOD could usefully be invoked.

- In keeping with Article V of the Treaty, a Party can request the UN Secretary-General to establish, within one month, a Consultative Committee of Experts for the purpose of reviewing initiatives underway by some Parties to plan, support or conduct experiments in environmental modification (geoengineering) that could have wide-spread, long-lasting or severe effects, causing damage or injury to other parties.
- Also in keeping with Article 5, a State Party that believes another State Party is acting in breach of the Convention can lodge a complaint with the UN Security Council, which may undertake an investigation and then inform Parties of the results.
- According to Article VIII, any country that has ratified the treaty could call upon the UN Secretary-General to convene a Conference of the Parties to discuss the potential impacts of geoengineering experiments that could cause "widespread, long-lasting or severe effects."
- Any Party could propose an amendment to the Convention, in keeping with Article VI, ensuring that geoengineering would more explicitly fall within its remit. The other strategies described above should be attempted prior to going through the more onerous treaty amendment process.

Does ENMOD allow environmental modification for peaceful purposes?

Yes. However, state parties are under an obligation to consult one another and cooperate in solving any problems that may arise in relation to the Convention. If, for example, a geoengineering experiment by one Party perturbed the precipitation patterns of another country (a known risk of stratospheric aerosol injections, for example), such an act could be considered hostile without necessarily being an act of war or even having military involvement.

What countries have ratified ENMOD?

Afghanistan, Algeria, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Bangladesh, Belarus, Belgium, Benin, Brazil, Bulgaria, Canada, Cape Verde, Chile, China, Costa Rica, Cuba, Cyprus, Czech Republic, Democratic People's Republic of Korea, Denmark, Dominica, Egypt, Finland, Germany, Ghana, Greece, Guatemala, Honduras, Hungary, India, Ireland, Italy, Japan, Kazakhstan, Kuwait, Lao People's Democratic Republic, Lithuania, Malawi, Mauritius,

Mongolia, Netherlands, New Zealand, Nicaragua, Niger, Norway, Pakistan, Panama, Papua New Guinea, Poland, Republic of Korea, Romania, Russian Federation, Sao Tome and Principe, Slovakia, Slovenia, Solomon Islands, Spain, Sri Lanka, St. Lucia, St. Vincent and the Grenadines, Sweden, Switzerland, Tajikistan, Tunisia, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Uzbekistan, Viet Nam, Yemen

More resources:

ETC Group, [*Geopiracy: The Case Against Geoengineering*](#), Mexico 2010.

Susana Pimiento Chamorro and Edward Hammond, [*Addressing Environmental Modification in Post Cold War Conflict*](#), An Edmonds Institute Occasional Paper, 2001.

Albert Lin, "[Geoengineering Governance](#), Balancing the risks, managing technology and dangerous climate change," [*Issues in Legal Scholarship*](#), Volume 8, Issue 3 2009 Article 2

Annex 2

ICENT

International Convention for the Evaluation of New Technologies

Objective: To create a socio-political and scientific environment for the sound and timely evaluation of new technologies in a participatory and transparent process that supports societal understanding, encourages scientific discovery, and facilitates equitable benefit-sharing. Further, to ensure the conservation of useful conventional or culturally-distinct technologies and, in particular; to promote technological diversification and decentralization.

Additionally, the process objective is to clarify the need for such a convention; to stimulate high-level and societal discussion, and; to encourage national and regional legislative and institutional initiatives that would compliment an international agreement.

Timeline: The agenda for negotiations should be establish at or before Rio+20. Successful or not, it will take 7-10 years for the process to conclude in either failure (although still with beneficial socio-political and national/regional results) or, in a code of conduct, or in a legally-binding treaty.

Elements: The member states will form a Conference of the Parties to the Convention. COP will be supported by a modest Secretariat and enabled by a Bureau comprised of regionally-determined representative states. COP will meet biennially while the Bureau will meet semi-annually. Two expert permanent committees, consisting of all members, will convene annually and will ordinarily report to COP through the Bureau.

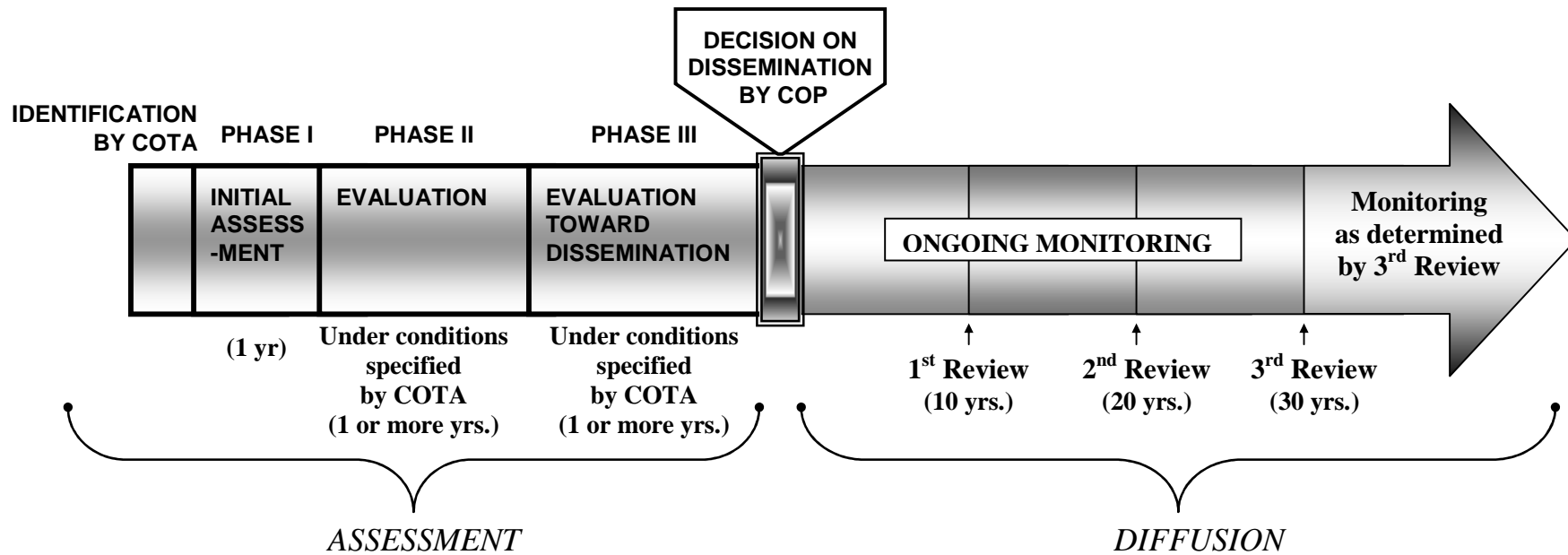
COTA, the Committee on Technology Assessment, will identify significant new technologies; establish appropriate evaluation processes for each identified technology; review progress; and recommend each technology's dismissal, delay. or diffusion to COP.

COTDAC, the Committee on Technological Diffusion and Conservation, will promote the conservation and enhancement of conventional/cultural technologies; encourage technological diversification; promote public participation and understanding; and support the diffusion of appropriate new technologies. COTDAC will have the financial resources to support national capacity-building in science and technology, and to encourage broad and equitable dissemination.

Although it will function financially and politically as an independent nongovernmental agency, ACSENT (Advisory Committee for the Socio- Economic and Ecological Evaluation of New Technologies) will be a center of scientific excellence dedicated to the independent monitoring of science and technology and will have the necessary resources to offer the international community an alternative or additional perspective on technologies and their dissemination.

Process: Assuming an effective early listening process, the intent is to identify potentially significant new technologies as the science is emerging so that the assessment process runs parallel to – and need not constrain – the research and development process. Preferably, even “high-impact” technologies would clear the assessment process as or before the technology is ready for commercialization.

STANDARD TECHNOLOGY ASSESSMENT PROCEDURE



Assessment Issues

- Evaluation takes place as scientific development continues unless otherwise required by COTA;
- Each phase requires COTA approval;
- Specific conditions for each phase to be set by COTA;
- Promoter's projections to be received for each phase;
- Diffusion approval by COP;
- Monitoring, following diffusion, at three, 10-year intervals

Diffusion Issues

- Credible impact/recall scenarios provided;
- Socio-economic benefits;
- Environmental safety;
- Technological diversity enhanced;
- Ecosystem applicability assured

TECHNOLOGY DEVELOPMENT PATH



ICENT CHART

