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That Was The Year – Unlucky 13

Rio+20's Year of Postpartum Digressions

Unlucky 13: Our 2012 year-end review, "193 Shades of Gray," stumbled into the surreal, post-Rio+20 "Hunger Games" as FAO admitted that it has been underestimating the number of hungry people and overestimating future food requirements and, in a cowardly act of conspicuous consumption, the UN Committee on World Food Security failed to condemn biofuels; Warsaw withered the way of every climate conference since Kyoto; the USA, UK, China and Russia significantly underestimated GHG emissions while the UK, Japan, New Zealand and Australia concluded that they just don't give a damn. UNEP first endorsed – and then disclaimed – methyl hydrates as a green, clean energy source. Haiyan/Yolanda, the most powerful typhoon ever recorded, struck the Philippines leaving four million people homeless, and a million Syrians bore the hurricane of refugee flight amidst the tsunami of winter snows.

Lucky 13: In October, a pro-Terminator bill came up for vote in Brazil's Judicial Commission but was withdrawn; came back again at the end of December and was withdrawn again; massive GM maize plantings in Mexico about-to-be approved most of 2013 were halted by national and international mobilizations leading to a lucky legal ploy in September; that was overturned in December, but restored the same week; lucky us, Edward Snowden courageously told us more than we feared to suspect; Benedict XVI quit; replaced by the happy surprise of the year, Pope Francis. We had Nelson Mandela for 95 years.

2013's Over-the-Top Understatements: Two demonic pearls from prominent Canadians: Toronto's hallucinogenic Mayor, Rob Ford, admitted to the Today show, "I'm not perfect," and Harvard's hubristic professor, David Keith, confessed to news satirist Stephen Colbert that spraying sulfuric acid in the stratosphere (geoengineering) was a "totally imperfect technological fix."

2013's Idiotic Idioms:

- "Unconventional energy," or "unconventionals," for short – including fracking, methane hydrate extraction;
- "Oilsands" (a.k.a. "tar") – the capitalist's alternative to "alternative energy;"
- "Distorporation" – *The Economist* magazine's description of MLPs (Master Limited Partnerships) for the massive secrecy move by extractivist investors;

Best Books of 2013 ***(or, when we first read them):***

- **Best Non-fiction**: Clive Hamilton's *Earthmasters*, Yale University Press, 2013;
- **Best Fiction**: William D. Eggers and Paul McMillan, *The Solution Revolution: How Business, Governments and Social Enterprises are Teaming Up to Solve Society's Toughest Problems,* Harvard Business Review Press, 2013;
- **Best Sequel (11 years later)**: *Late Lessons from Early Warnings II*, the European Environment Agency, 2013;
- **Best Whodunit**: Ben Goldacres's, *Bad Pharma – How Companies Mislead Doctors and Harm Patients,* Faber and Faber, 2012;
- **Most Under-Read**: UN Sec.-Gen. Ban Ki Moon's *Agricultural Technology for Development*, November 2013.

2014 – The Fear Ahead:

- The Brazilian Congress will reconvene in early February and its Judicial Commission will either vote in favour of pro-Terminator legislation (leading almost inevitably to passage in the full Congress) or, responding to national and international protests, the Commission will introduce a consultative process that will at least delay and possibly derail the anti-farmer legislation. Either way, a major battle over Terminator should be expected in October 2014, when the Biodiversity Convention – which has had a global moratorium on Terminator technologies since 2000 – holds its COP 12 in PyeongChang, Korea.
- The "on-again/off-again" GM maize trials and commercialization in Mexico could either end with the Gene Giants' victory in early 2014 or drag on to confront more mobilization and trials, including the opprobrium of the Permanent Peoples' Tribunal when it issues its final verdict in October. In its first thematic session, the Tribunal stated that GM maize should be banned in the center of origin.
- By year's end, the UN will adopt new Sustainable Development Goals (SDGs), which could, surprisingly, include a Food Sovereignty target and a commitment to technology assessment and transfer.
- Pope Francis may weigh in on both climate change and Food Sovereignty.
- Alarmed by the IPCC's normalization of geoengineering, one or more South governments may invoke the 1978 UN Treaty on Environmental Modification (ENMOD) or seek advice from the World Court in The Hague.
- The fate of millions of farm families may be determined in 2014 as food ingredients such as vanilla, vetiver and coconut oil are entangled in EU and US regulatory disputes about whether synthetic biology-derived substitutes can claim to be "natural" or relegated to the ranks of "artificial" also-rans.
- Craig Venter will make his annual announcement that he's two years away from constructing a completely-original microbial life form.
- The "Glowing Plants" start-up will announce a promotional campaign with Google insisting that its plants' luminescence can only be viewed through Google Glass when subscribers blink to their Faceplant homepage;

- Next Christmas Barack Obama will grant Edward Snowden amnesty on the grounds that he only did what Santa has always done: tell us who's been naughty or nice.

2014 Calendar

- 2014 is the UN Year of the Family Farm and, by mid-year, GRAIN will publish its ground-breaking land report definitively demonstrating that peasants produce most of our crops and livestock with much less property than the world has assumed;
- UN Open Working Group (OWG-SDGs) 7th Session (New York) January 6-11;
- UN OWG-SDGs 8th Session (New York) February 3-7;
- UN OWG-SDG negotiation sessions on the SDGs (New York) March 31-April 4; May 5-9; June 2-6;
- UN OWG-SDG final negotiation sessions on the SDGs (New York) July 14-18;
- A new Special Rapporteur on the Right to Food – a role made pivotal by Olivier De Schutter – will be elected by the UN Human Rights Council (Geneva, Switzerland) April;
- IPCC report of Working Group II (Yokohama, Japan) March 25-29;
- IPCC report of Working Group III (Berlin, Germany) April 7-11;
- The European Parliament election, May 22-25 – whose outcome is far from certain – has global significance and is bound to be more important internationally than US Congressional elections in November;
- CBD SBSTTA 18 (Montréal, Canada) June 23-27;
- UNEP Environmental Assembly (Nairobi, Kenya) June 23-27;
- Permanent People's Tribunal Final Verdict (Mexico) October;
- CBD COP 12 (PyeongChang, Korea) October 6-17;
- CFS 41 (Rome) October 13-18;
- CSO/Government Pre-COP 20 Ministerial (Caracas, Venezuela) October 15-18;
- UNFCCC COP 20 (Lima, Peru) December 1-12.
- IPBES-3 3rd Plenary Session (TBA);

2013's Brand: Triple Bottom Feeders:

"Triple bottom line" (though not brand-new) came into its own in 2013. From the World Economic Forum to the UN negotiations on Sustainable Development Goals, we were told that the CEO Suite has eschewed money-grubbing capitalism in favour of a bottom line that places equal value on shareholder profit, social benefit, and environmental sustainability. ETC's perspective: Talk is cheap but the CEO Suite spot is cheapest.

The talk of enlightened entrepreneurship ascended new euphoricisms in 2013, ballooned especially by X Prize-founder Peter Diamandis's book, *Abundance*, boosted by a cheerleading report – the breezy *Volans Breakthrough* initiative – and, buoyed by William Eggers and Paul McMillan's breathless book, *The Solution Revolution*. The take-home message: no problem is so great it can't be solved by an iTeckhie's 20-minute TED Talk.

At the beginning of *Abundance*, for example, Diamandis extols the future virtues of Abu Dhabi's Masdar City, which he ordains the world's first truly "green" city, being built on a platform with driverless pods conveying passengers underneath. Solar energy, desert winds and cutting edge technologies, he proclaims, will allow Masdar's future citizens to thrive harmoniously with nature. At least, that was the dream when plans were unveiled in 2006. In 2013, the city's platform was scrapped, cars were expected on the streets, and nobody's going to be moving in until 2025 or later. Just another castle built on sand. Likewise, the X-Prizer praises Craig Venter's synthetic biology strategy for converting algae into fuel only to have Venter himself concede by year's end that his Big Oil backers were abandoning the project. Throughout his book, Diamandis leans heavily on the calculations of *The Rational Optimist*, Matt Ridley, which may explain the miscalculations. Ridley has the distinction of being the last Chair of the first British bank to go bust in 2008 (making the ex-banker winner of the Hex Prize?)

Food… or Feed Sovereignty?

In 2013, arguably the most important gathering of the year, the sixth conference of La Via Campesina (Indonesia, June) set the strategic course of the giant peasant mobilization for Food Sovereignty; Rome's CFS (October) was a smash success in pulling together all of the global food pugilists but a moral failure on biofuels; during the year, UNCTAD, the UN Sec.-General, and the Special Rapporteur on the Right to Food delivered breakthrough reports emphasizing the centrality of peasant-led agriculture even as three predators – GM maize, GM rice and Terminator – prowled the periphery of peasant production. We released our booklet/poster, *Who Will Feed Us in the Midst of Climate Change?* Via Campesina and ETC concluded the exploratory phase of *The Great Seed Exchange* and, in September, the biennial meeting of the Governing Body of the FAO Seed Treaty in Oman faced up to the Treaty's midlife crisis, launching two emergency initiatives to resuscitate the multilateral system for seed exchange. In December, Hans Herren rightfully received the Right Livelihood Award (a.k.a. Alternative Nobel Prize) in Sweden's parliament.

Climate Change – Spoken Mirrors:

In 2013, For the first time, geoengineering auditioned for a talking role in mitigation procrastination; the 2012 ocean fertilization dump off Canada's west coast headed to court as the London Convention made its ban on ocean fertilization legally-binding and Monsanto figured out that "Climate Smart Agriculture" means profiting from its failures and a gaggle of G8 countries reneged on their commitments or negatively recalculated their emissions. Oh, and governments did what they always do at climate change conferences.

- **"C" Change?** Just as genetic engineering morphed into GMOs and onward to living Modified Organisms, in 2013, geoengineering (which ETC Group originally described as Global Ecophagy) struggled to be known as the politically more acceptable "Climate Engineering."

- **IPCC's Epic Cure?** For the first time, an IPCC Assessment Report highlighted geoengineering. In September, Working Group I indulged Russia's request to make a last-minute amendment to the *Summary for Policymakers* accepting that geoengineering methods "have been proposed" – a (silver) bullet (point) in a shot heard round the world. Geoengineers were also high-fiving their success in slipping in a reference to the need for a "large net removal of CO_2 from the atmosphere over a sustained period" (i.e., Carbon Dioxide Removal).
- **We Came; Warsaw, We Compromised:** November: Typhoon Haiyan/Yolanda struck the Philippines just as delegates were landing in Warsaw for the UNFCCC's COP 19; in light of the unfolding tragedy, Loss and Damage took center stage. Since Russia had already stage-managed geoengineering's debut (IPCC's AR5), geoengineering's "potential contribution" to DRR (Disaster Risk Reduction) is only a matter of time.
- **Seachange:** In May, the Haida Salmon Restoration Corporation officially dumped "rogue geoengineer" and Chief Scientist Russ George. In October, the London Convention/Protocol upgraded its moratorium on ocean dumping to a ban – except in the case of legitimate (i.e., nothing involving Russ George) scientific research. It remains to be seen if the LC/P's decision really dampens dumping.
- **Big Enough to Fail?** In October, the company that has long nurtured an in-house capacity for crop failure, Monsanto, spent nearly $1 billion to buy privately-held big data company Climate Corp., which uses supercomputers to predict weather, forecast failures and peddle crop insurance. (This follows on Monsanto's 2012 $210 million purchase of Precision Planting, which included "an application designed to monitor all critical aspects of planter performance and crop data analysis.") This is called "self-fulfilling prophecy profiting" or "making a virtue out of vandalism."

Nanotech and 3-D Manufacturing – Madly off in all dimensions

In 2013, with even greater fanfare than geoengineering, 3-D printing boomed onto center stage, making the cover of virtually every major science and business magazine as everyone from Boeing and Airbus to Bonnie and Clyde demonstrated the speed, design flexibility and decentralized manufacturing potential of the new technology. Dubbed "China on a desktop," 3-D manufacture left Obama beaming and Beijing brooding as Pacific and Atlantic trade negotiators glumly contemplated a world of untradeable resources.

- **Gun Revolution:** The first DIY/"die" 3-D gun – "the desktop, cop decker" goes (temporarily) online for anyone to download, load up with their own printer, and unload wherever they wish. *Chemical & Engineering News'* cover story (Sept. 30, 2013) declares, "Printing Plastic Guns: 3-D printers have scary and helpful uses," but the cover photo (a real finger on the plastic trigger) is worth a thousand tweets.

- **Nano-steps**: In September, there were small-scale celebrations of the world's first carbon nanotube computer – didn't we all think that had happened about a decade ago? Turns out, that was just hype: the first carbon

nanotube transistor was created in 1998. Don't throw away that abacus!

- **Now We Nano?** In December, the French government announced that it had received 3,409 nanomaterial registrations involving somewhere between 243 and 422 substances totaling 504,104 tonnes (including domestic production and imports) of nanoparticles. Almost half of the registrations came without useful chemical information.

Synthetic Biology – Born Again

In 2013, after almost a decade foretelling the imminent arrival of second and third generation biofuels, many synbio start-ups refocused from adding hunger (we've said) by feeding crops to cars to ending hunger (they've said) by feeding pseudo-natural food, flavour and fragrance ingredients into vats so that millions of small farmers could…do something else? Other start-ups decided their future was in the past – advising gullible environmentalists that Dodos and Carrier Pigeons could be born again too. Other start-ups shut down.

- **Frankinscents:** Two centuries after Mary Shelley wrote *Frankenstein*, Synbio "doubled down," replacing synfuels with the construction of natural plant product "equivalents" (e.g., Givaudan and International Flavor & Fragrances are racing to produce synbio vanillin; Firmenich is going after patchouli; Evolva landed a sweet deal with Cargill to produce synbio stevia; and Solazyme's joint venture with Bunge resulted in an agreement to produce 10,000MT of algal oils for Unilever.)
- **Pressing the REMOTE:** A new $34 million project funded by the US government is set to engineer microbes to convert natural gas to transportation fuel. The project is one of 15 REMOTE projects (Reducing Emissions using Methanotrophic Organisms for Transportation Energy).
- **Eat Central – Offsetting Hunger:** The Business and Biodiversity Offsets Programme allows that businesses can resort to biodiversity offsets when needed, and in June 2014, will host – with the UK government and the Zoological Society of London ("putting the sizzle back in ZSL!") the *No Net Loss Summit!* (that's their "!"), hoping to prove that the Loggerhead turtle extinction can be offset by the reconstruction of the Woolly Mammoth. Then what? *No Net Hunger*? Those who don't eat enough could be offset by those who eat too much. Does anybody remember "Cheat Central," the viral Internet spoof (pairing infidelity with fidelity) on climate offsets?
- **Kickstarter:** Glowing Plants got off to a Kickstop as about as many people signed up to oppose the so-called "sin bio" plants as signed up to keep their neighbors awake. Early in 2014 we will learn whether May flowers or dopes spring eternal.
- **The Worm(wood) has Turned**: In 2013, Sanofi/Amyris started vat production of artemisinin (an extract of the Chinese wormwood tree) and Amyris' Jay Keasling modified his business plan, which is now to take over the global supply because peasant producers could grow something else (analysis based upon his highly scientific evaluation of peasant agriculture).
- **H One Craig None?** Having failed on fuels, and after taking a detour in ice cream and chocolate (don't we all, at one time or another?), synbio folks are eyeing up markets in vaccines and antibiotics, especially Craig Venter's Synthetic Genomics, which is struggling for a high profile synbio vaccine in 2014 and maybe some test announcements on using synthetic organisms as antibiotics. Given his string of successful introductions to date, don't count on 2014 being the year we defeat flu.

- **23 Not Really Me:** 2014 could be the breakthrough year for personal genomics – or not. The company started up by a Google cofounder and partner, 23 and Me wants to recruit a million people to its service at $99 a pop, but the US Food and Drug Administration (FDA) has concluded that their DNA analysis doesn't add up and has told them to shut down.

Old-fashioned Biotechnology:
In 2013, the GMO industry "found" Mark Lynas, who has been Photoshopped into a once-upon-a-time anti-GMO activist and is now singing Allelujah to GMOs (and cheerleads a crusade to crucify the movement). 2013 also witnessed a PR push on Golden Rice and bio-fortification; the successful public execution of the GM maize-critical Seralini study published in *Food and Chemical Toxicology* and a massive GM attack on the world's center of genetic diversity for maize – Mesoamerica.

Future Drones…On and On
Trends we are watching in 2014

- **WannaBees**: The biggest names in drone-making are now donning tractor caps and working with farmers aiming to become the "John Deere" of the air. The idea is to use drones (or Unmanned Aerial Systems) to count cattle, check for water in ponds, and assess crops (and maybe make sure the variety being grown is licensed). Using the ominously-named Ritewing Zephyr II, an area of 640 acres can be mapped in 18 minutes… and a lawsuit filed with the click of a field mouse.
- **Detroit Irony – Smart (ghost) Cities**: In 2014 Pegasus Industries, a defense contractor, may begin construction of CITE - a small ghost town in the New Mexico Desert costing at least a billion dollars - intended as a testing platform for smart city technologies such as sensor networks, driverless cars etc. At the same time, the new 460,000 square foot Center for Urban Sustainable progress is being built in downtown Brooklyn with the aim to "instrument the city" and "smarten" New York into "a living lab". The initiative is headed by former defense chief scientist turned BP chief scientist turned synbio leader turned geoengineering hawk turned energy under-secretary Steve Koonin.
- **Solar drones and Google barges**: In a world of Wikileaks and NSA files, it's no surprise that data are moving offshore onto the high seas and that the cloud is moving into the clouds. The arrival of always-aloft solar drones, combined with ever smaller, cheaper servers and wifi connectivity, means there is no longer any need for data to be stored on land...at the same time new techniques make it possible to store data biologically in bacteria (which could make spying really creepy).
- **TPP vs. PPT**: The Trans Pacific Partnership (TPP), the huge and secret deal among 12 major countries that would create powerful tribunals letting corporations sue governments for protecting citizens – may, get the public attention it deserves. Because the TPP could force GM foods down our throats, the Permanent Peoples' Tribunal (PPT) that has been meeting in Mexico is looking hard at the TPP tribunals.
- **Photocropping**: Look for new developments in photosynthesis engineering – converting C3 crops like rice into C4 to optimize carbon intake. IRRI (International Rice Research Institute in the Philippines) is leading a global C4 Consortium (made up mainly of 'experts' from big universities in the North), but concedes that it could take another decade before they get "roots on the ground."