

## **Rio+20 and the new Sorcerer's Apprentices**

Clive Hamilton

Are we masters of the Earth or merely stewards? Or should we aspire to neither role?

You won't find these questions on the agenda of the landmark Rio+20 global summit beginning on 20 June. Yet two decades after the first Rio Earth Summit these are the questions haunting all environmental conferences.

Since Rio 1992, the language of science and environmental diplomacy has subtly changed in ways that suggest we are giving new answers to these age-old questions.

When conference coordinator, Elizabeth Thompson, declared that "Rio+20 should be a special general meeting of the shareholders of Earth Incorporated", her words reflected just how effectively "sustainable development" has been captured by corporate thinking over the last two decades.

"Earth Incorporated" represents the planet as a business enterprise—presumably acquired by takeover rather than built from scratch—whose output is to be maximised in the interests of its shareholders. That's us, although you might think that when the "shares" were doled out yours came without voting rights.

Yet scientists are now thinking about the environment in a way that seems to dovetail with the idea of the Earth as just one big asset to be managed.

Back at Rio 1992 the environment was understood as the domain that surrounds us, the place from which we draw resources and dump wastes, or just leave alone. The economists told us environmental damage is an "externality", an unfortunate side effect from market activity, something that could be fixed by "internalising the cost", that is, putting a price on it.

So at Rio 1992 the environment was seen as important but separate from us. The language of the summit reflected this division: "environmental issues", "the problem of environmental degradation", "development that can be made sustainable", all these ideas place the environment "over there".

The scientific arguments then were consistent with treating the environment as separate from the main game, human activity. But scientific thinking has changed radically over the last two decades, so that what we used to think of as "the environment"—the natural world spread around us—no longer exists.

The environment has been replaced by the "Earth system"—the collection of interdependent parts that make up the planet. The system is divided into various "spheres"—the hydrosphere (the watery parts), the lithosphere (the Earth's crust and what lies beneath), the biosphere (living things) and the atmosphere (the air).

Earth system science conceives of these spheres as intimately connected, linked by a number of planetary processes, like the carbon cycle, the nitrogen cycle and the water cycle. Everything is connected to everything else, often in startling ways we barely understand.

Crucially, the Earth system includes humans and their impacts on planetary processes. In fact, geoscientists have announced that modern humans have become such a powerful planetary force that we rival some of the great forces of Nature, so much so that we have entered a new geological epoch, the Anthropocene, the Age of Humans.

### **No more nature**

Thinking of the Earth system instead of the environment changes everything because a system is a totality within a boundary. Instead of worrying about how our activities might affect some part of the environment out there, now we must think about how we are disrupting the planet as a whole.

So enormous has been our influence that there is no more “nature”, only elements of the Earth system showing various levels of human disturbance. So the default position is no longer how to minimize our impact, but how best to intervene. The goal can no longer be to “live in harmony with nature”, the hope enshrined in the 1992 Rio Declaration, but how to *manage* the Earth system.

This momentous but so-far-unnoticed shift will underlie all of the debate at Rio+20, and may even be present between the lines of the official communiqués that come out of it. In place of the first Rio summit’s call to “conserve, protect and restore” ecosystems—which now seems like wishful thinking—the task of Rio+20 will be how best to govern the Earth as a whole.

Yet we must now begin to ask ourselves a very serious question: Are we *capable* of managing the Earth? Are we up to the task or, by promoting ourselves from janitor to manager, are we destined to botch it?

On this, the defining question of the 21<sup>st</sup> century, we can expect the world to divide into two camps—the Prometheans, after the Greek god who gave humans the tools of technological mastery, and those who might be called Soterians, after the Greek goddess of safety, caution and deliverance.

Acutely aware of the history of hubris, Soterians will expect any Planetary Regulatory Agency to screw things up, with devastating consequences. Ever the optimists, Prometheans will be confident *Homo sapiens* can take control of the Earth and manage it well in perpetuity.

But what will be the “vision statement” of the planetary strategic plan? Will the ideal state be an Earth like a national park, a well-run open-plain zoo in which humans are the dominant species? Or perhaps we should aim for an English country garden, carefully tended but with corners set aside to remind us of wildness?

## **Earth system engineers**

So when Earth system science superseded environmental science the change cut both ways. On the one hand, we acknowledged the extraordinary complexity and interdependence of the Earth as a totality, and how humans have disrupted the great natural cycles that regulate it. On the other hand, characterising the Earth as a system unleashed a style of thinking—that of the engineer—on the planet as a whole.

Earth system science is a kind of Newtonian mechanical thinking updated with the cybernetic ideas of feedback loops, control variables, critical values and so on. If we now think of the Earth as a cybernetic system then regulating it requires targeted technological intervention. We just have to work out what the control variables are and then set them at their optimal levels.

There is nothing futuristic about Earth system engineering. Technologies to regulate the climate system are being developed now. Among the various methods of geoengineering attracting the attention of scientists and venture capitalists is a plan to filter the amount of sunlight reaching the Earth's surface by surrounding it with a layer of sulphate aerosols, tiny particles that reflect solar radiation. Designed to offset the warming effect of carbon emissions, the solar filter would work like a planetary thermostat.

Thinking like an Earth system engineer has insinuated itself into unexpected places. Achim Steiner, the chief of the UN's environment program and a man who will play a key role at Rio+20, has called on world leaders to "better manage the planet".

The new Earth System Governance Project, a consortium of concerned scientists, argues that Rio+20 should establish new institutions of global governance, which are undoubtedly needed; but it slides unnoticed into a call for "Earth system governance", which is quite a different proposition

Many of those who have begun to speak of planetary management use the language of engineering metaphorically. But others are deadly serious. Lowell Wood, the legendary Pentagon weaponeer and pioneer of sulphate aerosol spraying, has declared: "We've engineered every other environment we live in, why not the planet?"

A new breed of ecologist, like Erle Ellis, sees planetary management as an "amazing opportunity", with global warming an invitation for us to take control of the climate. And, rejecting all pessimistic assessments, author Mark Lynas believes that through technological mastery over nature we can impose ourselves on the future of the planet.

It's a message with instant appeal to those who see humans as the Promethean species whose destiny is to master the Earth, who dream of becoming planetary overlords.

But is it within our power to master the Earth? Should we even aspire to be its managers? Over the last four decades 900 environmental treaties have been signed, yet the Earth continues to ail. So the first question we must confront is whether we can master ourselves.

Even if we could get our own house in order—and, who knows, perhaps Rio+20 will be the breakthrough we desperately need—we have to ask whether the Earth itself will go along with our grand plan.

Perhaps turning the Earth into a “system”, knowable and controllable, is the last great conceit of humanity. Perhaps instead of a well-defined system the Earth is more like a wild beast, a beast that has now been disturbed from its slumber and will shrug off our attempts to tame it with our puny technologies.

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