

Planetary Boundaries: concept and implications for global governance

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1.Introduction: what is at stake?

Global governance has been a focus of my work since 1992 when I attended the Earth Summit in Rio. Back then there was a certain degree of optimism that – after the end of the cold war – the world would come together and finally act on global environmental decline. The results of Rio were a Climate Change Convention, a Biodiversity Convention, but also Agenda 21 and the Rio Declaration with their pleas for sustainable development.

Twenty years later I attended the Rio+20 Summit. There was something rather comical about Rio+20: delegates twenty years older and the planet 20% more in decline - greenhouse gases had gone up 20%, biodiversity loss up 20% and rainforests decimation up 20% (the size of Germany and New Zealand taken together). Yet eerily no sign of urgency on the part of states and no recognition of political failure. Instead, the Rio+20 outcome document “The Future We Want” optimistically speaks of a renewed commitment to sustainable development.

During the same period of 20 years the gap between rich and poor has dramatically increased. Today, the world’s richest 85 people own as much as the bottom half of the world population, i.e. 3.5 billion people.¹ In New Zealand, the top 1% (29,000 adults) own three times as much as the bottom half (1,5 million adults).² Recently, President Obama described such obscene inequalities as “the defining challenge of our time”³. And Pope Francis explained: "As long as the problems of the poor are not radically resolved by rejecting the absolute autonomy of markets and financial speculation and by attacking the structural causes of inequality, no solution will be found for the world's problems or, for that matter, to any problems."⁴

The good news, if you want to call it that, is that governments are losing credibility. Surveys in Germany, for example, show that 70% are disillusioned about ability and willingness of nation-states to solve global problems. In the academic literature, there is agreement that the current system of global governance has been insufficient to halt planetary degradation. The deficits are manifold, but can

¹ The world’s top 10% own 90% of all household wealth

² http://www.enviroschools.org.nz/news_and_events/get-involved/1.Info_Flier.pdf

³ *The Guardian*, 4 December 2013, <http://www.theguardian.com/world/2013/dec/04/obama-income-inequality-minimum-wage-live>

⁴ *Reuters UK*, 26 November 2013, <http://uk.reuters.com/article/2013/11/26/uk-pope-document-quotes-idUKBRE9AP0EV20131126>

be summarized as a failure of the state-dominated system of international law to recognize the severity of threats to human survival and social security.

Such threats include run-away climate change, irreversible biodiversity loss and collapsing ecological systems and their impact on our lives. Already, the impacts of planetary degradation are felt as a general decline of human well-being, life quality, living standards and wealth. Considering the additional failure of states to control financial markets and global corporate power, there is a real risk of collapse of civilization.

I believe that any prospects for effective global governance rest on two preconditions.

The first precondition is **recognizing the severity of the situation** the world is in. While we can assume that many political leaders are genuinely concerned about, at least, some global threats, they continue to isolate them from each other and from their underlying causes. Instead, they focus on issues that can be managed pragmatically and within the dominant growth paradigm with environmental protection at its periphery. In other words, states and their representatives continue to ignore the severity of the problem. The first step, therefore, is a halt to pragmatism, accept the systemic nature of global threats and start to think about solutions from there. This would in itself install a sense of urgency that actions under the current system of international law and governance appear to be missing.

An equally important second precondition is to realize, and act upon, the **inherent limitations of the current system of global governance**. Historically, international law has evolved around the notion of absolute state sovereignty. State sovereignty continues to be relevant with respect to “traditional” challenges of safeguarding peace and the autonomy and welfare of citizens. However, absolute sovereignty is a myth in a totally interdependent world. Yet states and their representatives (PMs, governments, international negotiators) continue to put national interests over global interests, no matter how damaging this behavior is for their own sovereignty. This phenomenon has been called the “sovereignty paradox”⁵. States, notably their leaders, are losing policy-making sovereignty precisely because they hold on to conventional strategies of pursuing the “national interest” over any other concern.

New Zealand is a good example. Our Government is losing its policy-making sovereignty by blindly accepting, even promoting the spreading of uncontrolled markets. Free trade agreements such as the Transpacific Partnership (TPP) carry the risk of undermining social and environmental security, i.e. the main concern and justification for national sovereignty. Yet, TPP commitments are seen as much more important than, for example, climate or biodiversity commitments. Staying passive here or being a “fast follower” (as John Key put it) can heavily backfire: our ‘green clean’ image will be lost even faster as we sacrifice social and

⁵ Inge Kaul, press release 23 February 2014 re. *The Governance Report*, Hertie School of Governance (UOP 2014) <http://www.governancereport.org/media/news/the-sovereignty-paradox/>

environmental security at the altar of free trade and investment protection.

At the heart of the “sovereignty paradox” is the belief that global markets are more important than the global environment, known as the *global commons* that we all depend on. Markets are perceived as real and directly important to business and society. The global commons, on the other hand, are perceived as abstract and unrelated to markets, hence of no immediate importance. In other words, economic rationality trumps ecological wisdom. The paradox here is that this logic may help solving immediate or mid-term problems, but at a huge cost as it will eventually cause the demise of the human species.

To correct this logic, a number of things need to happen and I will only hint to a few.

First, what’s in the name? “Ecology” is a composite term of Greek *oikos* (house) and *logos* (foundation, spirit) and refers to the foundations of the house, while “economics” (*oikos* and *nomos* = measure, norm) merely describes the means for building the house. Surely, the foundations need to be in place before the house itself can be built.

Second, the current education system puts far too much emphasis on short-term thinking and market-relevant skills. The sustainability and global citizenship approach has yet to be fully recognized in schools and universities.

Third, our law and governance system is geared to prop up private property rights over public common goods. A sustainability approach would give priority to the protection of the (natural and cultural) commons.

Basically, we now need to pause and take a ‘constitutional moment’ for the global governance of our natural world and the vital Earth systems. Without such a constitutional moment everything else is rendered meaningless.

We need governance that urgently delivers on three key objectives, i.e.

- recognition of Earth systems as a governance-determining reality;
- legal principles underpinning Earth systems governance; and
- new institutions.

So let me discuss these three objectives.

2. Planetary boundaries

The concept of planetary boundaries (PB) has attracted a lot of attention. It looks at the ways in which the Earth sustains life and how the global impacts of human activities can result in sudden, even catastrophic changes to the very air we

breathe, the water we need and the ecosystems that support all life.⁶

Scientists now believe that human activities and trends – such as our dependence on fossil fuel use, increasing industrialisation of agriculture and further exploitation of natural resources – threaten to cause abrupt, irreversible environmental changes at a planetary scale; changes which would jeopardise the Earth’s life-support system and the ability of human societies to survive.

The planetary boundaries concept argues that it is vital to carve out and defend a ‘safe operating space for humanity’ by identifying thresholds within which human activities can develop. Nine Earth system processes have been identified by scientists where the setting of quantifiable boundaries would stop humanity going beyond the planet’s biophysical limits. Beyond these thresholds we are at serious risk of major ecological collapse and potential social disaster. According to a growing consensus of scientists, these thresholds are “non- negotiable planetary preconditions that humanity needs to respect”; they are our biophysical planetary thresholds and we cross them at our peril.

The nine planetary boundaries identified by a group of 29 scientists in 2009⁷ are: (1) climate change; (2) stratospheric ozone depletion; (3) ocean acidification; (4) rate of biodiversity loss; (5) interference with the nitrogen and phosphorous cycles; (6) global freshwater use; (7) change in land use; (8) chemical pollution; and (9) atmospheric aerosol loading. Evidence indicates that the thresholds for three of these – climate change, biodiversity loss and the nitrogen cycle – have already been crossed, and we are getting dangerously close to others.

For example, the production and use of nitrogen and phosphorous highlight a perfect storm facing humanity. On the one hand, both are necessary for boosting agricultural productivity throughout the world and dealing with increasing demands for food and energy. On the other hand, the global growth in food and energy consumption is having serious adverse effects on the Earth’s systems. In addition, the currently unequal and inefficient pattern of production and use of nitrogen and phosphorous results in both environmental degradation and an inability to deal with the chronic hunger and nutrition affecting many developing countries.⁸

Many scientists argue that by recognizing and establishing quantified planetary boundaries this gap in global governance can be plugged.

The planetary boundaries concept is not without its critics, and the authors have themselves acknowledged that it is based on “rough first estimates... large

⁶ <http://planetaryboundariesinitiative.org/>

⁷ Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin, F.S., III, Lambin, E.F., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H.-J., Nykvist, B., de Wit, C.A., Hughes, T., der Leeuw, van, S., Rodhe, H., Sorlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., Foley, J.A., 2009. A Safe Operating Space for Humanity. *Nature* 461 (2009), 472–475.

⁸ *Supra note 6.*

uncertainties and knowledge gaps". I agree with (our NZCGG Board Chair) Adrian Macey who last week at our first conference in Wellington summarized his assessment of Planetary Boundaries as a "simplifying, easily understood" concept "based on sound science" and therefore useful for the purposes of global governance.

3. Legal principles underpinning Earth system governance

Existing state-centered global governance should be reviewed through the lens of planetary boundaries to identify and address failures to safeguard Earth systems. This was the purpose of the Draft Declaration on Planetary Boundaries that a group of scientists and lawyers (Planetary Boundaries Initiative⁹, PBI) prepared for the Rio+20 Summit in 2012. This Declaration provides a legal framework for global governance respecting Planetary Boundaries. I did not meet with the PBI during the Rio+20 meetings, but they made contact shortly thereafter and asked me for ideas how existing international environmental law can be further developed.

My own work has focused on the principle of sustainability defined as the preservation of the integrity of Earth's ecological systems. Let me explain this a bit further.

The concept of **ecological integrity** has its origins in the 1972 US Clean Water Act and in the 1974 Great Lakes Water Quality Agreement between Canada and the United States. It has since been used in conservation legislation in North America and Europe, but not in New Zealand.

We can say, however, that the Resource Management Act 1991 with its purpose description in Section 5(2) comes close to it if understood correctly (as was the case back in the mid 1990s). We can also find express reference to the integrity concept in annual reports of the Department of Conservation. Until 2008, DoC consistently described the central objective of its work in this way:

"The aim is to, as far as possible, maintain or restore marine, terrestrial and freshwater sites on public conservation lands and waters to a healthy, natural functioning condition. This condition is described as 'ecological integrity'."

However, with the incoming National government the annual reports have shifted to utilitarian language. References to 'ecological integrity' have been replaced with the notion "environmental, social and economic benefits from functioning ecosystems"¹⁰.

The concept of ecological integrity is well known in international environmental law. In fact, no less than 23 international soft and hard law agreements contain specific reference to this concept. The first of such agreements was the Convention on the Conservation of Antarctic Marine Living Resources adopted in

⁹ *Ibid.*

¹⁰ Outcome statements in the Annual reports 2010-13.

1980, which recognized in its preamble, the importance of “*protecting the integrity of the ecosystem of the seas surrounding Antarctica*”. Another example is the preamble of *1992 Rio Declaration on Environment and Development* which calls for “working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system”. Then Principle 7 of the Rio Declaration: “*States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem.*” This is repeated in key documents such as Agenda 21 or the 2002 Johannesburg Declaration. Even the 2012 Rio+20 outcome document *The Future We Want*, widely perceived as unambitious and weak, calls for holistic and integrated approaches to sustainable development to guide humanity for restoring the health and integrity of the Earth’s ecosystem (II. 40.).

Governments have conveniently forgotten that the famous 1987 *Brundtland Report* described the “integrity of the natural system” as the basic condition for “the survival of life on Earth” and that this is the core idea behind sustainability as a prerequisite for development.¹¹ In other words, sustainable development was never meant to be just a hotchpotch of economic, social and environmental policies to somehow produce development that is sustainable. The lead author of the *Brundtland Report*, Jim McNeill, who I spoke with in Canada earlier this year, is adamant that there is a hierarchy behind the concept of sustainable development: ecology first, then society, then economy (i.e. the so-called “strong sustainability” approach).

It was the failure of the *Brundtland Report* to turn the thinking of governments in this way that caused its key members, Jim McNeill and Maurice Strong, to promote the idea of an Earth Charter as an exercise of completing “unfinished business”. At the 1992 Earth Summit, Prue Taylor and I negotiated the first version of an Earth Charter and were involved in the following process until the Charter was adopted in the Peace Palace in The Hague in 2000. The core of the Earth Charter is ecological integrity as a fundamental principle for global governance. This principle is accompanied by the general duty of “respect and care of the community of life” and the two more traditional and well-established principles of “social and environmental justice” and “democracy, non-violence and peace”.

The Earth Charter is the first international document exclusively negotiated by civil society and represents a global consensus across all cultures, religions and societies never achieved by states. You could call it a constitution of the world’s people (not states). The Earth Charter has been endorsed by a number of states and many thousands of organisations, local communities, universities and so on.

The Planetary Boundaries Initiative commissioned a report that I wrote together with my PhD-student Rakhyun Kim for a Symposium last September in

¹¹ Report of the World Commission on Environment and Development, *Our Common Future*, Part I.1.A.I: “Nature is bountiful, but it is also fragile and finely balanced. There are thresholds that cannot be crossed without endangering the basic integrity of the system. Today we are close to many of these thresholds; we must be ever mindful of the risk of endangering the survival of life on Earth.”

London.¹²

So the planetary boundaries movement and the ecological integrity movement came together. As a result of this Symposium I was invited to draft a concept for a joint initiative of global civil society networks that aims for UN institutional reform. Here are the main points of my proposal called “Earth governance”¹³:

- (1) **Planetary boundaries** assume a “safe operating space for humanity”. Operating within a safe space, however, requires a positive idea or objective to guide human activities. This objective is the preservation and restoration of the integrity of Earth’s systems (**ecological integrity**). Understood in this way, the principle of sustainability has content and sustainable development becomes meaningful.
- (2) Caring for the integrity of Earth’s systems requires a deep sense of **guardianship or trusteeship**. Governance of any form and at any level will only be successful if exercised as trusteeship for the commons and for people living today and in the future.
- (3) Governmental arrangements – at UN level, national and local levels – need to be (re-)defined as **trusteeship institutions**, especially with respect to the global commons, i.e. the Earth’s oceans, atmosphere, biodiversity and polar regions.

The final report on this project will be received by the recently established Scientific Advisory Board to the UN Secretary General for further action within the UN system. Participants in this project are the Planetary Boundaries Initiative, the Stockholm Resilience Centre, the Earth Systems Governance Project, the Global Ecological Integrity Group, the Earth Charter Initiative, the IUCN World Commission on Environmental Law - and the NZ Centre for Global Studies here on Waiheke.

4. From the global to the local and back again

This takes me from the heights of global governance back to the safe grounds of Waiheke. What can we do here on Waiheke Island? A lot. Most importantly, global governance isn’t something happening somewhere out there, but everywhere including where we actually live. Think globally, act locally still has its full meaning and arguably is the key for global governance. In fact, Waiheke’s incredibly creative, diverse, yet close-knit community is a breeding ground for global ideas and initiatives.

One of these is the idea of becoming a UNESCO Biosphere Reserve. There are currently 610 Biosphere Reserves in 117 countries, but none yet in New Zealand.

¹² Kim, R. and Bosselmann, K., International Environmental Law in the Anthropocene: Towards a Purposive System of Multilateral Environmental Agreements, 2 (2013), *Transnational Environmental Law*, 285-309.

¹³ Bosselmann, K., *Earth Governance: Trusteeship of the Global Commons*, Draft Project Proposal, April 2014 (unpubl.).

UNESCO describes them as¹⁴:

1. sites of excellence where new and optimal practices to manage nature and human activities are tested and demonstrated;
2. tools to help countries implement the results of the World Summit on Sustainable Development and, in particular, the Convention on Biological Diversity and its Ecosystem Approach;
3. learning sites for the UN Decade on Education for Sustainable Development.

For Waiheke to gain the status for becoming a UNESCO Biosphere Reserve, we need approval from the NZ Government. My PhD student Ben Gussen has asked Government on their view on this and received the answer that there is no merit in such a distinction as we have the Resource Management Act covering all relevant issues. I wouldn't hold my breath here. Government is planning to rip the heart out of the RMA by removing any notions of ethic of stewardship and intrinsic values of ecosystems. To quote the author of a recent discussion document, Minister for the Environment Amy Adams: *"(T)he focus of the RMA has shifted too far towards avoiding effects on the environment and (...) too little emphasis is being placed on using planning to deliver positive outcomes."* This is barely disguised language for going back to business-as-usual as if the RMA never existed.

Ben Gussen has written a comprehensive legal opinion on the case for designating Waiheke Island as a UNESCO Biosphere Reserve and concluded that Waiheke would meet all legal requirements - only politics stand in the way. The designation would put Waiheke literally on the world map of sustainability centres of excellence. A noble course and I am sure we from the New Zealand Centre for Global Studies can help our community and our new, so wonderfully composed and ambitious Local Board.

I finish off by thanking you all and by leaving you with a quote from a recent Report that some of the smartest High School students in New Zealand put together. It is a Report about a weekend workshop on global citizenship that the New Zealand Centre for Global Studies held in March. Here is what students are saying:

*"To us, political unification means governments of nations across the globe working cooperatively with each other toward a common purpose or goal. Essentially, it is the decentralization of power, and the centralization of values."*¹⁵

With the wisdom of these young people I do not fear for the future of New Zealand, the future of global governance and the future of humanity.

¹⁴ <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/>

¹⁵ *Global Citizenship Report*, New Zealand Centre for Global Studies, Contributors: I. Brown, T. Reid, K. Seno, S. Duder-Ozyurt, A. Ngo, B. Huxford, N. Tilahun, I. Lenihan-Ikin, Draft March 2014, p. 7.