

The Anthropocene Review

<http://anr.sagepub.com/>

The Anthropocene: A governance perspective

Frank Biermann

The Anthropocene Review 2014 1: 57 originally published online 7 January 2014

DOI: 10.1177/2053019613516289

The online version of this article can be found at:

<http://anr.sagepub.com/content/1/1/57>

Published by:



<http://www.sagepublications.com>

Additional services and information for *The Anthropocene Review* can be found at:

Email Alerts: <http://anr.sagepub.com/cgi/alerts>

Subscriptions: <http://anr.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

>> [Version of Record](#) - Mar 18, 2014

[OnlineFirst Version of Record](#) - Jan 7, 2014

[What is This?](#)

The Anthropocene: A governance perspective

The Anthropocene Review

2014, Vol. 1(1) 57–61

© The Author(s) 2014

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/2053019613516289

anr.sagepub.com



Frank Biermann

Abstract

The classification of a new epoch in planetary history as the ‘Anthropocene’ is fundamentally changing the way we understand our political systems. Given the inherently political nature of human societies, the Anthropocene also has to be understood as a global political phenomenon. The paper elaborates on how the Anthropocene is changing societal interdependence relationships, and sketches foundations of an emerging new paradigm in the social sciences, ‘Earth System’ governance. The notion of Earth System governance is developed as both an analytical and a normative research problem that is of fundamental relevance for the disciplines of political science and governance studies.

Keywords

Earth System governance, international relations, political science

The classification of a new epoch in planetary history as the ‘Anthropocene’ is fundamentally changing how we understand our political systems. The transition from the Holocene to an Anthropocene signifies a new role for humankind: from a species that had to adapt to changes in their natural environment to one that has become a driving force in the planetary system (Steffen et al., 2011; Zalasiewicz et al., 2011). Yet the human species, as the defining element of this notion of an Anthropocene, remains a highly abstract concept. It masks the multitude and variety of human agency, the differences in human resources and the diversity of human desires. It masks, in particular, the *political nature* of human society. Following Aristotle, humans are a *zoon politikon*, a ‘political animal’ that distinguishes itself from other species by its capacity to collectively organize its affairs through joint institutions. This political characteristic of humans is fundamental also for the notion of the Anthropocene. *The Anthropocene is political*; it has to be understood as a global political phenomenon (see, in more detail, Biermann, forthcoming).

VU University, The Netherlands;
Lund University, Sweden

Corresponding author:

Frank Biermann, Environmental Policy Analysis, VU
University, De Boelelaan 1087, Amsterdam 1081 HV, The
Netherlands.

Email: frank.biermann@vu.nl

To start with, the Anthropocene creates, changes or reinforces multiple interdependence relations within and among human societies. For one thing, it creates new forms and degrees of interdependence among the more than 190 formally sovereign countries and their national jurisdictions. Some of these new interdependencies emerge from functions of the Earth System that transform local pollution into changes of the global system that affect other places that have (much) less contributed to the problem, with examples being climate change, stratospheric ozone depletion, the global distribution of persistent organic pollutants and the global spread of species with potential harm for local ecosystems. Countries are also becoming more interdependent when local environmental degradation leads to transregional or global social, economic and political crises, for instance through decreases in food production that raise global food demand and prices. In short, the Anthropocene creates a new dependence of states, even the most powerful ones, on the community of all other nations. This is a defining characteristic as well as a key challenge that requires an *effective institutional framework for global cooperation*.

Second, the Anthropocene increases the functional interdependence of human societies. For example, political response strategies in one economic sector are likely to have repercussions for many others. Functional interdependence also relates to the mutual substitutability of response options, which poses special problems of international allocation. In climate governance, for example, for every global policy target there are an unlimited number of possible combinations of local responses across nations and time frames with equal degrees of effectiveness. In short, increased functional interdependence in the Anthropocene requires new degrees of effective policy coordination and integration, from local to global levels.

Third, the Anthropocene creates new *intergenerational dependencies* that pose novel political challenges. Causation and effect of transformations of the Earth System are usually separated by (often several) generations. Sea-level rise, for example, is expected within a time-range of 100 years and more. Such planning horizons exceed the tenure and often the lifetime of present political leaders. Among other things, this poses the questions of *international credibility* and trust that future governments will reciprocate and comply with international rules, and the problem of *democratic legitimacy* of policies in the intergenerational context. What rights and responsibilities do present generations – and their representatives in parliament – owe to their unborn successors? And to what extent can present generations be held accountable for activities of their ancestors, for instance regarding the burning of fossil fuels in Europe before the greenhouse effect became more widely known in the 1990s?

Fourth, the Anthropocene comes with persistent uncertainty about the causes of Earth System transformation, its impacts, the links between various causes and response options, and the broader effects of policies. Most transformations, such as global climate change, are non-linear and might accelerate, or slow down, at any time. Surprises in system behaviour can be expected, but are by definition unforeseeable. This creates a new political context, as exemplified by Ulrich Beck's notion of a global 'risk society'.

Finally, the Anthropocene is an epoch that sees the human species with extreme variations in wealth, health, living standards, education and most other indicators that define wellbeing. According to the World Bank, the richest 20% of humanity account for 76.6% of the world's total private consumption. The poorest 20%, on their part, account for just 1.5% of global wealth. Almost half of humanity – roughly, 3 billion people – lives on less than US\$2.5 per day (Chen and Ravallion, 2008). 850 million people lack sufficient food. The poorest 25% of humanity still has no access to electricity (United Nations Development Programme (UNDP), 2007). About one-third of all children in developing countries are underweight, and every day, 20,000 children die of poverty (United Nations Children's Fund (UNICEF), 2004). Today, 1 billion people lack sufficient

access to water, and 2.6 billion have no basic sanitation (UNDP, 2006). Politics in the Anthropocene has to operate in this global situation of large inequalities in resources and entitlements.

All these developments call for a new perspective also in political science. One such new perspective is a newly emerging paradigm in the social sciences, '*Earth System*' governance (Biermann, 2007; Biermann et al., 2009). The Earth System governance paradigm is a response and a reaction in the social sciences to the notion of an Anthropocene (and related concepts such as Earth System analysis). It accepts the core tenet of the Anthropocene, that is, the understanding of the Earth as an integrated, interdependent system transformed by the interplay of human and non-human agency. The focus of Earth System governance is not 'governing the Earth', or the management of the entire process of planetary evolution. Instead, Earth System governance is about the *human impact on planetary systems*. It is about the societal steering of human activities with regard to the long-term stability of geobiophysical systems.

The notion of Earth System governance now underpins a 10-year global research initiative under the auspices of the International Human Dimensions Programme on Global Environmental Change. This initiative – the Earth System Governance Project – was launched in 2009 and has evolved into a broad, vibrant and global community of researchers who share an interest in the analysis of Earth System governance and in the exploration of how to reform the ways in which human societies (fail to) steer their co-evolution with nature at the planetary scale. More than 2500 colleagues are subscribed to the Earth System Governance newsletter, and about 250 researchers belong to the group of lead faculty and research fellows closely affiliated with the Project. The term 'Earth System governance' already generates about 450,000 Google hits daily.

Research on Earth System governance needs to address both analytical and normative questions. The *analytical theory of Earth System governance* studies the emerging phenomenon of Earth System governance as it is expressed in hundreds of international regimes, international bureaucracies, national agencies, local and transnational activist groups, expert networks, etc. The analytical perspective is, in short, about how the current governance system functions.

The *normative theory of Earth System governance* is the critique of the existing systems of governance in light of the exigencies of Earth System transformation in the Anthropocene. The normative theory understands Earth System governance as a political reform programme that will benefit from both evidence-based policy research and more fundamental social science critiques of underlying systemic driving forces. Such critiques are surely needed, given that – to name one example – after 20 years of global negotiations and national policies, carbon dioxide emissions in 2010 still grew by 5.9% to a new record high (Peters et al., 2012). In the academic community, pleas for drastic change in global governance are becoming a frequent feature of scientific gatherings. For example, the 2011 Nobel Laureate Symposium on Global Sustainability called in its *Stockholm Memorandum* for 'strengthening Earth System Governance' as one of eight priorities for coherent global action (Third Nobel Laureate Symposium on Global Sustainability, 2011). One year later, the 2012 *State of the Planet* Declaration, supported by various global change programs and international agencies, called for '[f]undamental reorientation and restructuring of national and international institutions'. It is fundamental, the Declaration continues, 'to overcome barriers to progress and to move to effective Earth-system governance. Governments must take action to support institutions and mechanisms that will improve coherence, as well as bring about integrated policy and action across the social, economic and environmental pillars' (Co-chairs of the Planet under Pressure Conference, 2012: C1).

A press release preceding this Declaration, supported by the International Council for Science and others, even requests governments to fundamentally 'overhaul' the entire UN system (Planet

Under Pressure Conference, 2012). In the preparation to the 2012 UN Conference on Sustainable Development, members of the Earth System Governance research alliance had advanced a number of proposals for such an overhaul of the UN system, for example to create a new World Environment Organization and a UN Sustainable Development Council; to better monitor and support private governance mechanisms; to strengthen the involvement of civil society in international institutions; and to more often rely on qualified majority-voting as opposed to the more common system of consensus-based decision-making (Biermann et al., 2012).

Yet Earth System governance is not only about strengthening global institutions, which are merely part of the entire effort. Notably, also technological change and incremental policies at local and national levels will remain a driving force of progress in Earth System governance. For instance, just cutting down the emissions of black carbon and methane – which is a precursor of tropospheric ozone – could be a win-win solution by reducing global mean warming by around 0.5°C by the middle of the 21st century (Shindell et al., 2012). Incremental change by national and regional policies is possible, too. For example, a mix of technological change and climate change policy has allowed the European Union member countries to cut greenhouse gas emissions by 18% from 1990 while growing their economies at the same time by 48% (European Commission, 2013).

Transformations in social behaviour are crucial as well, moving from a focus on mere cooperation and efficiency to broader notions of ‘sufficiency’ (Princen, 2003). Large-scale changes of lifestyles are likely to be non-linear and might depend on ‘social tipping points’ (Lenton et al., 2008: 1792). There is ample historic precedence of drastic changes in perceptions of good and appropriate lifestyles, often motivated by religion, national renaissance (for example, Gandhism) or philosophy. Environment-related changes in public perceptions of good and appropriate living include the public ban on smoking as inappropriate behaviour for movie actors, politicians and other perceived role models; the change in perception of whale-meat consumption that is hardly affected by a recovery in some species stocks; and the rising social movement of vegetarianism. Another example is the increasing acceptance of bicycles as default vehicle of transportation in cities. In October 2013, 70 top managers of Dutch companies publicly left their chauffeur-driven cars behind in support of a week-long national ‘Low Car Diet’ campaign, thus accepting a partial redefinition of the appropriate lifestyle in the most affluent segments of society (Takken, 2013). The branding of bicycle transportation as the ‘new normality’ is also rapidly taking off in parts of North America. New York City, for instance, has, in recent years, increased its network of bicycle lanes by 700 km and counts today 73,000 members in its bicycle sharing programme, with 35,000 rides per day (Kuin, 2013).

However, it would mean throwing out the baby with the bathwater if intergovernmental institutions were discarded. The UN system and international negotiations do not stand in an antagonistic relationship with local action and non-state movements. The one needs the other. In a world of over 190 independent nation states, there is no way around strong and effective international cooperation. Effective international cooperation must be a basis for Earth System governance in the Anthropocene. A concerted effort is needed to bring these institutions in line with the exigencies of the changed political context of Earth System transformation.

In sum, in the course of the 21st century the Anthropocene is likely to change the way we understand political systems both analytically and normatively, from the village level up to the United Nations. This makes the Anthropocene one of the most demanding, and most interesting, research topics also for the field of political science, which has to develop novel, more effective and more equitable governance systems to cope with the challenges of Earth System transformation.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

- Biermann F (2007) 'Earth system governance' as a crosscutting theme of global change research. *Global Environmental Change: Human and Policy Dimensions* 17: 326–337.
- Biermann F (forthcoming) *Earth System Governance: World Politics in the Anthropocene*. Cambridge, MA: The MIT Press.
- Biermann F, Abbott K, Andresen S et al. (2012) Navigating the Anthropocene: Improving Earth System governance. *Science* 335(6074): 1306–1307.
- Biermann F, Betsill MM, Gupta J et al. (2009) *Earth System Governance: People, Places and the Planet. Science and Implementation Plan of the Earth System Governance Project*. ESG Report 1. Bonn, IHDP: The Earth System Governance Project. Available at: www.earthsystemgovernance.org.
- Chen S and Ravallion M (2008) *The Developing World is Poorer Than We Thought, But No Less Successful in the Fight Against Poverty*. Policy Research Working Paper 4703. Washington, DC: The World Bank.
- Co-chairs of the Planet under Pressure Conference (2012) State of the Planet Declaration. London, 26–29 March 2012. Supported by the Conference Scientific Organizing Committee. On file with author.
- European Commission (2013) *The 2015 International Climate Change Agreement: Shaping International Climate Policy beyond 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions*. Doc. COM(2013) 167. Brussels: European Commission (26 March).
- Kuin F (2013) Bike boom in Manhattan. *NRC Handelsblad*, 15–16 October, pp. 10–11.
- Lenton TM, Held H, Kriegler E et al. (2008) Tipping elements in the Earth's climate system. *Proceedings of the National Academy of Sciences* 105(6): 1786–1793.
- Peters GP, Marland G, Le Quéré C et al. (2012) Rapid growth in CO₂ emissions after the 2008–2009 global financial crisis. *Nature Climate Change* 2: 2–4.
- Planet Under Pressure Conference (2012) U.N. overhaul required to govern planet's life support system. Press release by the consortium organizing the Planet under Pressure Conference, 26–29 March 2012, London. Released 23 November 2011 (on file with author).
- Princen T (2003) Principles for sustainability: From cooperation and efficiency to sufficiency. *Global Environmental Politics* 3(1): 33–50.
- Shindell D, Kuylenstierna JCI, Vignati E et al. (2012) Simultaneously mitigating near-term climate change and improving human health and food security. *Science* 335: 183–189.
- Steffen W, Grinevald J, Crutzen P et al. (2011) The Anthropocene: Conceptual and historical perspectives. *Philosophical Transactions of the Royal Society A* 369: 842–867.
- Takken H (2013) Bedrijfsleiders gaan tien dagen op autodieet. *NRC Handelsblad*, 9–10 October, p. 20.
- Third Nobel Laureate Symposium on Global Sustainability (2011) *Stockholm Memorandum*. Agreed upon at the Third Nobel Laureate Symposium on Global Sustainability 'Transforming the World in an Era of Global Change', May 2011, Stockholm. Available at: <http://globalsymposium2011.org/wp-content/uploads/2011/05/The-Stockholm-Memorandum.pdf> (accessed 22 December 2011).
- United Nations Development Programme (UNDP) (2006) *Human Development Report 2006. Beyond Scarcity: Power, Poverty and the Global Water Crisis*. New York: UNDP.
- United Nations Development Programme (UNDP) (2007) *Human Development Report 2007/2008. Fighting Climate Change: Human Solidarity in a Divided World*. New York: UNDP.
- United Nations Children's Fund (UNICEF) (2004) *Childhood under Threat. The State of the World's Children 2005*. New York: UNICEF.
- Zalasiewicz J, Williams M, Haywood A et al. (2011) The Anthropocene: A new epoch of geological time? *Philosophical Transactions of the Royal Society A* 369: 835–841.