



ISTITUTO NAZIONALE DI RICERCA METROLOGICA Repository Istituzionale

Earth system governance. Ruling climate across society

Original

Earth system governance. Ruling climate across society / Ferrara, Enzo. - In: ELECTRONIC GREEN JOURNAL. - ISSN 1076-7975. - 40:1(2017).

Availability:

This version is available at: 11696/54574 since: 2017-02-24T16:35:58Z

Publisher:

Published

DOI:

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

**Peer Reviewed****Title:**

Earth system governance. Ruling climate across society

Journal Issue:

[Electronic Green Journal, 1\(40\)](#)

Author:

[Ferrara, Enzo](#), Centro Studi Sereno Regis & Istituto di Ricerche Interdisciplinari sulla Sostenibilità – Torino, Italy Istituto nazionale di Ricerca Metrologica – INRIM, Torino, Italy Strada delle Cacce 91, 10135 – Torino (Italy), voice: + 39(0)113919837

Publication Date:

2017

Permalink:

<http://escholarship.org/uc/item/9ps3g2wh>

Author Bio:

Research Scientist at Nanosciences and Materials Department, INRIM - Torino (Italy) Vicepresident of Peace Research Center "Centro Studi Sereno Regis" - Torino (Italy)

Keywords:

Governance, Anthropocene, Climate Change, Earth System

Local Identifier:

uclalib_egj_33588

Abstract:

This paper collects notes and reflections emerging from the survey of three volumes published in the Earth System Governance MIT Press series, dealing with issues of world politics, international institutions, consensus, deliberative democracy, and leadership of global governance in the dawn of the Anthropocene. The gathering arguments of the texts discussing the social, cultural, economic, and practice difficulties actually hindering the transition to a viable society worldwide ruled according to safe conditions for the environmental cycles and living beings. Progressively, the series unpacks implications for global-scale governance at the epoch of the ever-increasing impact of men. Authors consider Earth governance offering analytical insights and normative perspectives on the possible implementation modalities, including questions on democratic means and the possible role of national and transnational organizations to achieve sustainability, before the irreversible destruction of the biodiversity wealth constituted on Earth through entire eons.

Copyright Information:

All rights reserved unless otherwise indicated. Contact the author or original publisher for any necessary permissions. eScholarship is not the copyright owner for deposited works. Learn more at http://www.escholarship.org/help_copyright.html#reuse



Earth system governance. Ruling climate across society

Enzo Ferrara

Istituto Nazionale di Ricerca Metrologica & Istituto di Ricerche Interdisciplinari sulla Sostenibilità (IRIS), Torino, Italy

Extended review of

Biermann, Frank. *Earth System Governance. World Politics in the Anthropocene*. Cambridge, MA: MIT Press, 2014. 288pp + xx. ISBN 9780262526692. US \$32.00, paperback, alkaline paper. Series: *Earth System Governance*.

Torney, Diarmuid. *European Climate Leadership in Question: Policies toward China and India*. Cambridge, MA: MIT Press, 2015. 285pp + xviii. ISBN 9780262527828. US \$30.00, paperback, alkaline paper. Series: *Earth System Governance*.

Baber, Walter F. and Bartlett, Robert V. *Consensus and Global Environmental Governance. Deliberative Democracy in Nature's Regime*. Cambridge, MA: MIT Press, 2015. 272pp + xviii. ISBN: 9780262527224. US \$30.00, paperback, alkaline paper. Series: *Earth System Governance*.

Abstract

This essay collects notes and reflections emerging from the survey of three volumes published in the Earth System Governance MIT Press series, dealing with issues of world politics, international institutions, consensus, deliberative democracy, and leadership of global governance in the dawn of the Anthropocene. The gathering arguments of the texts discussing the social, cultural, economic, and practice difficulties actually hindering the transition to a viable society worldwide ruled according to safe conditions for the environmental cycles and living beings. Progressively, the series unpacks implications for global-scale governance at the epoch of the ever-increasing impact of men. Authors consider Earth governance offering analytical insights and normative perspectives on the possible implementation modalities, including questions on democratic means and the possible role of national and transnational organizations to achieve sustainability, before the irreversible destruction of the biodiversity wealth constituted on Earth through entire eons.

Introduction

In the aftermath of the COP21 meeting, held in Paris in the last months of 2015 (November 30th – December 12th) to chase a worldwide mitigation of greenhouse gas emissions, ambitions and flaws mixed into the agenda of global affairs showing how difficult it is to implement worldwide governance in practical matters of environmental protection and economics equity. In the same French capital, just a week before the dramatic attack at the Bataclan theatre (13 Dec. 2015), public debates at the *Collège de France* prepared the scenery and audience for the international summit on climate. Among these talks, the conference “*How to Think the Anthropocene?*” (November 5th – 6th 2015) analyzed the possible supports that human and social sciences can provide to the fight against the global ecological and climate crises along with their risky consequences for human development and wellbeing.

As Frank Biermann highlighted,⁽¹⁾ the question of Anthropocene – a new era whose main geological actor is humankind – is worthy to start dealing with Earth governance. He states that we, humans, are no longer simple actors in Mother Nature spectacle, who need to adapt to their natural environment; our impact on the Earth has caused changes that are

now outside the range of natural variability and are equivalent to such major geological disruptions as ice ages. Thus, scientists ⁽²⁾ argue we have entered a new epoch in the planetary history: the Anthropocene, and in an era of planet-wide transformations, we need a new model for environmental politics as well planet-wide.

That is why the *Earth System Governance* series of MIT ⁽³⁾ is welcome, edited by Frank Biermann and Oran R. Young, and aimed at studying “the institutions, organizations, and political processes by which humans govern their relationship with the natural environment and global biogeochemical systems.” The same heading, Earth System Governance, addresses also to a global research alliance project, chaired by Frank Biermann at the Utrecht University in the Netherlands; as their website claims, ⁽⁴⁾ it is “the largest social science research network in the area of governance and global environmental change.” Both, the rapidly growing book series of MIT and the research program developing in Holland, analyze governance issues at different levels of social organization and struggle for exploring political solutions and mechanisms that are more effective to cope with the current perilous transitions in the biogeochemical system of the planet. Global governance, in this view, deals with a variety of disciplinary perspectives and aims at novel scientific insights to drive possible policy reform towards sustainable development. This means that governance is not only a question of institutional effectiveness; it must also provide a new transdisciplinary perspective to include political legitimacy, social justice, and consensus in the current humanistic and scientific principles.

The Point on Anthropocene

To reconstruct the *querelle* on Anthropocene, one can consider that the Earth originated 4.6 billion years ago and its history of continuous transformation divides in different geological times, lasting millennia (ages), hundreds of millennia (epochs), millions of years (periods), or hundred millions years (eras). Actually, we live in the contemporary age, epoch of Holocene, Neozoic (or Quaternary) period. The Holocene started approximately 10.000 years ago when the climate of our planet, after a succession of glaciations, became mostly warm and hospital for mammals; humankind began to expand as hunter-gatherers communities at first, then more efficiently as harvesters and farmers, until arriving at the construction for the first time of stable and socially structured settlements.

Since then, the impact of our species on the planet has grown incessantly and dramatically. So far, humanity influences now all the physical and biological systems of the Earth. The hypothesis that we have entered the Anthropocene is now under verification on scientific basis by the *Anthropocene Working Group*, a college appositely instituted by the *International Commission on Stratigraphy*. The latter is a branch of the *International Committee on Geological Sciences*, one of the more ancient and authoritative academic institutions. Main task of the *Anthropocene Working Group* is to include (or exclude) by stratigraphic evidences this potentially new epoch – to be set as Pleistocene and Holocene, otherwise as a hierarchically inferior time sequences e.g. an age, – and state if the brief time of Holocene is eventually closed.

The geophysical processes considered for the impact of Anthropocene include: 1) Changes in erosion, deposition and sedimentary phenomena, associated to a varied ensemble of human actions comprising colonization, agriculture, and urbanization. 2) Changes in atmospheric, ocean, and soil composition, with important anthropogenic perturbations of the fundamental cycles as those of carbon, nitrogen, phosphorous, and various metals. 3) The environmental conditions generated by the stated perturbations that include global heating, oceanic acidification and the diffusion of oceanic “dead zones.” 4)

Changes in the biosphere of the Earth and sea, as the result of habitat loss, human predation, species invasion, and physical and chemical pollution already indicated.

Actually, neither the *International Commission on Stratigraphy*, nor the *International Union of Geological Sciences* have yet officially approved the Anthropocene as a recognized subdivision of the geological time. Nevertheless, the *Anthropocene Working Group* voted to designate this new epoch and formally presented a recommendation to the *International Geological Congress* held in Cape Town (South Africa) on 29 August 2016. ⁽⁵⁾ This endorsement confirms in practice and scientifically that climate change together with so many other damages of the planet bio-geo-physical equilibria is beyond any doubts mainly attributed to anthropogenic actions. Possibly, this assumption ought to receive severe and wide attention to become a common notion of contemporaneous historical consciousness. At least, we can consider definitely closed the ages of negationism on anthropogenic climate change and the irreversible impact of global pollution. ⁽⁶⁾

Issues of Global Governance

Whether or not the Anthropocene will receive acknowledgment beyond doubt as a new geological epoch of the Earth, the plethora of endangerments it represents demands for transformative human responses. That is why the *Earth System Governance* editorial initiative is a welcome and timely addition. It will be useful for researchers, activists, politicians, as well as citizens concerned with environmental governance to value the sets of reactions prompted in policy and economics by international agencies coping with climate change and other environmental challenges. The MIT series tackles precisely the very complex issue of integrating the foundations of the Anthropocene – that is, proves of science relating environmental loss to human actions – with possible politics and normative approaches to immediately mitigate and soon prevent further damages, to gain eventually, if ever possible, effective rule at the global level of the Earth systems.

Frank Biermann and Oran R. Young are two of the world's foremost scholars on global environmental institutions and governance. As co-editors, they propose Earth governance just like a necessary paradigm, because – as the series forward remembers – “there is no animal species, territory, or water sink not suffering the impact of humankind, while research studies confirm that the entire Earth System is out of the equilibria established in the biosphere in the last 500.000 years”. The collected studies thus appear also as a civil engagement for researchers, blending human and natural sciences to explore empirically the elusive possibility of effective governance at global level.

In the already cited text¹ that appears like the introductory issue of the series, *Earth System Governance. World Politics in the Anthropocene* (2014), Frank Biermann – who is author, co-author, and editor of several other writings on Earth system governance ⁽⁷⁾ – tries detailed analysis of the existent and imagined global environmental politics using an illuminist attitude, confident of human wills and initiatives even in the most uncertain conditions ever.

After the preliminary remarks that remain on the concept of Anthropocene and the essential conceptualization passages, Biermann offers analytical perspectives on one side, and normative standards on the other side aimed at informing and creating transnational actions to counteract human driven depletion of environment and climate. He tackles the different and multifaceted aspects that effective governance can assume at global level along with difficulties expected to emerge with its implementation. The analytical part is about the current governance system expressed in an abounding ensemble of organizations gathering international administrations, national agencies, local

and transnational activist groups, and expert networks. The central chapters of his book (from III to VII) try denotation and connotation of five fundamental dimensions associated to global governance: 1) the problem of agency, 2) governance architecture, 3) its accountability and legitimacy, 4) the problem of (fair) allocation of resources, and 5) the adaptiveness of governance mechanisms. These are key issues that the author drew after years of research to unravel the frustrating ineffectiveness in the current system of global actions.

Consequently, the existing systems of national and international agencies is the argument the normative part accounts for in the light of the pressures due to the Earth system rapid transformations. Biermann interprets the political project of governance as capable to engage progressively more actors seeking to strengthen the growing architecture of institutions and networks operating at local and global level. He proposes the architecture of governance on a subsidiary scale, strengthening from local to global levels. To gain reliability, reformed agencies should struggle for common representation of civil society and scientists in decision-making, which implies shared systems of qualified majority voting in multilateral negotiations, and novel institutions (and funding) to take care of those impacted by global change. Accordingly, Biermann's last chapters approach equitable allocation of resources, and the task of adaptiveness of governance systems. Proposals for potential reform provide also better equipment for coordinated governance of national states and a revitalized UN, including the establishment of a World Environment Organization and a Sustainable Development Council, completing the best available survey of integrated research on Earth system governance imagined, if not as an immediately possible reality, at least as a "realistic utopianism".⁽⁸⁾

The Way out of the Anthropocene

Although the damages of anthropogenic actions are stated, the point is that implementing Governance at any levels of the sociopolitical scenery revealed up to now tremendously problematic. Usually it resulted in messy and controversial outcomes rather delivered to balance issues of geopolitics, trades, and economics, but missing most of the goal of ecological protection and environmental justice. The delegates of COP21, for example, emphasized the historical sense of the occasion, as the Convention of Paris was the first to impose various binding and voluntary constraints within its remit. Yet, it pursued the limit in the rise of global temperatures "well below 2°C above pre-industrial levels" in a controversial way: the agreement provided a fund of \$100 billion per annum for developing countries to implement new measures by 2020, but it also allowed reaching a peak of greenhouse gases globally before eventually reducing their dangerous emissions. The final document of Paris states: "to achieve the long-term temperature goal (...), parties aim to reach global peaking of greenhouse gas emissions as soon as possible." Only thereafter, the Paris agreement openly declares ambition at the reduction of greenhouse gases, "so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century." This postponement implies an expectance of further troubling outcomes on the environment and the poorest economic systems in the meantime, although oddly hold "on the basis of equity and in the context of sustainable development and efforts to eradicate poverty."⁽⁹⁾

These controversial attitudes should not be surprising: no previous experiences of such a kind of trans-national politics are available. Neither additional information on the planet health and foreseeable consequences can easily provide confidence or assistance in developing successful politics at the global scale. When dealing with climate and environmental concerns, media give echo to meetings according the level of the gathered politicians. Anyhow, their coverage is usually superficial; attention turns to the occasional

speeches of raising starlets rather than to issues of geopolitics and scientific concerns, and discussion on the perspective opened at local and global levels by the agreed measures gains only little space on newspapers.

COP22, for example, took place in Marrakech (Morocco) from November 30 to December 2, 2016 with a much lesser reportage than its assembly predecessor in Paris did. Major regard at the end of 2016 has been devoted to the Kigali Conference (8-14 October 2016), the 28th Meeting of the Parties (MOP 28) held in (Rwanda) to negotiate on a further hydrofluorocarbons (HFC) amendment, but probably the attention it gained was just echoing the success of the renowned Montreal Protocol (1987) on ozone layer depleting substances.

Because of the massive gap existing between the achieved implementation and the requirements identified by natural and social scientists, further steps of global environmental governance have to deal with equal accountability and legitimacy of governance. These issues are to be openly discussed providing a thorough and credible program to bridge the gap existing between the macro-sphere of international politics and the level of daily life where people can discuss also about affectivity, emotions, and ethical choices, which remain fundamental to sustain our socio-environmental contexts.

Democracy, Consensus, and Governance

In *Consensus and Global Environmental Governance. Deliberative Democracy in Nature's Regime* (2015), Walter Baber (California State University, Long Beach) and Robert Bartlett (University of Vermont) explore the practical and conceptual implications of approaches to international environmental governance. Their issues propose the critical assessment of environmental juristic democracy, a conceptualization they put down as a way to achieve accord for governance of the global environment and emphasize the role of the citizen, rather than the nation-state as the source of legitimacy in international environmental rule.

Building on concepts presented in their previous publications, ⁽¹⁰⁾ these authors examine in detail the challenges that consensus poses for a system of juristic democracy. Three dimensions are foreseen: 1) the formation of regulatory norms, 2) choice among models of change governance, 3) generation of plan-governed action.

To better follow their reasoning, it is important to stress that there exist diverse levels of contributes people can approach to provide daily response to the challenges of Anthropocene. People contributes can arise spontaneously following a bottom-up path starting at the level of individuals or small communities, or they can fall down along a top-down slope of obligations dropping from the macro-sphere. In daily life, these two modalities pertain to different kind of personal engagement and are difficult to blend. What is worst is that usually awareness at the people level counteracts with the strategies adopted at the macro-sphere – for example, think about how mainstreams of politics, economics, and media manipulate reality in the attempt to turn people from subject into clients, from creative beings into puppets.

To integrate the two levels in the collective dimensions of Earth system governance, Baber and Bartlett analyse the implications of deliberative consensus for rule-bounded behavior, for the accomplishment of basic governance tasks, and for granting and valorising diversity in a politically divided and culturally plural world.

Baber and Bartlett are confident that juristic democracy can be rooted in local knowledge, participated deliberation, and consensus. Accordingly, rule-bounded behaviour induced by the macro-scale must be grounded in social understandings shared at the people level too. The aim is to construct a global jurisprudence based on collective will formation. To achieve shared consensus on governance principles across national borders, we can also learn from corporate governance⁽¹¹⁾ that behaviours in society can derive from informal mechanisms – focusing on relationships enabling access to common resources for example, so typical outside Europe and USA – as from formal mechanisms that emphasize the control function of boards, as interpreted in the Western legal structures. In any case, rules of global governance have to be authored above all by those they address, and must grant equity in application to all, capable of learning from (and adapting to) experience, and finally internalized by those who participate in their adoption and implementation.

Baber and Bartlett assess also “Slow-motion democracy”, including social science findings about the great potential contribute of small-group citizen panels to rationalized consensus, drawing on the extensive research conducted on the use of juries in courts of law – see e.g. Ch. VIII, *Deliberative Democratic Administration in Global Environmental Governance*. Finally, in the last chapters, they analyse the place of juristic democracy in a future “consensually federal” system for Earth system governance, with awareness that to implement governance, calculus on consensus is a necessary passage. “There are those who think that consensus is beyond our reach (...), other thinks that consensus (...) is either unavoidably repressive (...) or unavoidably prone to error” – they wrote; ironically enough, consensus is a highly contested issues even among democratic theorists, political professional and activists.

Questioning the Stakeholder Role of Europe

Included in the series, the volume by Diarmuid Torney, *European Climate Leadership in Question. Policies toward China and India* (2015) scrutinizes how European national and international agencies pursue a route to sustainable development; Torney’s tome appeared several months before the 21st UN Conference of Paris (COP21). The author, a lecturer at Dublin City University (UK), challenges the notion of EU leadership on climate change governance and examines the durable European actions about this issue, with a comparative perspective on engagements with China and India.

Estimating the real extent of the EU contribution, the text explains that since the 1990s, climate policy appeared as an issue upon which the EU could develop an international role. A change happened in 2001, when the context modified dramatically (even before the September 11th attacks), as the Bush administration withdrew from the Kyoto Protocol. This provided a chance for Europeans, transforming climate governance into a core issue of identity and mitigation policies in business opportunity for EU states, especially the UK and Germany above all others. However, a major retreat was apparent in the aftermath of Copenhagen COP15 (2009) that fell far below EU expectations. Returning home from Denmark, Torney recalls, U.S. president Barack Obama announced at a press conference that an agreement had been reached, even before the document had been presented to most other delegations. The Eurozone crisis, along with energy security issues due to the EU-Russia tensions over Ukraine, now marks a pause for EU ambitions.

Concerning EU-China and EU-India relations, Torney argues in terms of “drivers” of the proposed engagements (normative commitments, material interests, polity building), their “form” (socialised, or incentive-based, depending on EU capabilities), and the “response” (normative emulation, lesson drawing, or resistance) of the target countries conditioned by

domestic political choices and socio-economic developments. From the analysis, consistency scarcely emerges between the EU's external climate change policies and its claimed leadership. As an example, the text tackles the normative gap on climate between EU and non-European states, which decreased slightly since the turn of the century while home industry and some member states were lobbying against EU moving, arguing it would make Europe less competitive. The liberal political structure of the Indian government in principle offered greater opportunities, but EU-India engagements stalled because of the limited interests of both parties. Indian response, consisting primarily of strong resistance against low-carbon policies, was based on the wide-ranging internal consensus to prioritize economic development above any other goal. Just, making the EU market access conditional on the implementation of climate policies revealed efficacious, with China at least as the Communist government introduced limited normative emulations. In India, more attention was given to agreements between individual states rather than with the EU. Eventually, the overriding priority for both EU-China and EU-India relationships, was for the deepening of trade rather than climate change mitigation.

Besides formal agreements, it is difficult to be confident in the continued EU leadership in climate governance that did not return substantive engagements to reduce greenhouse gases, except for the market of alternative energy sources. Chances to build further action exist but they depend on the EU's will to lead by example, granting climate governance along with equal distribution of resources and rights even outside the EU, and reducing the credibility gap between international claims and real outcomes.

Conclusions

If evidences from biology and rock studies confirm the hypothesis unifying all the parameters of environmental crises under the action of *Anthropos*, the geological scale of the planet has to modify including Anthropocene, the epoch of humankind. Drawing on insights from theory and practices of current international relations, the *Earth System Governance* series of MIT takes this new epoch of the planet seriously — that is, accepting that the fine line between humankind and nature is becoming increasingly blurred — and contributes to the endeavour of searching for new ways to govern this perilous epoch.

Even those who are sceptical about successes of the proposed schemes will have to grapple with the offered analysis that stands as a clear reference point for all those who care about the condition of the Earth system and intend contribute to implement governance politics. Such publications dealing with geo-political issues and environmental problems are welcome, as reactions like COP21 just making technical agreement to a two-degree target for global temperature rise, are highly unsatisfactory. The Conference of Paris brought climate to the centre of the International agendas but more action is required in light of findings that the Earth operates now outside its normal state due to human actions. The MIT survey offers an overview of the global challenges that now confront humankind for the comprehensive reform of multilateral environmental institutions and testimonies to the fact that answers are beyond individual disciplines and people interested in protecting the Earth system and people interested in governance have necessarily to speak together.

Unfortunately, in most cases the powers of the macro-sphere – that is the level at which this series mostly dealt with – are felt by people as external forces acting to influence voters' choices and citizens' behavior in the short term, but their outcomes on worldwide social communities in the longer period are difficult to predict. In many cases, counterintuitive consequences take place in such complex systems, the most recurrent of

which is losing awareness of what happens beyond our sight and of the consequences following our political and economic choices as individuals.

The challenge of effective governance is to act in both levels – the macro-sphere and people daily life – always maintaining an eye at the biosphere surrounding us, and its multifaceted accomplishments of life. This way, while gaining awareness of what we lose as individuals in the progressive detachment from nature, its expressions and transformations, which transcend us by far, also proposes different routes to go through in order to overcome the sense of helplessness, and confusion raised by macro-events.

Thus, to conclude we can return on Frank Biermann's title, wonderfully illustrated with poems by Jacob von Hoddis (*Weltende*), Bertolt Brecht (*Concerning Spring; Morning address to a tree named green; Tailor of Ulm*), Johann Wolfgang von Goethe (*Faust*), Klaus Schwitters (*Earliness rounds rain blue*), and Friedrich von Schiller (*Demetrius*). These poems come from times unaware of the possibility of climate change and Anthropocene, yet they address the fulfilment of our fundamental needs, such as being nourished and loved or developing consciousness of our inner complexity, and exhort us to valorise cooperation, develop autonomy and assume responsibility each other and for the biodiversity wealth resisting on the Earth despite us.

Notes

1. Frank Biermann. *Earth System Governance. World Politics in the Anthropocene*, MIT Press, Cambridge MA, 2014.
2. According to Paul Jozef Crutzen – Dutch chemist, winner with Frank Sherwood Rowland and Mario Molina of the Nobel Prize 1995 for research on atmospheric chemistry and the ozoneosphere, – it is time to consider the beginning of a new epoch characterized by human action affecting not only the atmosphere and climate, but all the cyclic processes of transformation on the Earth. See also: Thomas Graedel, Paul Crutzen, *Atmosphere, Climate, and Change*, Scientific American Library (1994).
3. The MIT website, <https://mitpress.mit.edu/books/series/Earth-system-governance>, actually the Earth System Governance series counts for some 13 issues.
4. The *Earth System Governance* global research alliance website, <http://www.Earthssystemgovernance.org/>, for information about the project.
5. Will Steffen et al., *Stratigraphic and Earth System Approaches to Defining the Anthropocene*, *Earth's Future* 4 (2016), 324–45
6. D. Kaiser, L. Wasserman, *The Rockefeller Family Fund vs. Exxon*, *New York Reviews of Books* (2016), Vol. LXIII, N. 19; and P. J. Landrigan, *Air pollution and health*, *The Lancet*, Vol. 2, N. 1, e4–e5 (2017).
7. For example, Frank Biermann published with MIT Press also *Managers of Global Change: The Influence of International Environmental Bureaucracies* (2009) coedited with Bernd Siebenhüner, and *Global Environmental Governance Reconsidered* (2012) coedited with Philipp Pattberg.
8. Review by Udo E. Simonis reported on “sonnenseite ökologische communication” website <http://www.sonnenseite.com/en/tips/Earth-system-governance-world-politics-in-the-anthropocene.html>
9. Paris Agreement: CP.21, art. 4.1, <http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>
10. The award-winning book by Walter F. Baber and Robert V. Bartlett, *Global Democracy and Sustainable Jurisprudence. Deliberative Environmental Law*, MIT Press, Cambridge (MA), 2009.
11. Peter Verhezen, Paul Morse, Consensus on global governance principles? *Journal of International Business Ethics*, 2009, Vol. 2 (1), p 84-101.

Enzo Ferrara, (e.ferrara@inrim.it), Istituto Nazionale di Ricerca Metrologica & Istituto di Ricerche Interdisciplinari sulla Sostenibilità (IRIS), Torino, Italy.

Electronic Green Journal, Issue 40, Winter 2017, ISSN: 1076-7975