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***REIMAGINING GLOBAL ENVIRONMENTAL LAW AND
GOVERNANCE IN THE ANTHROPOCENE***

Prof L Kotzé

It all starts here



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Prof L Kotzé

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Reimagining Global Environmental Law and Governance in the Anthropocene

Louis J. Kotzé

1. Introduction

The Faculty of Law in Potchefstroom is fortunate to have a respected environmental law division which is the envy of many other faculties, not only in South Africa, but also in the rest of the world. Environmental law is a relatively young legal discipline and it is not usual for law faculties to invest the considerable financial and human resources into building a critical mass of environmental law expertise like the North West University has done. It is because of the far-sighted strategic vision of our seniors, such as Professors Francois Venter and Willemien du Plessis, that this Faculty today can confidently assert itself as a major player in the field of environmental law scholarship. The success of the environmental law section has sometimes come at a high price to those who drove its establishment and its continued growth. Our seniors have often taken a gamble by supporting colleagues like myself, possibly in the belief that the collective success of their efforts will contribute meaningfully to interrogate, promote and solve some of the many environmental challenges that South Africa and the world face. Here at the Faculty of Law, we continue every day to investigate the human-environment relationship and to propose solutions to the socio-economic, ecological and political problems that arise in this respect.

I am very fortunate to be part of this endeavour and it remains a privilege to work with brilliant minds and enthusiastic academic entrepreneurs such as Anél and Willemien du Plessis, all our students and the rest of the faculty. No doubt, our greatest challenge today is that we do not have enough time to do everything we need and everything we want to. I wish to pay tribute to all the people who have brought us to where we are now. At the same time

considerable gratitude is owed to the North West University which, despite its precarious geographical location, or perhaps because of it, continues to assert itself as an institution of excellence. I am also grateful to this university for having entrusted me with the unique responsibilities that come with the position of professor, and I undertake to fulfil these to the best of my ability. I say this with retrospective application to 2009.

My work focuses on various aspects of environmental constitutionalism and global environmental governance and the interplay between environmental law and global environmental governance as socio-legal institutions that seek to mediate the human-environment interface. I firmly believe that our orthodox approaches to these socio-legal institutions will have to change dramatically to keep up with the myriad challenges of today. The world is in an unprecedented, and some argue, irreversible state of ecological and socio-economic decline and I would suggest that it is more pertinent than ever that we seek technological and normative solutions to ensure survival on Earth. This is even truer in the context of the Anthropocene.

Coined by the 1995 Nobel Laureate, Paul J. Crutzen and his colleague Eugene F. Stoermer,¹ the word Anthropocene is the signifier of the period in which people have a devastating and overwhelming impact on the Earth and its systems. While it has yet to be formally accepted as describing a new geological epoch,² the term informally denotes a new time in geological history, in which the biophysical factors introduced by human beings into the biosphere have begun to change the physical parameters that determine the functioning of all key earth system processes.³

In addition to describing a new epoch, the word Anthropocene also describes the new context in which we are going to have to consider how we should deal with the effects of global anthropogenic ecological change. In this lecture I will consider how we will possibly have to re-imagine the composition,

¹ See, Crutzen Paul J. and Stoermer Eugene F. "The 'Anthropocene'" 41(2000) *Global Change Newsletter* 17-18.

² Zalasiewicz Jan, Williams Mark, Steffen Will and Crutzen Paul "The New World of the Anthropocene" 44(2010) *Environmental Science and Technology* 2228-2231.

³ Dalby Simon "Ecology, Security, and Change in the Anthropocene" XIII(2)(2007) *The Brown Journal of World Affairs* 155-164 at 157.

functions and objectives of global environmental law and governance in the Anthropocene. I will attempt to specifically identify a range of considerations that environmental lawyers will have to reflect on if global environmental law and governance are to better respond to the numerous challenges and complexities of the Anthropocene epoch. My thesis is based throughout on an assumption which I borrow from Woodwell, namely that: “[W]e can no longer assume that the effects of human scarification and contamination of the earth’s surface will be masked by a very large life-support system of infinite resilience.”⁴

2. The Anthropocene

Etymologically, Anthropocene derives from the Greek “anthro” and “cene” which mean “human” and “new” respectively.⁵ In the geo-ecological context this denotes a new period when human beings are dominating the geological epoch by acting as major driving forces in modifying the environment.⁶ In other words, it is an epoch wherein people are changing the course of nature, the Earth and its systems (instead of people being changed by the forces of nature). It follows the Holocene interglacial phase,⁷ an epoch that was characterized by extraordinarily good living conditions that enabled the development of modern societies in a world of 7 billion people.⁸

⁴ Woodwell George M. “On Purpose in Science, Conservation and Government: The Functional Integrity of the Earth is at Issue not Biodiversity” 31(5)(2002) *Ambio* 432-436 at 433.

⁵ Slaughter Richard A. “Welcome to the Anthropocene” (44)2012 *Futures* 119-126 at 119.

⁶ Hodson Mike and Marvin Simon “Urbanism in the Anthropocene: Ecological Urbanism or Premium Ecological Enclaves?” 14(3)(2010) *City* 299-313 at 1272.

⁷ The Holocene started approximately 12 000 years ago and was characterized by stable and temperate climatic and environmental conditions which have (mostly) allowed human development to flourish. Swyngedouw Erik “Whose Environment? The End of Nature, Climate Change and the Process of Post-Politicization” XIV(2) *Ambiente & Sociedade Campinas* 69-87 at 69.

⁸ UNEP “GEO5-Global Environment Outlook: Environment for the Future We Want” 2012 at 195, available at http://www.unep.org/geo/pdfs/geo5/GEO5_report_full_en.pdf [accessed 4 September 2012].

While there is some uncertainty and disagreement on a more exact moment when the human footprint became so overwhelming that it sparked the Anthropocene,⁹ its origins are generally traced to the shift from a predominantly agricultural society to an industrial one, i.e., the Industrial Revolution in the 1700s, and more specifically to the period that saw augmented industrial activity in the 1800s.¹⁰ It was during the Industrial Revolution that fossil fuels were discovered and increasingly exploited to drive development and satisfy insatiable human demand for growth.¹¹ The Anthropocene is characterised, among other human modifications of the global environment, by increased emissions of sulphur, nitrogen and greenhouse gasses; climate change; the transformation and disruption of vast land surfaces; changing water cycles; and wide-spread species extinction.¹² While the ecological impacts of these are self-evident, the myriad concomitant socio-economic, political, and legal challenges arising as a result will be equally severe. Droughts, flooding and rising sea levels as a result of climate change, the displacement of people, and armed conflict over scarce natural resources are only some examples of emerging socio-political stresses resulting from global environmental change.

3. And yet...

Apart perhaps from suggesting that it will be particularly severe, this description of the Anthropocene may be thought not to really introduce anything revolutionary or different from what we already know. It is well-known

⁹ Certini Giacomo and Scalenghe Riccardo "Anthropogenic Soils are the Golden Spikes for the Anthropocene" 21(8)(2011) *The Holocene* 1269-1274 at 1269-1270.

¹⁰ Steffen Will, Grinevald Jacques, Crutzen Paul and McNeill John "The Anthropocene: Conceptual and Historical Perspectives" 369(2011) *Philosophical Transactions of the Royal Society* 842-867 at 847-849.

¹¹ See, more generally, Raupach Michael R. and Canadell Josep G "Carbon and the Anthropocene" 2(2010) *Current Opinion in Environmental Sustainability* 210-218.

¹² Uhrqvist Ola and Lövbrand Eva "Seeing and Knowing the Earth as a System: Tracing the History of the Earth System Science Partnership" available at <http://www.earthsystemgovernance.org/ac2009/papers/AC2009-0107.pdf> [accessed 8 August 2012].

that ecological change is caused by people; that the impacts are global; that the impacts affect politics, economics and social life; and that we will have to respond to these through whatever means we have at our disposal (be they technological and/or normative). Is the Anthropocene therefore simply another fashionable term which, like other terms of our times such as “sustainable development,” will prove to have a disappointingly insignificant effect on our vision and on the design and implementation of the socio-legal constructs that seek to mediate the human-environment interface? Put differently, *what are the distinct and novel features of the Anthropocene that could influence our perceptions of the social interventions that we would use to respond to the myriad challenges to be faced in the Anthropocene?*

3.1. A common denominator

The Anthropocene could serve as a common denominator to facilitate our understanding of the “new” human-dominated human-environment interface and the various pragmatic and scientific challenges that arise in this respect. Bettini, Brandstedt and Thorén¹³ present us with a metaphor in which the Anthropocene is an inverted prism that “combines into a single beam the numerous (apparently) divergent messages that signal the unprecedented impacts that humans exercise on the biosphere and gives them a common meaning.” As a common denominator, the Anthropocene could level the scientific playing field, as it were; could create a common understanding of the centrality of people in global Earth systems change; could refocus the debate on ways to ameliorate this impact; could instil a common understanding of the *global* dimension of anthropogenic impacts and ecological crisis; and could promote a collective appreciation of the severity of the range of socio-legal, political, economic and ecological crises that await us.

¹³ Bettini Giovanni, Brandstedt Eric and Thorén Henrik “Sustainability Science and the Anthropocene: Re-negotiating the Role for Science in Society” available at http://edocs.fu-berlin.de/docs/servlets/MCRFileNodeServlet/FUDOCS_derivate_000000001299/Bettini-Sustainability_Science_and_the_Anthropocene-305.pdf?hosts= [accessed 15 August 2012].

3.2. A human focus

With its predominant emphasis on humans and human-induced global ecological change, the Anthropocene neatly brings into focus the centrality of people as the primary cause of the global ecological crisis and, ironically, as the only victims of this crisis that conceivably could do anything about it. The Anthropocene therefore re-emphasises the vagaries of anthropocentrism, which is understood in the present context as “the attitude that presents the human species as the centre of the world, enjoying hegemony over other beings and functioning as masters of a nature which exists to serve its needs.”¹⁴ This could have profound moral implications for society, especially insofar as people will now have to question their centrality in the human-environment relationship, the prevailing predominance of neo-liberal consumerism that is based on the overbearing prominence and false promises of anthropocentrism, and (hopefully) the potential and reformative possibilities that other environmental ethics such as ecocentrism may hold, as the counterpoint of anthropocentrism.

3.3. Rocking the sustainability boat

Following from the last point, we could expect the Anthropocene manifestly to alter society’s view of sustainability (or sustainable development) in the context of the human-environment interface. Sustainability has been at the centre of the environmental law, policy and governance architecture for the greater part of the 21st Century, and in many ways it has been and continues to function as the guiding principle for all socio-legal and political interventions and reforms that seek to govern the human-environment interface. A

¹⁴ Domanska Ewa “Beyond Anthropocentrism in Historical Studies” 10(2010) *Historein* 118-130 at 118.

generous interpretation of the concept suggests that sustainability does not aim for a “singular ‘steady state’, but rather the best possible dynamic for dwelling in the world taking into account the needs of economy, society and environment.”¹⁵ Herein, however, lies the greatest fallacy of sustainability, namely its disingenuousness and its complacent promise of sufficient resources in a time of global ecological crisis and resource scarcity. The realities of the Anthropocene will instead demand from society acting through its social institutions, not to continue to be “blinded by ideological palliatives such as ‘sustainable development’ that help us rationalize our continuing encroachments upon the planet.”¹⁶ What would be necessary is a paradigm shift in either discarding or re-imaging sustainability as the orthodox and failing fulcrum of global environmental law and governance.¹⁷

3.4. A truly global and holistic setting

Global change science busies itself with the Anthropocene and global environmental law and governance and its focus is on the global context. The term “global”, however, has variously different meanings for different people. I would suggest that the Anthropocene offers the possibility of formulating a more consistent and uniform understanding of the “global”. Why is this so?

The Anthropocene highlights the interconnectedness of natural Earth processes, or put differently, the interconnected nature of the environment, the reciprocity of its processes, and the many linked cause-and-effect relationships that exist on a global scale. It is concerned with the totality of the entire Earth system. This interconnectedness raises particular challenges for global environmental law and governance because these responses would

¹⁵ Robin Libby and Steffen Will “History for the Anthropocene” 5(5)(2007) *History Compass* 1694-1719 at 1965.

¹⁶ Richardson Benjamin J. “A Damp Squib: Environmental Law from a Human Evolutionary Perspective” *Osgoode CLPE Research Paper 08/2011, Osgoode CLPE Research Paper Series Vol 07(3)* available at <http://ssrn.com/abstract=1760043> [accessed 13 August 2012].

¹⁷ Robinson Nicholas A. “Beyond Sustainability: Environmental Management for the Anthropocene Epoch” 12(3)(2012) *Journal of Public Affairs* 181-194.

ideally need to address all of these issues simultaneously, in an integrated or holistic way; not only in single countries individually, but also in all parts of the world collectively, now and in the future. The *global challenge* of the Anthropocene is geographical, temporal and causal, and a proper response might very well be a holistic one, or for present purposes, a more holistic global environmental law and governance effort. The “global” of the Anthropocene is therefore a context and a temporal and reciprocal space that includes many geographies, governance levels (from the local to the regional to the international) and governance actors (state and non-state).¹⁸

3.5. An urgent call for more effective environmental law and governance

While the ecological crisis and its manifestation in biodiversity loss, species extinction and climate change, for example, are important; the Anthropocene very specifically indicates the loss of resilience and functional integrity of the Earth and its systems.¹⁹ It is the loss of this resilience and functional integrity that some fear will plunge the Earth and its systems into an irreversibly unsustainable state that could ultimately lead to another mass extinction.²⁰ While the Anthropocene will in all likelihood exert tremendous strain on our existing normative systems, it is nevertheless an urgent call for dramatic regulatory interventions of a kind hitherto unseen, if we are to avoid crossing these tipping points. While it would be unrealistic to suggest that global environmental law and governance should be solely responsible for rising to all of these challenges, the nature of some of these problems and the range of issues they raise suggest that global environmental law and governance could play an important role as part of the broad socio-institutional response.

¹⁸ Kotzé Louis J. *Global Environmental Governance, Law and Regulation for the 21st Century* (Edward Elgar, Cheltenham, 2012), Chapter 1.

¹⁹ Woodwell George M. “On Purpose in Science, Conservation and Government: The Functional Integrity of the Earth is at Issue not Biodiversity” 31(5)(2002) *Ambio* 432-436.

²⁰ Zalasiewicz Jan, Williams Mark, Steffen Will and Crutzen Paul “The New World of the Anthropocene” 44(2010) *Environmental Science and Technology* 2228-2231 at 2229.

3.6. Uncertainty and complexities

The Anthropocene is a relatively young epoch. While we are generally better acquainted with the history of earlier epochs, the Anthropocene has just begun, thus leaving us without the wisdom of hindsight. This uncertainty is exacerbated by the fact that the Earth and its systems have proven to be much less structured, ordered, regulated and in a steady-state than we have hitherto assumed, or blindly believed.²¹ It is an unpredictable and complex system with diverse externalities that are shrouded in much uncertainty and it renders an informed, consistent and effective response very difficult, or even impossible. While scientific uncertainty has always bedevilled the achievement of proper environmental outcomes through social institutions such as environmental law and governance, this is set to worsen considerably in future. In this way the pressures on and expectations of our social institutions of environmental law and governance will increase exponentially as they will now have to deal with considerable more uncertainty while attempting to mediate the human-environment interface in a non-linear, unpredictable and unstructured reality.

4. Global environmental law and governance: the *status quo*

Our current environmental law and governance responses to the global ecological crisis are mostly ineffective, as commentators have pointed out.²² The reason for their ineffectiveness is because the characteristics of ecological crises tend to overwhelm our institutional responses to these crises. The principal problems mostly lie in the discord between law and

²¹ ²¹ Robin Libby and Steffen Will "History for the Anthropocene" 5(5)(2007) *History Compass* 1694-1719 at 1710.

²² Biermann Frank *et al* "Navigating the Anthropocene: the Earth System Governance Project Strategy Paper" 2(2010) *Current Opinion in Environmental Sustainability* 202-208 at 202.

governance (social processes) on the one hand and natural or ecological processes on the other, as well as the inability of environmental law and governance to properly respond to global impacts of highly complex natural systems of the Earth that are being disrupted by an ever-increasing number of people. In addition to these, there is a range of other challenges and deficiencies relative to global environmental law and governance which have been extensively documented in the literature.²³ For example, states and the organisations they act through (such as the United Nations Environment Programme (UNEP)) remain the predominant role players in global environmental governance, and they are mainly responsible for the creation and enforcement of global environmental law. While we must accept that the demise of the state and the orthodox Westphalian concept of the all-powerful state is highly unlikely in the near future, the reluctance of states to include non-state actors in global environmental governance is worrying. Non-state actors such as non-governmental-organisations (NGOs), while playing an increasingly important role, remain on the outer perimeters of global environmental governance and the creation, revision and enforcement of environmental law, and there seems to be some state-led resistance to countenancing more inclusive multi-actor global environmental governance. Furthermore, if global environmental governance remains a United Nations-driven effort (mostly through UNEP) instead of being guided by a more powerful organisation or specialised agency, then the weakness of UNEP will remain a difficulty.²⁴ It is also worrying that states remain reluctant to endorse a stronger form of sustainability, as the continued failures of global climate negotiations illustrate. Striving for short-term political and economic benefits at the cost of ecological concerns seems the order of the day, and state sovereignty is all too frequently invoked as an easy justification for increased socio-economic development at the expense of the environment.

²³ See, for example, Chambers Bradnee W. and Green Jessica F. (eds) *Reforming International Environmental Governance: From Institutional Limits to Innovative Reforms* (United Nations University Press, Tokyo, 2005).

²⁴ Speth James Gustav and Haas Peter M. *Global Environmental Governance* (Island Press, Washington, 2006) 134-136.

5. Considerations for a reconceptualised vision of global environmental law and governance in the Anthropocene

The foregoing suggests that it is quite possible that the laws and governance constructs that we have designed during the Holocene will be wholly inadequate to properly respond to the entire gamut of socio-political, legal and ecological challenges that arise in the Anthropocene. If we assume that global environmental law and governance as a social institution is here to stay for a while (and it probably is), we will have to rethink the current collection of arrangements that seek to mediate the human-environment interface in the Anthropocene. What are some of the reformative considerations that environmental lawyers could take into account when re-imagining the place and role of global environmental law and governance in the Anthropocene?

5.1. Moving beyond the state, becoming global

Amid the globalised realities of the Anthropocene, global environmental law and governance will in all likelihood have to “move beyond the state”. It could do so geographically by becoming transnational; in terms of the loci of power and the hybridization of private-public authority; in terms of further disaggregation of different levels where environmental law and governance occur, as it were; and in terms of the diversification of state and non-state actors that are involved in global environmental law and governance. In short, to “move beyond the state”, global environmental law and governance will have to become truly global. Global in this sense implies multi-level and multi-actor governance where the state and government are not the predominant role players and where the focus is shifting to the important contribution of non-state actors that operate on different levels and in other non-coercive ways. Therefore the word global is used as much for its geographical

connotation as it is used for its omission of the state;²⁵ for referring to the causal effects of globalised processes; for indicating transnationality; and for referring to the disaggregation of global environmental law and governance.

Notably, the complex global socio-legal, political, economic and ecological realities of the Anthropocene fundamentally militate against orthodox conceptions of global environmental law and governance that steadfastly seek to maintain the primacy of the state as the sole actor in and creator of global environmental law and governance. The discourse will have to re-imagine a new place for people and the state in a disaggregated, multilevel and multipolar global environmental governance setting where global environmental law and governance cannot continue to derive their moral and legal authority solely from traditional manifestations of the Westphalian and all-sovereign state. The realities of the Anthropocene rather require disaggregated multi-actor governance that is entrenched in a global context and that consists of hybrid forms of state and non-state laws that provide reflexive and coercive-regulatory normative options to govern the human-environment interface.

5.2. A holistic response

It was argued earlier that the central tenet of the Anthropocene is one that bears on holism and integration. Notably, “in the *Anthropocene* no single environmental concern matters. It’s the cumulative totalities that are beginning to interact in all sorts of unpredictable synergies that matters. In that sense the environment as a simple category of concern has also been transcended.”²⁶ In other words, because “we are not only provoking changes

²⁵ Shams Heba ‘Law in the Context of “Globalisation”: a Framework of Analysis’ 2001 35(4) *The International Lawyer* 1589-1626 at 1626.

²⁶ Oswald Ursula, Brauch Hans Günter and Dalby Simon “Linking Anthropocene, HUGE and HESP: Fourth Phase of Environmental Security Research” in Brauch Hans G. *et al* (eds) *Facing Global Environmental Change: Environmental, Human, Energy, Food Health, and Water Security Concepts* (Springer Verlag, 2009) 1277-1294 at 1279.

in isolated systems”²⁷ any longer, the Anthropocene now requires a view of the environment in its most comprehensive totality (the global ecology or the Earth system) instead of dividing it into separate issue areas, such as biodiversity conservation, climate change, fresh water governance and so forth. It is in this context that the Anthropocene seeks to replace a fragmented and singular vision of the environment with an integrated and holistic vision of the Earth system, which includes “the whole earth [and its] landscapes, not species alone, not hot spots, however endangered, not locales, but the entire earth.”²⁸

While earth system governance, for example, has been developed as a conceptual strategy or vision to facilitate some aspects of global environmental governance in the Anthropocene, the role of environmental law in this paradigm is less clear. Biermann *et al*²⁹ define earth system governance as:

... the interrelated and increasingly integrated system of formal and informal rules, rule-making systems and actor-networks at all levels of human society ... that are set up to steer societies towards preventing, mitigating and adapting to global and local environmental change and, in particular, earth system transformation, within the normative context of sustainable development.

Thus described, earth systems governance is clearly meant to be a holistic and integrated response to the complex problems in the Anthropocene. Environmental law, understood in its widest sense, arguably provides the informal and formal rules for this integrated system and, in keeping with the holistic foundation of earth system governance, environmental law will have to deliberately discard the silo-based approach that it has long followed. While separate issues such as biodiversity conservation and water pollution will remain important, environmental law will have to become more general, it will have take a broader view and it “must adjust to accommodate broader notions

²⁷ Kjellén Bo “The Anthropocene Era and the Evolution of International Law and Governance” 41(6)(2011) *Environmental Policy and Law* 247-250 at 248.

²⁸ Woodwell George M. “On Purpose in Science, Conservation and Government: The Functional Integrity of the Earth is at Issue not Biodiversity” 31(5)(2002) *Ambio* 432-436 at 434.

²⁹ Biermann Frank *et al* “Navigating the Anthropocene: the Earth System Governance Project Strategy Paper” 2(2010) *Current Opinion in Environmental Sustainability* 202-208 at 202.

of [the] environment.”³⁰ The challenge of holism that the Anthropocene presents to global environmental law and governance will also require of environmental lawyers to reconsider a variety of issues that currently prevent a holistic response and it will further require solutions to remedy these. These issues include, for example, the fragmented growth of international environmental law; competing developmental objectives in environmental law and policy and competing international legal regimes; geographical fragmentation and segmentation of the physical environment; the lack of a progressive and influential central world environmental authority; and divisions caused by state sovereignty.

5.3. A new ethic and vision of sustainability

Today people have increasingly become disconnected from the environment in the prevailing climate of anthropocentrism that underlies a consumer-driven society. It is in the context of this culture that Folke *et al*³¹ argue: “[C]urrent perspectives and worldviews mentally disconnect human progress and economic growth from the biosphere ... and the life-supporting environment, if not simply ignored, has become external to society with people and nature treated as two separate entities.” If one accepts, as Dalby³² suggests, that “[T]he collapse of any credible distinction between humans and nature forces humanity to modify ethical codes or political aspirations”, then the Anthropocene will require of us to revisit the expectations we have in terms of the future relationship we will have with the biosphere and of the ethical vision we have of global environmental law and governance that must contribute to make this future possible. A re-integration of people into the environment (i.e., bringing people from “out there” into the Earth system), or reconnecting people with ecological considerations will ultimately require a more

³⁰ Godden Lee and Peel Jacqueline *Environmental Law: Scientific, Policy and Regulatory Dimensions* (Oxford University Press, Melbourne, 2010) 6.

³¹ Folke Carl *et al* “Reconnecting to the Biosphere” 40(2011) *Ambio* 719-738 at 720.

³² Dalby Simon “Ecology, Security, and Change in the Anthropocene” XIII(2)(2007) *The Brown Journal of World Affairs* 155-164 at 160.

ecologically-oriented regulatory perspective that is grounded on an ethic that focuses on humankind as a whole.

This ecocentric and inclusive ethic is one that takes up responsibility for the various different forms of power (political, legal and economic, for example) that people use every day that inevitably impact on other people and the environment. It also requires of us to keep in check these forms of power so that we do no moral wrong to present and future generations and to non-human entities with natural value.³³ It would be up to global environmental law and governance to instil this ecocentric ethic; to be itself based on such an ethic; and to create “good forms of power.”

A new ethic in and through global environmental governance will probably have to occur in tandem with a re-visioning of sustainability which, as was argued above, has been the bedrock of global environmental law and governance for over half a century. The Anthropocene requires a new vision of or replacement for sustainability, which must also inform the design and operation of any new architecture for global environmental law and governance. At the same time such a new vision must achieve a dramatic shift from the orthodox conceptions of sustainability through which people justify and rationalise their environmental claims. The Anthropocene neither allows developmental issues to be characterised as being “economic”, “social” and/or “environmental” (the World Summit on Sustainable Development approach), nor does it tolerate decisions with a potential ecological impact to be made based on the impoverished “environment versus development” rhetoric (the 1992 United Nations Conference on Environment and Development approach).³⁴ In fact, these orthodox approaches of “weak sustainability” can remain tenable only if they are cast in ecological language that explicitly discards the “environment versus development” distinction and the traditional three-pillar distinction of sustainability. Instead, it calls for a

³³ Bendik-Keymer Jeremy D. “How Goodness Itself must Change in the New World of the Anthropocene: Moral Identity and the Form of Power” available at <http://www.cwru.edu/artsci/phil/How%20goodness%20must%20change.pdf> [accessed 6 August 2012].

³⁴ Robinson Nicholas A. “Beyond Sustainability: Environmental Management for the Anthropocene Epoch” 12(3)(2012) *Journal of Public Affairs* 181-194 at 185-186.

stronger form of sustainability that “requires that both natural and human-made capital have to be maintained.”³⁵ More generally, strong sustainability in the Anthropocene will also require of global environmental law and governance to extend its focus from the traditional three pillars to broader, incidental, but no less important issues such as human security, peace and political and social stability and resilience. In this way, the Anthropocene will likely revitalise earlier pleas for stronger forms of sustainability, which are cast in ecological terms and which are to be instilled in society by means of global environmental law and governance arrangements which are oriented towards an ecocentric ethic.³⁶

6. Conclusion

During earlier geological epochs such as the Holocene, people were far less central and influential determinants in the biosphere. While people have always been at the mercy of the environment and natural forces, we have, however, now “graduated from adapting to our environment to making it adapt to us.”³⁷ It is in this continuously deepening period of global ecological decay characterised by anthropogenic ecological disruptions and changes to Earth and its systems that we will have to rethink our own place in nature and the manner in which we will respond to the ecological, socio-political, legal and economic crises that await us. If scientific predictions hold true, these crises will only deepen as the human impact on the Earth and its systems further intensifies in the Anthropocene.

How must we respond to these crises? In the Anthropocene we have to deal with “a new situation and it calls for new perspectives and paradigms on human development and progress - reconnecting to the biosphere and

³⁵ Šlaus Ivo and Jacobs Garry “Human Capital and Sustainability” 3(2011) *Sustainability* 97-154 at 106.

³⁶ See generally, Bosselmann Klaus *Ökologische Grundrechte: Zum Verhältnis zwischen individueller Freiheit und Natur* (Nomos Verlagsgesellschaft, Baden-Baden, 1998).

³⁷ Syvitski James “Anthropocene: An Epoch of our Making” 78(2012) *Global Change* 11-15 at 15.

becoming active stewards of the Earth as a whole.”³⁸ This will require new perspectives on and re-imagining orthodox social institutional constructs like global environmental law and governance and their ability to successfully mediate the human-environment interface.

Re-imagining the legal and governance constructs that people have designed to mediate the human-environment interface in the Anthropocene might arguably be tantamount to a second Copernican revolution that will have to resituate people in the human-environment interface and that will have to interrogate the appropriateness of existing forms of global environmental law and governance. In the words of Ayestaran:³⁹ “[T]he first Copernican revolution placed our planet in its correct astrophysical context. A second Copernican revolution is underway that places humanity in its appropriate environmental nexus.” While we will not live to tell the outcome of this second Copernican revolution, our children and their children will. This entails a tremendous moral obligation that makes it incumbent on us to lay the foundations for more effective socio-institutional interventions that must ultimately seek to mediate more successfully the human-environment interface in the Anthropocene. I hope that my present and future work will contribute, in whatever small way, to fulfilling this moral obligation.

³⁸ Folke Carl *et al* “Reconnecting to the Biosphere” 40(2011) *Ambio* 719-738 at 719.

³⁹ Ayestaran Ignacio “The second Copernican Revolution in the Anthropocene: an Overview” 3(2008) *Revista Internacional Sostenibilidad, Tecnologia y Humanismo* 146-157 at 154.