Interpretation of Ecological Integrity according Planetary Boundaries: Towards improved implementation of Multilateral Environmental Agreements to promote degrowth

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Extended abstract

The overall goal of the following research is to show whether and in how far the legal and political expression of Ecological Integrity in Multilateral Environmental Agreements (MEAs) correlates with the scientific quantification of the Planetary Boundaries in order to identify status as well as challenges for environmental policy towards environmentally sustainable and socially just strategies of degrowth on multi-geopolitical levels.

The 21st century may be the last one that mankind enters due to environmental depletion. Despite the concrete warnings (Carson, 1965; Meadows et al., 1974) the total human consumption trends of goods and services of the environment follow an overall devastating trend. Single success stories such as in the sector of ozone do not influence this general judgement. Similar is valid for certain efficiency gains in the resource use regarding the production of individual goods and services as they are usually overcompensated by a growth in the number of products or services, the so called Rebound Effect (Binswanger, 2001; Mauerhofer, 2008). Multilateral international conferences have continuously warned about these developments, such as the Stockholm Conference 1972, the Rio Conference 1992 and the Rio+20 Conference 2012, and provided common ground for the creation of MEAs. Up to date a diversity of binding and non-binding agreements entered into force whereby numerous of them formally aim at the Ecological Integrity of one or several environmental assets. Recently, researchers have also in more quantitative terms defined where these concretes rates of environmental depletion stand in relation to the earths carrying capacity and calculated that humankind has already regarding several environmental assets exceeded by far these Planetary Boundaries (Rockström et al., 2009) and thus implicitly calling also for degrowth strategies. There are so far nine identified Planetary Boundaries determined by a critical value for one or more control variables, such as carbon dioxide concentration (Rockström et al.

2009). Up to date, we did not find hinds that a combination of the legal and political expression of Ecological Integrity with the scientific quantification of the Planetary Boundaries has been tried yet. Thus, this paper describes the idea of an interpretation of the principle of Ecological Integrity in terms of different quantifiable Planetary Boundaries.

Methodologically we first interpret and define the integrity of the earth system as a whole in terms of the thresholds expressed by the concept of the Planetary Boundaries. When these thresholds remain uncrossed, the Earth system remains in the Holocene state, and the integrity of the Earth's life-support system is maintained. We understand that the suggested threshold levels are preliminary estimates which need to be questioned and evaluated in the face of inherent scientific uncertainties. However, because thresholds do exist and we can choose values for control variables that are at a 'safe' distance from thresholds in a precautionary manner, the integrity of Earth's life-support system is no longer an ambiguous or impractical concept. It can be measured and monitored (Running 2012), hence even used as a direct measure of the legality of state behaviour (Kim and Bosselmann 2013). We then apply an in-depth review of literature to improve the understanding of the current interpretation of "Ecological Integrity" and search for the use of Ecological Integrity in a randomly chosen sample of 116 MEAs. Furthermore we analyse the results of our sample in quantitative and qualitative ways (Mauerhofer, 2012) with regard to whether and in how far the Planetary Boundaries identified are addressed.

Regarding our results, we found that most of the key international environmental soft law instruments, including the World Charter for Nature (1982), the Rio Declaration on Environment and Development (1992), the Agenda 21 (1992), the Draft International Covenant on Environment and Development (2000, 2004, 2010), the Earth Charter (2000), the Plan of Implementation of the World Summit on Sustainable Development (2002), and The Future We Want (2012) contain the notion of Ecological Integrity in their cores (Kim and Bosselmann 2013). The Rio Declaration, which is arguably the most authoritative text in international environmental law, states in the preamble that the UN Conference on Environment and Development worked towards "international agreements which respect the

interests of all and protect the integrity of the global environmental and developmental system". Furthermore, one of its core principles obligates states to "cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem" (Principle 7). This was in the spirit of the World Charter for Nature of 1982, which firmly established the integrity of ecosystems or species as a non-negotiable bottom line when achieving "optimum sustainable productivity" of natural resources (Principle 4). The Earth Charter (2000) put the concept of ecological integrity at its very core as a central category. It urges "all individuals, organizations, businesses, governments, and transnational institutions" to "[p]rotect and restore the integrity of Earth's ecological systems, with special concern for biological diversity and the natural processes that sustain life" (Principle 5). We argue that the existing use of Ecological Integrity in many of these MEAs can already be interpreted in the sense of the quantifiable Planetary Boundaries. We show innovative implications of this proposal for MEAs which have already binding character and we discuss the pitfalls for those agreements considered not to be binding. For both types of agreements huge challenges remain. Among those is the question of the just allocation of duties among the different MEAs to maintain the quantifiable Planetary Boundaries. One planetary boundary is usually addressed by more than one MEA. These MEAs can be regionally or globally concluded ones. And sometimes one MEA addresses different Planetary Boundaries. All these issues are discussed on the background of the principle of shared, but differentiated responsibility and solution proposals are provided. Our approach has the strategic advantage that it works with existing MEAs and formulations and terms that are already in force. However, as the number of MEAs found that include the term "Ecological Integrity" is rather limited. Therefore, one of our key conclusions is the integration of the term into further

MEAs and also to conclude new MEAs in order to improve the coverage. The elaboration of all these additional norms should – beside the qualitative inclusion of the term “Ecological Integrity” – also explore ways to integrate qualitative sub-aims agreed upon based on the overall Planetary Boundaries. Furthermore, improved preparatory and continued coordination mechanisms as well as also enforcement instruments are indispensable for the practical implementation of Planetary Boundaries. This paper is a first attempt to combine the two concepts of Ecological Integrity and Planetary Boundaries to foster an improved implementation of Multilateral Environmental Agreements (MEAs). The combination leads to an application of environmental limitations during the implementation of MEAs on different levels of the geopolitical scale in order to support concrete environmental policies towards environmentally sustainable and socially just strategies of degrowth within these global limits.