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What progress have we made since Rio? Results from the 2012 Environmental Performance Index (EPI) and Pilot Trend EPI

Angel Hsu [a,*], *Ainsley Lloyd* [b], *John W. Emerson* [c]

[a] *Yale School of Forestry and Environmental Studies, 205 Prospect Street, New Haven, CT 06511, United States*
[b] *Yale Center for Environmental Law and Policy, 205 Prospect Street, New Haven, CT 06511, United States*
[c] *Department of Statistics, Yale University, 24 Hillhouse Avenue, New Haven, CT 06511, United States*

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ABSTRACT

This paper demonstrates how quantitative indicators and indices of environmental performance help gauge progress toward global policy goals identified as priorities two decades ago. This study uses the most recent performance and trend data from the 2012 Environmental Performance Index (EPI) and Trend EPI to answer two main questions: What progress has been made on the environmental issues identified by high-level leaders at the Rio Earth Summit in 1992 and subsequently in the Millennium Development Goal 7 (MDG7)? What are some of the factors that can help to explain differences in performance on these issues? To answer these questions, this paper introduces pared-down versions of the 2012 EPI and Trend EPI indices to evaluate performance and progress over the last decade on the five policy categories related to objectives specified in MDG7: Water (Effects on Human Health), Biodiversity and Habitat, Forestry, Fisheries, and Climate Change and Energy. The results presented in this paper demonstrate that progress on the MDG7 environmental goals is uneven – by country, region, and issue. While income, social development, and institutional factors explain some of these differences, we suggest that variable global environmental performance can partly be attributed to challenges within the processes and institutions of the MDGs.

1. Introduction

Twenty years after the landmark Rio Earth Summit[1] put sustainable development at the fore of the global policy agenda, there still lacks global consensus on what measurable progress the world has made on sustainable development and environmental issues identified as high priority and requiring collective action. Part of our inability to collectively assess what advancements have been made toward protecting biodiversity, tackling climate change, and maintaining global forest stocks – all goals outlined by the first Rio Summit – results from the inadequacy of environmental data collected for the needs of the policy community (Parr et al., 2003). As a result, the world still suffers from a lack of policy-relevant environmental indicators, as well as the data to construct them, despite Chapter 40 of Agenda 21 having brought global attention to the scarcity of environmental information two

* *Corresponding author*. Tel.: +1 203 903 2199; fax: +1 203 432 0237.
E-mail addresses: angel.hsu@yale.edu (A. Hsu), ainsley.lloyd@yale.edu (A. Lloyd), john.emerson@yale.edu (J.W. Emerson).

[1] United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil.

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decades ago (Srebotnjak, 2007).[2] Chapter 40 of Agenda 21 also points to the inadequacy of sustainability-related indicators and methods "to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems" (United Nations, 1992).

Another part of the inability to gauge progress is the lack of clearly defined universal policy goals for these issues that have received high-level attention through such prominent international meetings as the Rio Earth Summit in 1992, the Millennium Summit in 2000, the World Summit on Sustainable Development in Johannesburg in 2002, and then most recent in June 2012 at the twentieth anniversary Rio+20 Earth Summit. While Goal 7 of the Millennium Development Goals (MDGs) called on each country to achieve environmental sustainability, it lacked any relevant indicators (WEF, 2000). A decade later at the latest Rio+20 meeting, the outcome document, aptly titled "The Future We Want," recognizes the importance of time-bound and specific targets and indicators when assessing progress toward the achievement of Sustainable Development Goals (SDGs), which will replace the MDGs that expire in 2015 (Para. 250, UNCSD, 2012). Therefore, the current need for more policy-relevant, precise and accurate indicators that communicate whether countries are on sustainable pathways could not be more salient (Moldan et al., 2012).

In response to this need for environmental performance and sustainability indicators, the Yale Center for Environmental Law and Policy (YCELP) and the Center for International Earth Science Information Network (CIESIN) at Columbia University have been developing indices since 2000: the Environmental Sustainability Index (ESI) and subsequent biannual Environmental Performance Index (EPI), now in its fourth iteration (Emerson et al., 2012). The 2012 version of the EPI introduces a new Pilot Trend EPI that for the first time allows countries to examine changes in performance from 2000 to 2010. Because six out of the ten policy categories in the 2012 EPI and Trend EPI are measures related to priority issues articulated in the Millennium Development Goal 7 (MDG7) and subsequent UN Conventions that resulted from the 1992 Rio Earth Summit, these two indices can be used as a basis for understanding the achievements and progress countries have made toward these goals (Table 1).[3]

There is a need for systematic methods by which to understand the impact of multilateral environmental efforts. In particular there is a shortage of information and studies that have empirically evaluated the performance of nations on MDG7 targets (Castello et al., 2010). What statistical data are available suggest that there is mixed progress toward achieving the MDGs by 2015 (Camfield et al., 2012). In a systematic global assessment, Jabbour et al. (2012) have similarly concluded uneven results from the fifth Global Environment Outlook report (GEO-5) conducted through the UN Environment Programme (UNEP). However, the GEO-5 assessment by UNEP and other evaluations of MDG progress fail to aggregate available data to review country-level performance on environmental goals identified in MDG-7.

Therefore, the 2012 EPI and Trend EPI can be used to answer two main questions posed in this paper: What progress has been made on the environmental issues identified by high-level leaders at the Rio Earth Summit and subsequently in the MDG7? What are some of the factors that can help to explain differences in performance on these issues? To answer these questions, this paper introduces pared-down versions of the 2012 EPI and Trend EPI indices (referred to in this paper as the "Rio Index" and "Rio Trend Index") to evaluate performance and progress over the last decade on the five policy categories related to objectives specified in MDG7: Water (Effects on Human Health), Biodiversity and Habitat, Forestry, Fisheries, and Climate Change and Energy. We also examine several socioeconomic and governance indicators (i.e., income, human development, and control of corruption) as possible explanatory factors for varying levels of national environmental performance.

This paper is structured as follows: Section 2 outlines the methodology used for the construction of two composite indices to evaluate performance and progress on the priority policy issues emphasized in Rio Earth Summit and the MDG7. Section 3 summarizes key results and findings. Section 4 provides a discussion of the results and analysis. Section 5 provides a brief conclusion.

2. Methods

The EPI is an index that evaluates the environmental results of countries against specified policy targets. With reference to the classic driving force-pressure-state-impact-response (DPSIR) indicator framework, the EPI assesses social and economic *driving forces* (e.g., economic growth or population size); *pressures* on the environment (e.g. carbon dioxide emissions); *states* of the environmental changes (e.g., worsening air quality); and *impacts* on human health and ecosystems (e.g. the environmental burden of disease) (Smeets and Weterings, 1999; OECD, 2008).

The methods used to construct the EPI are documented in (Srebotnjak, 2007; Esty et al., 2008; Emerson et al., 2010, 2012) and have been peer-reviewed by more than 100 experts worldwide. While the specific methods used to calculate the 2012 EPI and Pilot Trend EPI are described in detail Emerson et al. (2012), an overview is presented here along with specific details about the EPI and Trend EPI's adaptation to gauge MDG7-related outcomes. The EPI is a composite index that includes multiple tiers of indicators to assess country-level environmental performance with a score from 0 to 100 and a ranking relative to other countries. The policy categories represent core areas of environmental policy concern for which measurable indicators can be assessed. For the purposes of evaluating country performance directly on issues identified at the Rio Earth Summit and through MDG7, five policy categories from the 2012 EPI and Trend EPI were selected – Water (Human Health Effects), Biodiversity and

[2] Agenda 21 is the non-binding action plan for sustainable development that resulted from the 1992 Earth Summit. The full text can be accessed here: http://www.unep.org/Documents.Multilingual/Default.asp?documentid=52.

[3] For example, the Framework Convention on Climate Change (http://www.unfccc.int) and Convention on Biological Diversity (http://www.cbd.int).