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Prospects for establishing environmental satellite accounts in a developing country: The case of Rwanda

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ABSTRACT

In this paper, we discuss the beginning of Rwanda's current work on natural capital accounts. Many developing countries began similar work on environmental satellite accounts in the 1990s and early 2000s, only to abandon them a few years later when the initial political interest waned. The question arises, therefore, as to whether renewed interest in these accounts has the potential to have a longer-lasting impact on national accounting practices. In Rwanda's case, the decision was to begin satellite accounting work by focusing on resources where key economic trade-offs between different uses had already begun to be identified by policymakers, and where the gathering of economic statistics had already been improved as a result. It seems likely that this approach could lead to more durable satellite accounts, and that a similar approach would be feasible in many other countries.

1. Introduction

This paper describes the initial phase of the Rwandan work with developing accounts compatible with the System of Environmental-Economic Accounting (SEEA), as part of the World Bank-led global partnership process known as Wealth Accounting and the Valuation of Ecosystem Services (WAVES). Rwanda is an interesting case because it has the potential to make SEEA efforts in Africa more sustainable than their predecessors' twenty years ago. Hence, the paper aims to present the initial phase of the Rwandan SEEA work as a case study that can help inform future SEEA efforts on the continent.

SEEA and WAVES aim to go beyond traditional gross domestic product (GDP) – a measure of annual economic output – by incorporating natural resource wealth and assets into the national accounts (World Bank, 2011a). As, for example, Ahlroth et al. (2011) and Liu et al. (2018) note, compilation of environmental or natural resource data is more likely to provide useful inputs to policy when it uses methodologies consistent with those already employed in other policy work rather than methodologies developed in isolation. SEEA, which is set up to be consistent with national accounting, offers one set of such methodologies.

Work on SEEA began in earnest in the 1990s, and currently has three components. The first of these, the SEEA Central Framework (UN, 2014a) provides methods for valuing renewable and non-renewable natural resource assets, using those benefits that are already included in the System of National Accounts (SNA), and is an international statistical standard designed to be consistent with the SNA. The second component, SEEA Experimental Ecosystem Accounting (UN, 2014b), extends this work to valuing ecosystem benefits not included in the SNA or SEEA. Experimental Ecosystem Accounting is not a statistical standard, but entails pilot work designed to complement the SEEA Central Framework approaches. The third component, SEEA Applications and Extensions (UN, 2017), is a set of monitoring and analytical approaches designed to support the other SEEA work.

WAVES was established in 2010 to promote sustainable development through the implementation of SEEA-consistent natural capital accounting (NCA) that focuses on the value and role of

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natural resources in development strategies, policies and investment decisions.

Several developing countries have already committed to setting up SEEA-compatible accounts (WAVES, 2015; 2016a, b, c, d; 2017a; 2018), and there is considerable political interest in the finished products. All these countries have worked on further developing SEEA accounts within the Central Framework, and some (e.g. Colombia and the Philippines) have also participated in the experimental ecosystem work. The first five core implementing countries (Botswana, Colombia, Costa Rica, Madagascar, and the Philippines) began their WAVES work in 2010, the second round of core implementing countries (Guatemala, Indonesia, and Rwanda) began in late 2013, and there are currently plans to expand WAVES further to include additional countries (WAVES Partnership, 2017a, b). There has also been an increased interest from academic researchers in compiling SEEA-consistent environmental accounts and experimental ecosystem accounts, and conducting analyses based on such accounts (for recent examples, see Freire-González and Vivanco, 2017; Kunanuntakij et al., 2017; Li et al., 2017; Liang et al., 2017; Piaggio, 2016; Piaggio et al., 2015, 2017; Turpie et al., 2017; Yu et al., 2017).

At the same time, it should be noted that there was a similar political interest in setting up environmental accounts and other types of satellite accounts in the late 1990s and early 2000s, when much of the initial work underlying the current Central Framework was carried out. This included satellite accounting work in southern Africa (see, e.g., Poonyth et al., 2002, for an overview of then-ongoing satellite accounting work in southern Africa, Zhong et al., 2016, for a bibliometric review of natural resource accounting which notes the decline in citations after 2002, or Lange and Motinga, 1997, studying resource rents from mining and fisheries in Namibia; Lange, 1998, reporting on water accounting work in Namibia; Hassan, 2000, reporting on forest resource accounting in South Africa; Crafford et al., 2001, reporting on water accounting in South Africa; Stage, 2001; Stage and Fleermuys, 2001, reporting on energy accounting work in Namibia; Stage, 2001, 2002, using these energy accounts to analyze changes in energy use in the Namibian economy; Suich, 2002, reporting on tourist satellite accounts for Namibia; Lange et al., 2003, providing a set of case studies on environmental accounting for southern Africa; Lange and Wright, 2004, reporting on mineral accounting for Botswana; Luyanga et al., 2006, using the Namibian water accounts to analyze changes in water use in the Namibian economy; Barnes et al., 2010, reporting on tentative forest accounts for Namibia; Hassan and Mungatana, 2013, providing a set of case studies on environmental accounting for eastern and southern Africa, for specific examples of SEEA compilation and related academic work in southern and eastern Africa).

However, these efforts petered out over the years that followed. In many countries, only a few years' accounts were compiled before the effort was abandoned. While the studied resources and sectors (energy, fisheries, forestry, minerals, water, and tourism were frequent choices) were often of considerable policy importance for the countries in question, the satellite accounting efforts of the 1990s and early 2000s were usually based in environmental ministries or environmental research institutes. Because of this, there was sometimes limited political support from other parts of their countries' governments, and the compilation of the accounts was frequently based on massive data collection efforts that were supported by donor funding but difficult to sustain in the longer term. This means, for instance, that it is difficult to assess how much of the recent years' income growth in sub-Saharan Africa has been driven by depletion of natural assets rather than by sustainable growth in production capacity, due not only to poor natural capital accounts but also to poor national accounts overall (Devarajan, 2013; Jerven, 2013). It has also meant that much of the work done on environmental accounting in developing countries (see e.g. World Bank, 2011a) has had to rely on externally available indicators rather than on countries' own national accounting agencies.

It is worthwhile, therefore, to consider whether the institutional effort required to compile accounts is likely to be maintained this time. The resources identified as candidates for potential accounting work in Rwanda, for example, are similar to those that attracted interest in other African countries in the late 1990s and early 2000s, but where interest then declined, and accounting work ceased, once the donor funding ended. Thus, Rwanda provides an interesting case study for whether the current generation of accounting work is more likely than that of previous years to be sustainable in the longer term.

Rwanda's natural resource base is relatively limited compared to the size of its population, and policy interest in managing available assets is high. Rwanda signed the Gaborone Declaration for Sustainability in Africa in 2012, and announced that it would be one of the countries in Africa using NCA as one of the tools to boost the country's sustainable development. A Steering Committee with representatives from key ministries and government agencies[1] was formed at national level to set priorities and to oversee preparation and implementation of the NCA approach, with technical and analytical support from the World Bank. This Steering Committee subsequently identified five possible priority resources and sectors – energy, water, minerals, land and forests – for further consideration. A comparison with the resources and sectors frequently studied in other countries in the East African region shows that energy, water, minerals and forests were commonly studied in other countries as well; land is an unusual choice, but important to Rwanda, for reasons described in 3.4.

In this paper, we discuss the Rwandan selection of sectors for NCA work. The SEEA framework, which any NCA would have to follow, provides a natural methodological framework for discussing each sector. Key criteria used for selecting which of these resources and/or sectors to focus on to begin with were the resource/sector's potential contribution to growth and development goals; the resource/sector's potential to inhibit growth if not properly addressed; its relevance in respect of contributing to macroeconomic indicators of long-term growth prospects; and its relevance for economy-wide planning and policy.[2] Given the discussion above, obvious additional considerations were institutional factors, such as the willingness, interest and resource commitments of the key agencies responsible for policymaking and management of the resource/sector; implications of the division of roles and responsibilities among the agencies responsible, which could affect the efficiency of the work and the timely availability of data required, and the availability of resources needed to institutionalise the NCA approach.

This paper is structured as follows: Section 2 describes the Rwandan economy and economic policy priorities and the current state of the country's economic statistics, presenting the current context for this case study. Section 3 discusses the identified priority sectors in the order in which they are covered in the SEEA manual, and discusses the additional statistics needed to develop NCA as well as the potential policy applications of the accounts in

[1] These include the Ministry of Natural Resources and its agencies, the Ministry of Finance and Economic Planning, the Ministry of Infrastructure, the Ministry of Agriculture, the Rwanda Development Board, the National Institute of Statistics of Rwanda; a non-government organisation, the Wildlife Conservation Society, also participated.

[2] For an extended discussion of the use of environmental accounts for development planning and policy, see e.g. Höjer et al. (2008).