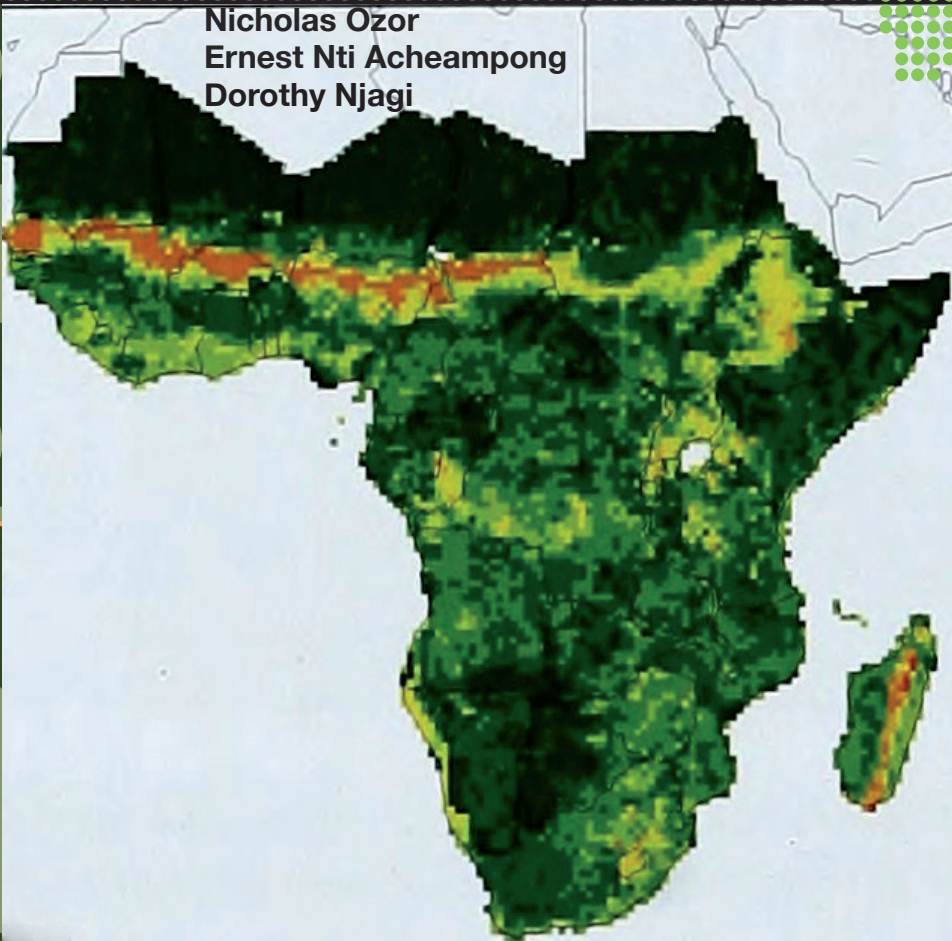




## Developing Policies for Biodiversity Informatics in sub-Saharan Africa

African Technology Policy Studies Network  
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# About The African Technology Policy Studies Network (ATPS)

The African Technology Policy Studies Network (ATPS) is a trans-disciplinary network of researchers, policymakers, private sector actors and the civil society promoting the generation, dissemination, use and mastery of Science, Technology and Innovations (STI) for African development, environmental sustainability and global inclusion. ATPS has over 1,300 members and 3000 stakeholders in over 51 countries in 5 continents with institutional partnerships worldwide. We implement our programs through members in national chapters established in 30 countries (27 in Africa and 3 Diaspora chapters in the Australia, United States of America, and United Kingdom). In collaboration with like-minded institutions, ATPS provides platforms for regional and international research and knowledge sharing in order to build Africa's capabilities in STI policy research, policymaking and implementation for sustainable development.

## About JRS Biodiversity Foundation

The JRS Biodiversity Foundation is an independent grantmaking foundation based in Seattle, Washington with assets of \$42 million that awards grants to increase the access to and use of biodiversity information in sub-Saharan Africa. Our goal is to expand the tools and processes used to collect, manage, and disseminate biodiversity data and information (“biodiversity informatics”) in sub-Saharan Africa and to connect this knowledge to the people — the policymakers, scientists, conservationists, economists, and the public — who make and influence decisions that are crucial to preserving biodiversity.

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# 1. Introduction

Globally, the alarming rapid rate at which biodiversity is declining is unprecedented. Approximately 35% of all mangrove swamps, 40% of forests and 50% of wetlands worldwide have been lost over the last century<sup>1</sup>. Economically, biodiversity loss on land over the last decade is valued at \$500 billion annually to the global economy<sup>2</sup>. With pressures mounting on biodiversity, there is a high risk that ecosystem functioning would be severely impaired or disrupted. This alarming situation deepens the planet's woes following the world's failure to achieve the 2010 Aichi biodiversity target of significantly reducing rate of biodiversity loss at the global, regional and national level<sup>3</sup>.

In Africa, biodiversity provides a fundamental role in economic livelihood and societal wellbeing. Africa boasts of a sizeable proportion of the world's natural resources and biodiversity, yet this fundamental natural asset upon which life depends is under severe threat. With increasing natural resource extraction for economic growth, land degradation, urbanization and weak institutional arrangements, African countries are experiencing rapid rate of biodiversity depletion. Even more worrying is the climate change phenomenon that presents a new development threat to biodiversity and the future of majority of African rural population whose livelihoods directly depend on biodiversity.

At a recent regional consultation dialogue, African countries governments reported their failure to achieve the 2010 Aichi biodiversity targets, citing the challenges of insufficient integration and prioritization of biodiversity into broader sector of the economy<sup>4</sup>. Concerns were also raised by governments on the failure of the scientific community to effectively articulate biodiversity issues to policymakers in ways that adequately make biodiversity a priority in national development agenda. Following the disappointment of not meeting the 2010-biodiversity targets, governments launched an ambitious and elaborate Strategic Plan for Biodiversity 2011-2020<sup>5</sup>, which targets the sustainability of resilient ecosystems and provision of essential services by halting biodiversity loss by 2020 . It has become urgent for policymakers to define appropriate policies that would slow and end the rapid rate of biodiversity loss.

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*1 Secretariat for the Convention on Biological Diversity (SCBD) (2009) Biodiversity, Development and Poverty Alleviation: Recognizing the Role of Biodiversity for Human Well-being. Montreal*

*2 TEEB (2009). The Economics of Ecosystems and Biodiversity for National and International Policy Makers*

*3 SCBD 2010.*

*4 Africa Regional Consultation and Capacity Building Workshop on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+), Including On Relevant Biodiversity Safeguards, Cape Town, South Africa, 20 – 23 September 2011.*

*<https://www.cbd.int/doc/meetings/for/wscbredd-afr-01/official/wscbredd-afr-01-02-en.doc>*

*5 Strategic Plan for Biodiversity 2011-2020.*

## 2. Rationale

A major barrier to achieving the 2010 Aichi biodiversity targets was the poor integration of biodiversity information into decisions in different sectors of the economy other than nature protection and conservation. The availability and access to high quality information and data on biodiversity is essential for making effective biodiversity policies. On the other hand, the existence and implementation of policies is critical to the generation and access to high quality data and information on biodiversity in SSA region.

The current status of data and information on biodiversity in sub-Saharan Africa (SSA) is precarious. Biodiversity data and information in many SSA countries are limited, non-existent or scattered in varied formats in national labs, museums, survey, and project reports. This situation hinders the exchange and the creation of a cohesive data and information on biodiversity. At a scientific meeting of a group of biodiversity informaticians in the region, participants highlighted a common challenge of aggregating, synthesizing and visualizing existing data and information on biodiversity to form a structured, unified and meaningful information system that can adequately inform strategies and actions for biodiversity conservation<sup>6</sup>. Existing policies and institutions have done little to promote the generation, processing and access to biodiversity data and information. This is because, biodiversity priorities have not been adequately incorporated into national development and planning agenda.

With biodiversity priorities gaining attention at global, region, and national levels, there is a growing demand to generate, synthesize, and interpret biodiversity information and data for different purposes in what has emerged as the field of biodiversity informatics. This field represents the combination of efficient use and management of biodiversity information with new tools for its analysis and understanding these data and information resources.

## 3. Existing policies for promoting biodiversity informatics in SSA

With the exception of Nigeria, Rwanda and South Africa, most SSA countries do not have standalone biodiversity policies. In Nigeria, the National Policy on Conservation of Biological Diversity established in 1999 seeks to integrate biological diversity issues into national planning, and decision making, and to conserve and enhance the sustainable use of biological diversity. The Biodiversity Policy for Rwanda was adopted and approved by parliament in 2011, and a law

<sup>6</sup> Workshop on Mobilizing Africa's policy and decision-making relevant biodiversity data. 25-27 March 2014, Pretoria. <http://biodiversityadvisor.sanbi.org/participation/mobilising-africas-biodiversity-data/>



on biodiversity was passed in 2013. In this policy, the Government of Rwanda highlighted the scattered nature of biodiversity data and information in different sectors, and the need to ensure the mobilization, accessibility and management of data and information to support conservation and decision-making. South Africa's Biodiversity Policy provides a strong basis for the sustainable utilization and conservation of biological diversity. It is one of the few countries with a specialized National Biodiversity Institute.

The biodiversity policies in Rwanda and South Africa have facilitated the development of biodiversity informatics activities. The Government of Rwanda has established a National Biodiversity Information Management System (BIMS) to facilitate the collection, sharing, analysis, distribution and management of data and information for the biodiversity conservation and sustainable use. The South African Biodiversity Institute (SANBI) has built a reputation in biodiversity conservation beyond its national boundaries, becoming more of a regional institution that is spearheading the field of biodiversity informatics in Africa. SANBI in partnership with Global Biodiversity Information Facility (GBIF) have organized a series of training and capacity building workshops to mobilize African biodiversity data while strengthening regional collaboration and capacity in biodiversity informatics.

## **4. Policy constraints on biodiversity informatics**

The extent to which biodiversity related policies are translated into action and its impact on generation and access to biodiversity data and information still remains minimal in SSA due to the following reasons:

- There is poor understanding especially on the part of policymakers about the value of biodiversity to national economies and the lack of clear benefits and career opportunities in biodiversity information management. Unfortunately, the relevant authorities have not been able to effectively communicate the importance of biodiversity informatics to the policymakers for actions.
- Most countries do not have standalone biodiversity policies that promote the capture, processing and interpretation of biodiversity data and information.
- Multiple biodiversity related policies function in silos but target an overall goal of promoting biodiversity management. Such an arrangement is prevalent in most SSA countries where standalone biodiversity policies and institutions are absent. The use of sectoral policies and different institutions to manage biodiversity in part has created a complicated web of responsibilities, which are sometimes overlapping, and create institutional conflicts.

- Many countries are faced with the difficult challenge of implementing the policy targeting biodiversity informatics due to lack of trained and specialized personnel in the field of biodiversity informatics.

## 5. Policy options for promoting biodiversity informatics

Biodiversity relevant policies hold the prospects of providing the strategies and tools for enhancing institutional and human capacity to generate, synthesize, and interpret biodiversity information for conservation decisions, biodiversity data sharing, and to meet consumer needs. Countries must redefine and harmonize policies to target biodiversity priorities in their bid to mainstream biodiversity issues into national and local development planning. Proposed strategic actions that should be implemented include:

- Countries must engage in sensitization and awareness campaigns in order to promote biodiversity values as integral part of development planning at national and local levels. This should be done with all the relevant stakeholders to have all-inclusive voice and actions.
- Countries must incentivize investments in technologies and innovations for biodiversity informatics bringing embracing interest from the private sector and international community.
- Countries must focus on building adequate human and institutional capacity to tap into the emerging field of informatics and establishing biodiversity information systems. Training and resources should be provided to promote the effective use of biodiversity informatics tools by biodiversity institutions.
- Countries must develop standalone biodiversity policies that prioritize the capture, processing and interpretation of biodiversity data and information as well as encourage best practices for open access database and data sharing.
- Governments must nurture local initiatives on biodiversity informatics by setting aside funding to promote biodiversity informatics activities.
- Universities must review their education curricula on biodiversity conservation by embracing the emerging field of biodiversity informatics to advance production and use of high quality data for integrated analysis supporting policy and decision-making in biodiversity conservation.

## 6. Conclusion

This policy brief brings to fore the growing urgency to integrate biodiversity priorities in decision-making and development planning in SSA countries. A major policy and institutional gap for biodiversity is that most sub-Saharan African countries do not have standalone policies on biodiversity that prioritize biodiversity informatics

and as a result, provisions on biodiversity concerns are spread between different policies and implemented by different institutions. The underlying concern is that, the overall basis for economic growth towards industrialization in most SSA has not been critically examined from the environmental perspective or from livelihoods of the larger population dependent on biological resources. Thus, in major sectors of the macro-economy, the policies on biodiversity have been least recognized and implemented.

The gradual recognition of the value of biodiversity as a crucial component of national development in policies may potentially trigger the search for more data and information on biodiversity to inform decision-making. Improving, sharing and applying biodiversity data and information (as set by the Aichi Target 19) will be essential for policymakers to monitor the status and patterns of biological resources and to model the impact of changes. Biodiversity informatics must be demand driven to attract political support and legitimacy, which will justify and promote the formulation of biodiversity policies and specialised institutions for biodiversity informatics in SSA countries.

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<sup>7</sup> [http://www.atpsnet.org/publications/technopolicy\\_briefs/index.php](http://www.atpsnet.org/publications/technopolicy_briefs/index.php)



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