

## Integration of the System of Environmental Economic Accounting (SEEA) in the DRC: Diagnosis and review of good practices for implementation

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Accounting

DRC



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## Integration of the System of Environmental Economic Accounting (SEEA) in the DRC: Diagnosis and review of good practices for implementation

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# Preface



**Christian MWANDO NSIMBA**  
Minister of State, Minister for  
Planning of the DRC

Sub-Saharan Africa, with a large proportion of its population living below the poverty line, presents a bleak socio-economic picture. Economic growth in per capita gross domestic product has been almost zero. Poor governance and corruption, the weight of the colonial heritage, ethnic diversity, rebellions, political instability, etc,

Since independence, the continent has tried a surprising variety of development strategies: from the more socialist and planful in the 1960s and 1970s to the more liberal in the 1980s and 1990s. These development strategies have not brought the expected results.

What place for nature and the environment in these development strategies? Very limited. Physical and human capital have long been privileged. In the 1950s and 1960s, the aim was to industrialise these countries by building a core of primitive capital and limiting exports. Massive investments in physical capital were made. This was the period of the 'white elephants'.

Today, the question of the place of natural resources and the environment in the development process is coming to the fore.

First, there has been a significant shift in the rhetoric (and promises) of African leaders. Since the early 2000s, sustainable development initiatives have multiplied in Africa.

NEPAD2, for example, has included a sustainable development component since 2002.

Secondly, the way in which nature is understood and perceived is also changing. Nature is no longer seen only as a source of raw materials. The forests of the Congo Basin are now being courted not only for their precious timber, but also as carbon stocks, water purifiers and safety nets against climatic and economic hazards. There is a growing awareness of the many links between poverty, development, and natural heritage.

Indeed, traditional economic analysis tools do not allow policy makers to reliably assess the effectiveness of implemented environmental policies or the impact of economic policies on the environment. It is therefore necessary to adopt adequate environmental monitoring and information systems as a basis for policy decisions.

In the systems used so far, the environmental costs - the expenditure needed to maintain the natural resource endowment at the level corresponding to the beginning of the period under consideration - remain mostly excluded from economic analyses, which are based on traditional accounting instruments.

It is on the basis of these accounting systems, even if partially corrected for environmental factors, that the main macro-economic aggregates (such as GDP - gross domestic product - and GNP - gross national product) are still compiled to guide the economic policy choices made by decision-makers at national, supranational, and international levels. In particular, environmental costs remain largely excluded from the perspective of economic analyses based on traditional accounting instruments, i.e., the expenditure required to maintain the natural resource endowment at the level corresponding to the beginning of the period under consideration.



In other words, the concept of sustainability, i.e., the ability of an economic system to keep natural resource endowments intact so as not to jeopardise the well-being of future generations, is not considered at all.

The United Nations Conference on Environment and Development, held in 1992 in Rio de Janeiro, Brazil, called for the establishment of "*a programme to create national systems of integrated ecological and economic accounting in all countries*". More recently, the outcome document of the United Nations Conference on Sustainable Development (Rio+20 Conference), also held in Rio de Janeiro in 2012, confirmed that "*integrated social, economic and environmental data and information*

The United Nations Conference on the Environment in Rio de Janeiro marked a decisive turning point by adopting Agenda 21 for sustainable development, which provides - among the actions to be implemented - for the application of environmental accounting in all countries.

The Democratic Republic of Congo is one of the 16 countries in the world qualified as a mega-biodiverse country (high rate of endemism), with an immense territory (234.5 million km<sup>2</sup>), a surface area of 155.5 million hectares of forests covering almost 67% of the national area. It is among the major producers of coltan, cobalt, diamonds, copper... non-renewable natural resources. But it is classified as a HIPC (Highly Indebted Poor Country). Some areas that used to produce diamonds are no longer so. This leads to rural exodus.

Traditional indicators such as GDP do not provide any information on the depletion of Congo's mineral resources or the loss of thousands of hectares of forest due to deforestation. The contribution of forests and peatlands, biodiversity, wetlands, and agricultural land to ecosystem services is not included in this measure.

In response to this contrast, and in order to support the implementation of the System of Economic and Environmental Accounting in the DRC, the Global Organization of Legislators for a Balanced Environment (GLOBE) - a global organization of national legislators working for the conservation and sustainable management of Natural Capital through law-making and support for good governance, with the support of the United Nations Environment Programme (UNEP) and funding from the Global Environment Facility (GEF), initiated the GEF6 Project "GLOBE LEGISLATORS ADVANCING REDD+ AND NATURAL CAPITAL GOVERNANCE TOWARDS THE DELIVERY OF THE 2030 AGENDA".

Within the framework of the GEF6 Project, a study was launched by GLOBE. This study, entitled "*Integration of the System of Economic and Environmental Accounting (SEEA) in the DRC - Diagnosis and Review of Good Practice Lessons for Implementation*", was carried out by the consultant and focused on the state of play of SEEA in the DRC. It is obvious that, unlike other developing countries, our country is still very far from the SEEA: The legislative framework is not favourable, there is no specific text, the SEEA is not taken into account in the DRC, there is no integration of environmental assets in the national accounts, the SEEA is not known by most of the experts consulted, there is little appropriation of the conclusions of international agreements and of the data produced thanks to international aid, Low awareness among decision-makers and legislators at different levels of the importance of the CESE in decision-making, Slowness of political leaders - particularly the Ministries of Environment, Planning and Finance - to take up the issue of accounting for natural capital.

After an analysis of the legislative gaps and suggestions on how to fill them, a roadmap for the integration of the EEA into the national accounts in the DRC was developed.

Furthermore, I am convinced that Economic and Environmental Accounting can become one of the main instruments for governance reform at all levels of government because it promotes the continuous pursuit of sustainable development. The instruments traditionally used to plan economic and development policies are not able to identify environmental costs. Continuing to use traditional instruments designed to measure market activities in an economy without natural limits now means

denying the possibility of verifying whether we are progressing or regressing on the path to sustainable development.

On this note, I would like to request the appropriation of these recommendations by all parliamentarians, but also a greater involvement of stakeholders, the government of the Republic, technical and financial partners (TFPs), civil society organisations, representatives of local population organisations and indigenous peoples in the execution of the roadmap for an effective implementation of Environmental Economic Accounting in the DRC.

My ministry, together with other sectoral ministries, will spare no effort for the successful implementation of the SEEA in the DRC.

Long live the Democratic Republic of Congo!



# Acknowledgements



**Honourable Jean-Pierre TSHIMANGA BUANA**  
**Member of the National Assembly**  
**President of GLOBE DRC**

Countries have long kept a close eye on their national accounts to assess their economic performance and the effectiveness of their development policies. Yet traditional indicators, based on measures of national income such as GDP (gross domestic product), provide no information on the economic, social, or environmental sustainability of current growth models.

-The World Bank has initiated a partnership to help countries account for their natural wealth and value ecosystem services to move beyond the traditional GDP measure and begin to integrate their natural capital into their national accounts.

-The United Nations Conference on Sustainable Development "Rio+20" (Rio de Janeiro, 2012) was seen as an ideal opportunity to strengthen existing commitments to natural capital accounting and thus move towards the goal of a more sustainable world.

GDP considers only part of a country's economic performance: INCOME. It does not provide any indication of the wealth and resources that underpin this income. For example, when a country exploits its mineral resources, it contributes to the reduction of its wealth. The same is true for overfishing and the degradation of water resources. This depletion of resources does not show up in GDP and is therefore not measured.

To maintain sustainable growth, it is essential to account for the real wealth of countries, including their natural capital. Long-term development is about accumulating and managing well a portfolio of resources that includes physical (or product) capital, natural capital, and human and social capital. The other main weakness of GDP is the low representation of natural capital. The total contribution of natural capital (forests, wetlands, or agricultural land) is not included in this measure. Take forestry, for example: wood resources are included in the national accounts, but other services provided by forests, such as carbon storage and air filtration, are completely ignored. GDP can thus give misleading indications of a country's economic performance and well-being.

This gap is far from inconsequential: ecosystems are being degraded all over the world, and with them the capacity to improve human well-being and contribute to sustainable economic growth. Indeed, natural capital is a key asset, especially for developing countries where it represents a considerable share of total wealth.

For more than 30 years now, there has been talk of accounting for and valuing natural capital. But the road from concept to practical application is long... Why? Essentially for four reasons:

1. Lack of internationally recognised valuation of ecosystem services.
2. The slowness of political leaders - in particular the Ministries of Environment, Planning and Finance - to take up the issue of accounting for natural capital.
3. The lack of capacity in many developing countries.
4. The lack of steering to go "beyond GDP".

At the initiative of the United Nations Environment Programme (UNEP), and thanks to funding from the Global Environment Facility (GEF), the GLOBE DRC Chapter, under my leadership, had the honour of initiating a study focused on "Integration of the System of Economic and Environmental Accounting (SEEA) in the DRC", Diagnosis and Review of Good Practice Lessons for Implementation.

This study had as its mission the integration of environmental assets into national accounting for their better management in the DRC. An analysis of the legislative and institutional challenges was carried out, suggestions on how to overcome them were formulated and a roadmap for the integration of the EEC into national accounting in the DRC was developed.

Identifying and quantifying natural capital and its ecosystem services provides an additional rationale for effective environmental management and, by integrating economic and environmental imperatives, facilitates policy making for sustainable development.

I would like to express my gratitude to the United Nations Environment Programme (UNEP) for its support, the Global Environment Facility (GEF) for all the financial support necessary for the realization of the GEF6 Project. I am also grateful to GLOBE International, especially to the Director of Global Projects, Rafael JIMENEZ AYBAR, for his unstinting support throughout this study.

My deepest thanks to the honorary presidents of the two chambers; their Excellencies Mrs Jeanine MABUNDA LIOKO and Mr Alexis TAMBWE MUAMBA, respectively Presidents of the National Assembly and the Senate, for their contribution to the completion of this work. I would also like to thank all the MPs and senators who are members of the GLOBE DRC Chapter for their participation in the validation of the results of this study.

I cannot fail to mention the contribution of the Honorary Minister of Environment and Sustainable Development, His Excellency Claude NYAMUGABO BAZIBUHE for having, under his high patronage, participated from 18 to 19 December 2020, Kinshasa (CEPAS), in the launching of the GEF 6 Project and in the presentation of the results of the present study to the national deputies, senators, experts of the Ministry of Environment and Sustainable Development (MEDD), representatives of the organisations of the local populations and the indigenous peoples, and members of the environmental civil society

May Her Excellency the Deputy Prime Minister, Minister of the Environment and Sustainable Development, Eve BAZAIBA MASUDI, find in these lines all our expression of gratitude.

A special mention to the Honourable Speakers of the National Assembly and Senate; Christophe MBOSO N'KODIA PUANGA and Modeste BAHATI LUKWEDO for their support to the GEF6 Project. Warm thanks to the Adviser to the President of the Lower House in charge of environmental issues; Jean-Louis KOYAGIALO GERENGBO for his unfailing support as well as to the President of the National Steering Committee of the GEF6 project, Director of the Cabinet of the Honorary Minister, Mr. Grégoire ASSANI, for all his efforts in the active participation of the Cabinet in the launching and presentation of the results of this work.

Our gratitude also goes to the General Secretariat of the Ministry of the Environment and Sustainable Development, the General Directorate of Forests (DGFOR), the Directorate of Sustainable Development (DDD), the Directorate of Inventories and Forest Management (DIAF), the National REDD+ Fund (FONAREDD), experts from the Ministry of Planning, the Ministry of the National Economy, the National Institute of Statistics (INS), the Regional Post-Graduate School for Integrated Management of Tropical Forests and Lands (ERAIFT), organisations of local populations and indigenous peoples and all environmental civil society organisations, particularly the Renewed Climate Working Group (GTCRR) represented by Mr Guy KAJEMBA, for having taken an active part in the presentation of the results of this study and for having made their contribution.

My deepest gratitude to Mr Aimé MBUYI KALOMBO, Climate Change Expert and Focal Point of the United Nations Framework Convention on Climate Change (UNFCCC), to Mr Hassan ASSANI ONGALA, National Coordinator of the REDD+ mechanism, for their contribution to the presentation of the results of this work, and to the Consultant Professor Mylor NGOY SHUTCHA of the Faculty of Agronomic Sciences of the University of Lubumbashi/DRC for the work he did

My congratulations to the entire team of the National Coordination of the GEF6 Project "GLOBE LEGISLATORS: ADVANCING REDD+ AND NATURAL CAPITAL GOVERNANCE TO ACHIEVE AGENDA 2030" under the leadership of Mr. Henri-Christin LONGENDJA, who was keen to follow up on the final phase of this work.

The objectives of this study were to integrate environmental assets into the country's accounting system for their better management in the DRC; to propose relevant legislative responses, as well as a roadmap of actions to be implemented to allow the implementation of the environmental economic accounting system.

The major political and institutional challenges related to the implementation of the EEAS have been made known to all, and we urge the involvement of all GLOBE legislators, the Environment Committees of both Chambers, the government, and the TFPs, to enable a better implementation of Environmental Economic Accounting.

# Foreword



**Benjamin THOIRAMBE BAMONINGA**

**Secretary General, Ministry of  
Environment and Sustainable  
Development of the DRC**

The forests of the DRC account for more than half of Africa's forest resources. They are the world's second largest tropical forest carbon sink and therefore provide crucial services to the biosphere.

With a variety of physical and climatic conditions influencing biological richness, forests represent a biome that contains important habitats in terms of biological diversity. Recent estimates give forests an area of 155.5 million hectares, covering almost 67% of the national area.

The products and services provided by biodiversity contribute significantly to the well-being of the Congolese population. To take the case of the forest alone, most of the Congolese rural population depends on it for their daily lives. They get most of their protein, medicine, energy, materials, and income from the forest. Forests are also essential for the global environment. Congolese forests and peatlands sequester carbon and slow climate change on a global scale. More than 80 million hectares of arable land and almost 13% of the

national territory are dedicated to protected areas.

On the other hand, its mineral resources make the DRC a geological scandal. Unfortunately, we are witnessing the degradation and deforestation of these forests with consequences for the natural habitats of wildlife species and the net depletion of natural resources. Thus, the global debate on policy and legislative responses to combat deforestation and forest degradation, as well as net depletion of natural resources and loss of biodiversity and ecosystem services, is well articulated. However, the proposed responses to these problems often require a fundamental reorientation of existing economic and social development models towards a more sustainable path, which in turn requires strong political ownership and leadership at the national level that is often lacking at the executive and legislative levels. This lack of clear and strategic political ownership informed the call in the Strategic Plan for Biodiversity 2011-2020, adopted at the 10th CBD Conference (COP10) in Nagoya in 2010, for broadening political support by working to ensure that heads of state, government and parliamentarians from all parties understand the value of biodiversity and ecosystem services (Decision X/2, paragraph 16 "Broadening political support").

Some questions need to be asked:

- Who benefits from the use of natural resources?
- What are the impacts on the state of the environment and on other sectors of the economy?
- How does the depletion of natural resources affect the measurement of a nation's real income?
- Are the costs of depletion recovered by the state?
- What is the wealth of a nation made up of?
- Are current trends in resource production and consumption sustainable?
- What economic instruments are used? And what would be the impact of new instruments?

It is quite clear today that the standard economic indicators, set up to measure the wealth of countries, are insufficient to capture the importance of natural resources in the economic development of nations. There is no monetary quantification of environmental assets, and no account is taken of their depletion. To address this shortcoming, the World Bank has developed an analytical framework in which natural capital is one of the components of countries' total wealth. The United Nations Statistical Commission adopted the System of Environmental and Economic Accounts Core Framework, 2012 as an international statistical standard at its 43rd session in 2012.

It is a first step towards integrating sustainability into economic management to institute a better measurement of the primary role of the environment as a source of natural capital and as a receptacle for the by-products created in the production of economic capital and other human activities. Since sustainable development encompasses economic, social, and environmental dimensions, it is also important that national accounting procedures are not limited to the measurement of the production of goods and services that are conventionally marketed... A programme is proposed to develop national systems of integrated environmental and economic accounts in all countries.

I would like to thank GLOBE International and the GLOBE DRC Chapter, which for the first time have launched a study on the SEEA in the DRC. I am also grateful to the United Nations Environment Programme (UNEP) for its support and to the Global Environment Facility (GEF) for its funding. My congratulations to the Consultant Professor Mylor NGOY SHUTCHA of the Faculty of Agronomic Sciences of the University of Lubumbashi/DRC for this first initiative at national level. I would also like to express my full support to the National Coordination team of the GEF6 Project "GLOBE LEGISLATORS: ADVANCING REDD+ AND NATURAL CAPITAL GOVERNANCE TO ACHIEVE AGENDA 2030".

This study on "Integration of the System of Environmental Economic Accounting (SEEA) in the DRC, Diagnosis and Review of Good Practice Lessons for Implementation", carried out under the GEF6 Project, paved the way for the implementation of SEEA. The various challenges along the way were identified. Based on the experiences of other developing countries, information to address them was provided and a legislative action plan was proposed, and a roadmap developed by the Consultant.

It is obvious that at the country level there is an effective consideration of environmental issues:

- The DRC is party to various international conventions (CBD, UNFCCC, Paris Agreement, etc.);
- Recognition of the contribution of environmental assets in the country's strategic development documents (e.g., PNSD 2019);
- Various legal and regulatory texts on the protection and sustainable management of the environment and biodiversity;
- Letter of Expression of Interest to join the Gaborone Declaration for Sustainability in Africa (GDSA) No. 2002/CAB/MIN/EDD/CNB/GA/04/2020, dated 01 February 2021.

However, it is now almost time, beyond the signing of agreements and conventions, to be much more pragmatic, moving from words to action. Putting this roadmap into practice requires the mobilisation of everyone at all levels. Several stages will have to be completed: raising awareness and setting up a favourable legislative framework, installing management structures, strengthening human, technical and financial capacities, collaborating with national (universities, research centres, etc.) and international research institutions, etc.

Thus, Environmental Economic Accounting is now an indispensable management tool to ensure the preservation and sustainability of the environment. As natural resources are affected by socio-economic development, they must be considered as economic goods and, consequently, integrated into an accounting system to facilitate good, efficient, and sustainable management.

There is therefore a need for the Government to take ownership of the roadmap, and for the involvement of Congolese legislators, technical and financial partners, and the private sector in order to proceed with the scaling up of the implementation stages, which will contribute to the effective implementation of the SEEA, which will undoubtedly lead to the sustainable development of the country.

Our Ministry, Environment and Sustainable Development, will have to work actively for the success of this process.

# Acronyms

BM	World Bank
CCBMT	Medium Term Budgetary Framework Committee
UNFCCC	United Nations Framework Convention on Climate Change
CCSCEE	Central Framework for the System of Environmental and Economic Accounting
CBD	Convention on Biological Diversity
CEE	Economic and Environmental Accounting
CN-REDD	National REDD Coordination
CPCM	Standing Committee on Macroeconomic Policy Framework
DDD	MEDD Sustainable Development Directorate
DEP	Directorate of Studies and Planning
DIAF	Forest Inventory and Management Department
DSCR	Growth and Poverty Reduction Strategy Paper
EIES	Environmental and Social Impact Assessment
FAO	Food and Agriculture Organization of the United Nations
FEM	Global Environment Facility
SWOT	Strengths, Weaknesses - Opportunities, Threats
FONAREDD	National REDD Fund
IMF	International Monetary Fund
GDSA	Gaborone Declaration on Sustainable Development in Africa
GIZ	Gesellschaft für Internationale Zusammenarbeit (Society for International Cooperation)
INS	National Institute of Statistics
IPBES	Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services
MEA	Millennium Ecosystem Assessment
MEDD	Ministry of Environment and Sustainable Development
OECD	Organisation for Economic Co-operation and Development
ODD	Sustainable Development Goals
MDG	Millennium Development Goals
NTFPS	Non-timber forest products
LIC	Low Income Countries
PNSD	National Strategic Development Plan
UNDP	United Nations Development Programme



PSPALCCC	Climate Change Policy, Strategy and Action Plan
PVD	Developing countries
PTF	Technical and Financial Partners
RDC	Democratic Republic of Congo
REDD +	Reducing Emissions from Deforestation and Forest Degradation
SEEA	System of Economic and Environmental Accounting
CSEE-CC	System of Economic and Environmental Accounting - Central Framework
SEEA-CEE	System of Environmental and Economic Accounting - Experimental Ecosystem Accounting
SEEA-EA	Environmental and Economic Accounting System - Applications and Extensions
SCN	System of National Accounts
SPANB	National Biodiversity Strategy and Action Plan
TEEB	The Economics of Ecosystems and Biodiversity
EU	European Union
WAVES	Wealth Accounting and Valuation of Ecosystem Services

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# Summary

This report presents the result of the diagnosis of the integration of the central framework of the System of Economic and Environmental Accounting (SEEA) in the Democratic Republic of Congo (DRC). In addition to the diagnosis identified as the main objective, the work also aimed to review the lessons learned from the experiences of implementing Economic and Environmental Accounting (EEA) and to formulate practical proposals for the DRC. The diagnostic was based on interviews and bibliographic research. The interviews were conducted during September and October 2020 with experts from some departments or directorates involved in national statistics and accounting and those of the DRC's Ministry of the Environment and Sustainable Development (MEDD). The bibliographical research consisted of consulting strategic plans and reports produced by the specialised services. The review of good practice lessons from other countries was based entirely on a literature search on search engines

The results show that the DRC has integrated the issues of sustainable exploitation of natural resources and nature conservation. The ratification of several international conventions (Convention on Biological Diversity, United Nations Framework Convention on Climate Change, the Kyoto Protocol, etc.) attests to this commitment. Nevertheless, EEA is not yet integrated into the National Accounts (NA). The latter is still based on the 1993 United Nations System of National Accounts (1993 SNA) format, whereas a 'new' SNA has been in force since 2008 (2008 SNA). The latter considers environmental assets and flows (physical and monetary) whereas the 1993 SNA does not. The interviews also indicated that the central framework of the SEEA is not (or is very little) known to the different departments of the MEDD and other specialised departments. In addition, it appears that the legislative framework is not favourable to the implementation of the SEEA in the DRC because the laws in force do not provide for the creation of accounts for environmental assets and services.

The review of other countries' experiences has identified the main challenges to the implementation of the EEA. Particularly for developing countries (DCs), these include: (i) political and institutional challenges, (ii) human, technical and financial capacity challenges, (iii) data availability challenges and (iv) cooperation challenges. The policy and institutional challenges refer to the ownership of the EEA and its institutionalisation, notably through a legal framework, as well as the designation of a clear leadership of an institution to foster the coordination and coherence of the different initiatives taken by the institutions in relation to natural capital management. Capacity challenges relate to the lack of human, infrastructural (and equipment) and financial resources to support the implementation of the EEA, while data availability challenges refer to the quality and quantity of data available on the stocks and flows of the different components of natural capital. Challenges to cooperation relate to the ability of developing countries to mobilise assistance from international partners to address capacity weaknesses and to ensure better coordination of this assistance for greater impact.

The DRC is no exception and faces all the challenges identified for developing countries. As a result, concrete proposals have been made to overcome the challenges and implement the EEC, including (i) institutionalisation of the EEC through awareness-raising activities among various stakeholders, including policy-makers and legislators, (ii) clear designation of a lead institution and the establishment of an EEC implementation structure, particularly a steering committee and a working group or executive committee (iii) seeking international assistance, particularly through the secretariat of the Gaborone Declaration on Sustainable Development in Africa (GDSA), (iv) building human, technical and financial capacity with the assistance of the technical and financial partner (TFP) to be identified, and (v) implementing the EWC through assistance for at least ten years. However, good upstream planning of activities and identification of priority natural capital components will be necessary to ensure success.

Regarding the creation of environmental accounts themselves, it is recommended that they be based on the existing system, with an improvement in the integration of environmental assets and services and their flows. Finally, the study shows good prospects

for the implementation of EEA in the DRC. However, further discussions with experts from countries with experience of EEC implementation, the GDSA Secretariat and various TFPs will help refine the suggestions. Elements of the roadmap for the implementation of the SEEA in DRC are proposed.

# Introduction: background and objectives

The System of Environmental and Economic Accounting 2012 (SEEA) Core Framework<sup>1</sup> was published in 2012 as a collaborative effort between several international institutions including the World Bank (WB), the International Monetary Fund (IMF), the United Nations, Organisation for Economic Co-operation, and Development (OECD), the Food and Agriculture Organization (FAO) and the European Union (EU) (SEEA, 2016)<sup>2</sup>. It is the first international statistical standard for economic and environmental accounting and its main purpose is to define a '*versatile conceptual framework for understanding the interactions between the economy and the environment and for describing stocks of environmental assets and their changes*' (SEEA, 2016)<sup>3</sup>.

This SEEA framework should ultimately enable governments to better integrate the contribution of natural assets into development plans and contribute to sustainable development. It describes both how to value natural capital based on physical or monetary flows and how to integrate it into national accounting.

States have committed to its use in creating environmental accounts to better manage natural capital. Unfortunately, since its adoption in 2012, the SEEA has been integrated or experimented with by only a few states with varying results on natural asset accounting (Pirmana et al., 2019<sup>4</sup>; Vitro et al., 2018<sup>5</sup>). In this context, eight years after its adoption, it seems important to draw good practice lessons from the experiences

of countries that have implemented the SEEA to guide the approach for countries that want to integrate the SEEA.

For the DRC there is very little information on the implementation of the SEEA. For this reason, it is difficult to understand the level of integration of natural assets in the national accounts and its use in decision-making. To do this, it is interesting to carry out a diagnosis to find out the level of integration of the SEEA in the country and to identify the various constraints.

To formulate realistic proposals for improvement, it is interesting to examine the experiences of other countries that have implemented the EWC around the world. In this way, it is possible to identify good practices and contextualise them to local realities.

In this context, the objectives of this study are to

- Examine the principles of global environmental economic accounting and their implications in countries where such accounting is applied.
- Conduct a diagnostic of the implementation of the SEEA in the DRC
- Carry out a study on examining the lessons of good practice from the experiences of ECE implementation

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<sup>1</sup> System of Economic and Environmental Accounting 2012

<sup>2</sup> System of Economic and Environmental Accounting 2016

<sup>3</sup> SEEA 2016 op cit

<sup>4</sup> Pirmana V, Alisjahbana AS, Hoekstra R and Tukker A. 2019. *Implementation Barriers for a System of Environmental-Economic Accounting in Developing Countries and Its Implications for Monitoring Sustainable Development Goals. Sustainability* 11, 6417. doi:10.3390/su11226417

<sup>5</sup> Virto LR, Weber, JL and Jeantil M. 2018. *Natural Capital Accounts and Public Policy Decisions: Findings From a Survey. Ecological Economics* 144: 244-259.

in other countries, particularly low-income and developing countries.

- To analyse the legislative gaps and make suggestions on how to fill them.
- Develop a roadmap for the integration of environmental economic accounting into national accounting in the DRC

The results obtained from the diagnosis and examination of the experiences of others will be compared with the realities of the DRC to contextualise them. The results will then be integrated into the overall process of integration or implementation of the

SEEA in the DRC. They will also be used to raise the awareness of national elected officials to solicit their involvement in the drafting and adoption of legislation to promote better accounting of natural capital.

In its structure, in addition to the introduction and the conclusion, this document presents successively the methodology that was adopted to carry out the work, the diagnosis on the implementation of the SEEA in the DRC, the challenges of the effective implementation of EEA, the examination of the lessons learned to remove the constraints and finally the contextualisation of the lessons learned from the experiences of others to implement EEA in the DRC.

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# The System of Environmental and Economic Accounting (SEEA): Brief overview and examples of applications for decision making

## 1. brief overview of the SEEA

The *SEEA* (United Nations, 2016<sup>6</sup>) is the first internationally recognised framework for environmental asset accounting. Published in 2012, the foundation document for the SEEA is the SEEA Central Framework (SEEA-CF). It is a general and standardised framework designed to facilitate the comparison of situations between different states (or regions, territories, etc.). It is applicable in all countries, regardless of the level of development and the nature of the components of nature concerned. Ultimately, the main objective of the SEEA-CC is to provide decision-makers with information on the flows of environmental assets to better guide choices and adopt the most appropriate policies to ensure sustainable development. Decisions are therefore made based on interactions between the stocks of natural assets and economic parameters.

The principles used in the SEEA are those of national accounting. The aim is to apply these principles to environmental assets to manage them better. In this way, in addition to physical flows, the SEEA allows environmental flows to be recorded on a monetary basis. This allows for easy comparison with economic data, particularly environmental expenditure.

In this context, the SEEA proposes the creation of several EWCs corresponding to the different resources. It proposes three main types of accounts: physical flow accounts, economic activity accounts and environmental asset accounts. The physical flow accounts concern environmental products that are used as inputs in economic activities, either directly or after

processing. They also cover the residues and by-products of their use. The accounts related to economic activities mainly concern allocations for the protection and sustainable management of the environment.

Environmental asset accounts provide information on the stocks of natural capital, both biotic resources (communities of living beings, e.g., trees in a forest, animals, etc.) and those of the physical environment (non-living, e.g., water, mineral resources, etc.), which have a value in the market. These accounts make it possible to quantify ecosystem services from a monetary point of view and to evaluate the fluctuation of their flows in time and space.

The SEEA-CC thus provides a framework for the development of EWCs and thus contributes to improved sustainable natural resource management and better integration of ecosystem services into development planning at different levels. However, it does not provide sufficient practical information on the implementation of EWCs. Therefore, a 'second volume' entitled 'Experimental Ecosystem Accounting (EES-EEA)' was produced by the United Nations Statistical Commission at its forty-fourth session in March 2013 in partnership with the United Nations Statistical Division, the European Environment Agency and the World Bank's WAVES programme (United Nations, 2014<sup>7</sup>). This one is therefore ecosystem-focused and was welcomed as an important step forward in the development of a statistical framework for

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<sup>6</sup> United Nations. 2016. *System of Environmental and Economic Accounts Core Framework 2012*. United Nations, New York. 377p.

<sup>7</sup> United Nations. 2014. *System of Environmental Economic Accounting 2012 - Experimental Ecosystem Accounting*. United Nations, New York, 177p.



ecosystem accounting and will likely be adopted at the March 2021 session.

The SEEA-CEE is thus a measurement framework for integrating biophysical data from ecosystems and monitoring changes in relation to economic and human activities in general. The SEEA-CEE is thus a complement to the SEEA-CC and provides practical applications of accounting principles and concepts to ecosystem services to ensure their sustainable provision (and use) and human well-being. The development of ecosystem services accounts is based on information from high quality ecological, statistical, and economic data. The SEEA-EEA presents in detail

As in the SEEA-CC, the SEEA-CEE offers accounts in physical or monetary flows. The main difference is that the SEEA-CC is based on individual production aspects of a resource (e.g.,

wood, fish, etc.) whereas the SEEA-CEE considers the ecosystem as a whole.

For this reason, the development and implementation of a SEEA requires the concomitant use of the SEEA-CC and the SEEA-CEE to have both information at the individual resource and ecosystem level as a whole, but also to have information on mineral and energy resources.

More recently, the "SEEA-Applications and Extensions (SEEA-AE)" has been produced (United Nations, 2017<sup>8</sup>). This provides in some detail examples of how the principles and concepts developed in the SEEA-CC and SEEA-CEE can be applied to the development of EWCs. It shows users how CEE data can be applied in decision support, policy review and formulation, analysis, and research.

## 2 Examples of SEEA applications and use in decision making

In both developed and developing countries, different types of environmental economic accounts have been created and are used for different purposes. They are used by policy makers, agencies involved in development sectors as well as by researchers in scientific projects and analyses. DCs have been developing environmental economic accounts for a longer period and in greater numbers than developing countries. Environmental economic accounts are also better used in decision-making to guide strategies to ensure sustainable development (Virto et al., 2018<sup>9</sup>). In this context, better examples of application are documented for DPs. For reasons of synthesis, examples of applications in Australia are presented in the following paragraphs, as the country (together with Germany and others) is counted among the best models in the world (World Bank, 2013<sup>10</sup>).

Australia is home to the Great Barrier Reef, a World Heritage Site with a high biodiversity value: 1500 species of fish, 133 varieties of sharks and rays as well as 30 species of whales and dolphins.

The annual contribution of tourism developed through the Great Barrier Reef is estimated to be more than A\$5 billion to the national economy for an estimated 17.8 million tourists in 2015-2016 and 46,000 jobs (ABS, 2017<sup>11</sup>). Unfortunately, it is subject to a decline in biodiversity that is also affecting the production of ecosystem services throughout its catchment. This constitutes both a major environmental risk and significant economic losses for the country.

To address this situation and ensure sustainable management, the *Australian Statistics Bureau* (ABS) decided to develop satellite

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<sup>8</sup> United Nations, 2017. System of Environmental and Economic Accounting - Applications and Extensions. United Nations, New York. 99p

<sup>9</sup> Virto et al, 2018. Op cit.

<sup>10</sup> World Bank, 2013. Users and Uses of Environmental Accounts: A Review of Select Developed Countries. World Bank WAVES, Washington D.C. 110p.

<sup>11</sup> Australian Bureau of Statistics. 2017. *Experimental Environmental-Economic Accounts for the Great Barrier Reef*. <https://www.abs.gov.au/statistics/environment/environmental-management/experimental-environmental-economic-accounts-great-barrier-reef/latest-release#marine-extent-and-condition>

environmental economic accounts using the SEEA-CEE. They created *ABS's Great Barrier Reef regional ecosystem accounts* (ABS, 2017<sup>12</sup>). Taking the example of marine ecosystems, the assessment phase found that the main drivers of degradation of the Great Barrier Reef were the increased occurrence of cyclones and extreme events, and pollution. The assessment also found links between land-use changes in terrestrial ecosystems and degradation of marine ecosystems, in this case pollution. The development of environmental economic accounts has also allowed ecosystem services to be assessed and their decline quantified in both physical and monetary units.

The EWCs created for the Great Barrier Reef also provide an integrated view of the impacts and linkages between different components of the environment and the economy. For example, further deterioration of the reef would have consequences for tourism, which in turn would negatively impact on the region's businesses, employment, and agricultural production.

This could affect land use and soil quality. On this basis, the ERCs that have been established are currently enabling the Australian Government, the Queensland Provincial Government, the site manager, and others to better target intervention priorities and allocate funding in an optimal way (ABS, 2017<sup>13</sup>).

Following the example of Australia, many industrialised countries have developed EWCs to provide integrated information to decision-makers at different levels of authority to monitor natural resources and ensure a future for generations to come. These accounts are used by national and regional policy makers, protected area managers and the scientific community.

The forest accounts developed in Guatemala are one of the best examples of the application of the SEEA in developing countries. Guatemala is a country highly dependent on its forest resources, especially for timber production. Between 1950 and 2010, it lost about 47% of its forests while an estimated 96% of timber removals were irregular and unaccounted for (World Bank, 2016<sup>14</sup>). In 2009 the country published its forest and ecosystem account after three years of work. The data obtained from these accounts have made it possible to relate forest losses and the production of ecosystem services (including the provision of energy for the population) to the economy. For example, the forest accounts have shown that forests contribute 2.5% to GDP, whereas this was previously underestimated at 1% (World Bank, 2016<sup>15</sup>). These relationships were modelled, and forecasts were made based on the flows that were recorded by the CEE. On this basis, the Government of Guatemala has developed new public/private partnership strategies for natural resource management, particularly for wood energy, water, and land.

Through these accounts, the Government has identified problem areas due to high levels of degradation and has been able to put in place plans for restoration/rehabilitation and monitoring of timber from these forests (Vardon and Bass, 2019<sup>16</sup>; Castañeda et al., 2019<sup>17</sup>).

Ultimately, the projects resulting from the strategies put in place will not only ensure a sustainable supply of forest products and other ecosystem services but will also generate 20,000

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<sup>12</sup> ABS 2017. Op cit

<sup>13</sup> ABS 2017. Op cit

<sup>14</sup> World Bank, 2016. Natural Capital Accounting: Forests. World Bank WAVES, Washington D.C. 4p.

<sup>15</sup> World Bank 2016. Op cit

<sup>16</sup> Vardon M. and Bass S. (Eds).2020. *Natural Capital Accounting for Better Policy Decisions: Measuring and Valuing Natural Capital to Improve Landscape Management and Governance. Proceedings and Highlights of the 4th Forum on Natural Capital Accounting for Better Policy Decisions*. World Bank WAVES, Washington D.C. 138p.

<sup>17</sup> Castañeda JP, Carrera J, Rexhepi D. 2019. *Towards Natural Capital Accounting in Guatemala: Synthesis Report*. World Bank, Washington, DC. License: Creative Commons Attribution CC BY 3.0 IGO. 23p.

direct jobs and 60,000 indirect jobs (World Bank, 2014<sup>18</sup>).

In Africa, interesting examples are reported from countries assisted by the WAVES initiative. The example of Zambia is presented here considering its proximity to the DRC and its mining context. According to the country's WAVES report published in June 2020 (World Bank, 2020<sup>19</sup>), Zambia has been engaged in a process of developing natural capital accounts since 2016. It has already developed accounts for forest, water, and land, as is the case for most African countries, using the principles included in the SEEA. Zambia's motivation was that despite the existence of a structure to monitor forests and other natural resources, losses of forest cover and associated ecosystem services were increasing at a worrying rate and the relationship between the economy and natural resources was not clearly described.

The process of establishing forest accounts has highlighted the high dependence of the Zambian population on forest resources: 80% of Zambian households meet their energy needs with charcoal. Contradictorily, only 3% of the wood harvested is recorded by the forestry services.

The use of forestry accounts has shown that Zambia's forests can make a significant contribution to people's well-being. For example, the forestry accounts have shown that the sale of honey and beeswax earned USD 10.7 million and USD 2.6 million respectively between 2010

and 2015. Analysis of the data collected by the forest accounts showed that these amounts could be increased tenfold. On this basis, a new strategy for honey and beeswax production has been developed. The forest accounts in Zambia also made it possible to set up a strategy for the certification of Zambian wood, especially for precious species.

The forest accounts will also be used in Zambia for the identification of the most degraded forest areas in need of restoration. This information is also used for urban development plans. Ultimately, it will enable decision-makers to make optimal resource allocations (World Bank, 2020<sup>20</sup>).

The Australian and Zambian examples demonstrate that even countries with significant mineral resources depend on ecosystems for the well-being of their populations. The EWCs that have been established there have helped to establish these relationships between renewable natural resources and the economy. As in Guatemala, ecosystem accounts have revealed new opportunities for development (creation of new industries, job creation, new taxation, revision of the legal framework, etc.) and have fostered the implementation of strategies based on good estimates of assets and flows. In addition, the process of creating EWCs has made it possible to initiate a real dialogue between the various stakeholders, thus enabling different sections of the population to express their points of view on the realities of society.

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<sup>18</sup> World Bank, 2014. *Natural Capital Accounting in Action: Guatemala's Forest Accounts Link Forest Resources with the Economy*. World Bank WAVES, Washington D.C. 2p.

<sup>19</sup> World Bank. 2020. *Zambia's Natural Capital Accounts: Informing Key Policy Priorities*. World Bank WAVES, Washington D.C. 36p

<sup>20</sup> World Bank 2020. Op cit

# Methodology

The diagnosis of the inclusion of Economic and Environmental Accounting (EEA) in the Democratic Republic of Congo (DRC) consists of an ex-ante evaluation of the integration of EEA into the national accounts. The aim is to understand the interactions that can exist between the economic and environmental spheres, and to move towards low-carbon economic development. To do this, the diagnosis was based on private interviews and a literature review.

The interviews were organised with experts from the specialised departments of the Ministry of the Environment and Sustainable Development (MEDD), the Ministry in charge of Planning and the Ministry in charge of the Budget and the National Institute of Statistics (INS). At the MEDD, interviews were conducted mainly with the Directorate of Studies and Planning (DEP) and secondarily with the Directorate of Sustainable Development (DDD) and the Directorate of Inventories and Forestry Development (DIAF). At the Ministry in charge of Planning, the interview was conducted with experts from the Permanent Committee for Macroeconomic Framework (CPCM) and the Macroeconomics Directorate, while at the Ministry in charge of the Budget, it was the Medium-Term Budgetary Framework Committee (CCBMT). Experts from the GIZ Biodiversity and Sustainable Forest Management project (BGF/GIZ) were also contacted considering the involvement of this technical and financial partner (TFP) in supporting the DRC in the sustainable management of ecosystems.

The diagnosis was completed by consulting the following documents:

- The National Strategic Development Plan 2019-2023 (PNSD 2019)
- The Second-Generation Growth and Poverty Reduction Strategy Paper (GPRSP 2)
- The National REDD+ Framework Strategy

- The Central Framework of the System of Economic, Environmental and Social Accounting
- The Macroeconomic Framework Guide
- NSI Statistical Yearbook 2015
- The Democratic Republic of Congo's sixth report to the Convention on Biological Diversity
- The National Biodiversity Strategy and Action Plan 2016-2020 (NBSAP) document
- The Climate Change Policy, Strategy and Action Plan 2020-2024 (CCPSAP)

In addition to documents published by government entities, other important documents were consulted, mainly from studies carried out by international institutions such as the World Bank.

The review of good practice lessons was based mainly on a literature search. This consisted of a consultation of bibliographic sources available on the various Internet search engines as well as resources obtained from specialised entities. The bibliographic resources consulted were drawn from the grey literature: scientific articles, doctoral theses and university dissertations and study or mission reports. Articles and study reports from experience journals were consulted. Particular attention was paid to articles and reports dealing with the integration of the EEC in developing countries, especially in Africa.

Interesting references were found in publications, reports and policy briefs published in the framework of international initiatives for the integration of SEEA or simply natural capital accounting in particular countries. These include publications under the '*Wealth Accounting and Valuation of Ecosystem Services (WAVES)*', '*The Economics of Ecosystems and Biodiversity (TEEB)*' and initiatives funded by the World Bank or specialised UN agencies. These resources have

provided valuable information on the challenges of implementing the SEEA in different countries and practical recommendations.

Attempts to consult key persons (officers of specialised departments involved in economic and environmental accounting, environmental statistical offices, etc.) have been made and are

ongoing at both national and international levels. Unfortunately, the contacts made did not lead to formal interviews.

The information obtained was then integrated and practical recommendations for the implementation of the SEEA were formulated.

# Diagnosis of the constraints to the consideration of the SEEA in the DRC

## 1. consideration of the environment and natural capital in development

Like many countries, the DRC is a signatory to several conventions whose interest is the preservation of the environment and sustainable development. For example, the country has been a signatory to the Convention on Genetic Diversity (CBD) since 1995, the United Nations Framework Convention on Climate Change (UNFCCC) since 1997, the Kyoto Protocol since 2005, the Paris Agreement since 2017, etc.). Focal points for these different conventions are identified in the country (generally housed within the specialised offices of the MEDD) and produce reports. For example, the sixth CBD national report was approved in 2019. The National Biodiversity Strategy and Plan 2016-2020 (NBSAP) was validated and submitted in October 2016, while the new Climate Change Policy, Strategy and Action Plan 2020-2024 (CCSP) was adopted in February 2020.

In line with the above-mentioned agreements, the DRC was committed to reducing its emissions by 17% compared to projected emissions of at least 430 Mt CO<sub>2</sub> in 2030. To achieve this, the DRC has succeeded, under the leadership of the Ministry of Environment and Sustainable Development (MEDD) via the National REDD Coordination (CN-REDD), in (i) develop its National REDD Framework Strategy with an investment plan estimated at US\$1.1 billion, (ii) develop its National Forest Monitoring System, (iii) define a forest reference level, (iv) validate social and environmental safeguards.

The ongoing implementation of the REDD+ investment plan, mainly thanks to the capitalisation of the National REDD Fund (FONAREDD) through the CAFI Fund, is a further step that the DRC has taken towards achieving the commitments made by this country.

The DRC has integrated environmental and biodiversity issues into its development plans and programmes. Indeed, it has successively integrated the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs). The contribution of natural capital, and in particular that of ecosystems, is taken up as central to the revival of economic growth and the improvement of people's well-being in the various development plans. Thus, the DRC has already developed several versions of the National Strategic Development Plan (NSDP) and two versions of the Growth and Poverty Reduction Strategy Paper (GPRSP).

In the National Strategic Development Plan 2019-2023 (Government of the DRC, 2019<sup>21</sup>), the third pillar (devoted to consolidating economic growth, diversification, and transformation of the economy) clearly indicates the important role of natural capital in diversifying the economy, which is mainly based on the extraction of mineral resources. This is particularly the case for the sustainable exploitation of the 80,000 hectares of arable land and the important hydrographic network for competitive agriculture capable of ensuring food security, the application of legal texts to ensure the sustainable exploitation of forests, protected areas, fisheries resources and the fight against deforestation and the degradation of its ecosystems. The PNSD also focuses on reducing the impact of mining and hydrocarbons on the environment in general, and forest ecosystems in particular. For all these resources, the recommendations are geared towards the creation of sustainable and inclusive value chains. Pillar E of the PNSD is entirely devoted to the issue of sustainable development in relation to climate change. The DRC's vision in this context is to reduce greenhouse gas emissions

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<sup>21</sup> Government of DRC, 2019. *Sixth report of the Democratic Republic of Congo to the Convention on Biological Diversity*. Ministry of Environment and Sustainable Development, 414p.

by 17% by 2030. In the same pillar, one can also understand that the country's vision is to reconcile socio-economic development with nature and biodiversity conservation.

The Growth and Poverty Reduction Strategy Paper (DSCR P 2<sup>22</sup>) also emphasises the important role of natural capital, and biodiversity in particular, in improving the living conditions of the Congolese people and their income. In line with the PNSD, the recommendation on economic diversification, the DSCR P emphasises the sustainable use of arable land for agriculture, forests and fisheries resources.

The National Biodiversity Strategy and Plan 2016-2020 (NBSAP) document has clearly highlighted the importance of the different components of biodiversity and ecosystem services in the national economy and in development strategies. The NBSAP thus recommends the integration of biodiversity and ecosystem services in the different sectors of activity in view of the threats identified.

In addition, an arsenal of legal and regulatory texts exists for different sectors of the DRC's economic activity in which biodiversity and other natural assets are protected. These include:

- Law n°18/001 modifying and completing Law n° 007/2002 of 11 July 2002 on the Mining Code,

- Law No. 14/003 of 11 February 2014 on nature conservation,
- Law n°11/009 of 09 July 2011 on the fundamental principles of environmental protection
- Loin° 011/2002 of 29 August 2002 on the forestry code,

The above shows that the issue of natural capital, biodiversity, and ecosystems, is sufficiently introduced in the different structures of the DRC. It is also considered, at least theoretically, in development planning and the various economic activities. Moreover, the biological components of natural capital are seen as opportunities to ensure economic growth and improve the well-being of the population. Conservation in the strict sense, i.e., preventing any exploitation, is reserved for one category of protected area. It often gives way to sustainable exploitation, which favours the use of resources (forests, water, arable land, etc.) to generate income and support the country's development in the context of diversification.

Better management of these resources requires the implementation of a sustainable exploitation plan, i.e., one that respects natural renewal cycles to guarantee a future for future generations. In this context, the implementation of an 'accounting' system for flows (incoming and outgoing) and the health of ecosystems is a major asset.

## 2. implementation of the SEEA in the DRC: state of play

Like many other countries that have integrated the MDGs and the SDGs into their development plans and programmes, the DRC has not internalised them in the National Accounts. Indeed, national programming in the DRC remains aligned with the 1993 United Nations System of National Accounts (1993 SNA), whereas the 2008 System of National Accounts (2008 SNA) is currently in force at the United Nations level. The 1993 SNA made substantial

improvements over the previous system (SNA 68), by allocating all the results of the industry and institutional sector accounts, to adapt the national accounts to the requirements of economic analysis and to the rapid and profound changes in the economic and financial environment<sup>23</sup>.

The 2008 SNA has substantial advantages over the 1993 SNA. Firstly, it presents in a condensed

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<sup>22</sup> Government of DRC, 2011. *Growth and Poverty Reduction Strategy Paper, Second Generation: 2011-2015 (GPRSP 2). Volume 1. Ministry of Planning DRC*, 114p.

<sup>23</sup> NSI (2013), National Accounts SNA 93 version: summary of economic activity from 2000 to 2009.



manner a set of detailed information on the functioning of an economy, organised according to economic principles, irrespective of the industrial structure or the degree of economic development of a country. The aim is to obtain a comprehensive and detailed picture of the complex economic activities that take place within an economy and of the interactions between different economic agents and groups of agents that take place on and off the markets<sup>24</sup>. But above all, as far as the subject of this work is concerned, the 2008 SNA has the advantage of considering environmental aspects, particularly in terms of the satellite account of environmental accounting in the analysis of national accounts. This means that the current version of the UN SNA incorporates substantial innovations in the interaction between the economy and the environment in an appreciable way.

*The System of Environmental and Economic Accounts Core Framework, 2012 (SEEA Core Framework), which was adopted as an international standard by the Statistical Commission at its forty-third session in March 2012, is the first international statistical standard for environmental and economic accounting. The SEEA Core Framework is a multi-purpose conceptual framework for understanding the interactions between the economy and the environment, and for describing stocks of environmental assets and their changes. It places environmental statistics and their relationship with the economy at the heart of official statistics<sup>25</sup>.*

Table 1 below presents a comparative summary of the situation of the accounts as kept in the DRC and the proposals established in the SEEA central framework. It is easy to see that environmental accounts are not covered in the

accounts as currently kept in the DRC but that the framework proposed by the SEEA central framework is. For example, in the current DRC system there are no environmental asset accounts whereas there are in the SEEA framework. Similarly, only monetary flows are considered in the current NC, environmental flows are not considered, whereas both types of flows are considered in the SEEA. Finally, it can also be seen that resource depletion is considered in the SEEA.

It should be noted that, although still referring to the 1993 SNA, work on migrating to the latest generation of the United Nations System of National Accounts (2008 SNA) is almost complete in the DRC. The related publication will take place in the near future. All other things being equal, considering the average transition time between the different versions of the SNA and the profile of Congolese expertise dedicated to statistical studies and national accounts<sup>26</sup>, the use of the 2008 SNA by the DRC nevertheless suggests that the path towards integrating the principles of the 2012 System of Economic and Environmental Accounts (SEEA) Core Framework into its national accounts is likely to take more time.

This is all the more true when one realises that the SEEA CF 2012, and even less so the SEEA-EEA, is not known to the specialised branches of the MEDD in charge of economic issues and inventories (Ben Mukuna, comm. Pers), namely: the Directorate of Studies and Planning, the Directorate of Inventories and Forestry Development, the Directorate of Sustainable Development, the Directorate of Horticulture and Reforestation, the Administrative and Financial Directorate, the Directorate of Forestry Management, the Directorate of Water Resources and the Directorate of Sanitation.

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<sup>24</sup> System of National Accounts 2008

<sup>25</sup> United Nations (2016), System of Environmental and Economic Accounts Core Framework 2012

<sup>26</sup> The DRC's Commission des Etudes Statistiques et Comptes Nationaux (CESCN) does not include the Ministry of the Environment and Sustainable Development (MEDD) in its current composition, even though it is expected to be the supplier of data for the environmental accounts.

Designation	CN in DRC	Central framework of the SEEA
The accounts and tables used	1. TRE: Tables of resources and uses or TES: table of inputs and outputs;	1. TRE: Tables of resources and uses or TES: table of inputs and outputs;
	2. The sequence of economic accounts or the EEO: overall economic table;	2. The sequence of economic accounts or the EEO: overall economic table;
		3. Asset accounts for environmental assets ;
		4. Functional accounts.
Supply and use tables or input and output tables	They do not consider environmental flows	They consider environmental flows
Type of flows	Money flows	Physical and monetary flows
Scope of analysis	The national economy	The national economy and the environment
Intra-company flows, i.e., the production and use of goods and services on own account within companies	The recording of these types of flows is limited to the recording of the production of goods for own final use (e.g., own-account capital formation) and internal enterprise flows related to ancillary activities.	They are registered
<b>Institutional units and sectors</b>		
Aggregates	1. Gross domestic product at market prices	1. Gross domestic product at market prices adjusted for depletion
	2. Gross National Income	2. Depletion-adjusted gross national income
	3. Gross national disposable income	3. Depletion-adjusted gross national disposable income
Accounting rules	Same as	Same as
The sequence of economic accounts	Exhaustion is not considered	Exhaustion is considered

Table 1. Comparative summary between the situation of the accounts as kept in the DRC and the proposals established in the SEEA-CC

However, the ministries, departments and agencies of the DRC's executive branch are involved in various initiatives that can help acquire data useful for the implementation of a SEEA. These are often initiatives whose objective

is to contribute to sustainable resource management, often funded by technical and financial partners. Two examples can illustrate these efforts: the environmental statistics project and the capacity building of MEDD staff

on integrating Ecosystem Services into development planning. The environmental statistics project is managed at the level of the DEP (EDD General Secretariat). The objective is to produce environmental and forestry statistical data through the development of an IT tool to facilitate their management. The project is still in a preliminary phase of construction of the tool and the information collection forms. With regard to the integration of ecosystem services into development planning, a series of training sessions for experts from the specialised branches of the MEDD on the approach to be followed, mainly based on the ISE approach developed by the VaLues project ([www.aboutvalues.org](http://www.aboutvalues.org)). These trainings are financed by GIZ through its Biodiversity and Sustainable Forest Management programme (BGF).

It can therefore be seen that the CEE is not yet implemented in the DRC and that the central framework of the SEEA is not or not sufficiently

known by the competent services. The lack of a clear and rigorous accounting tool for natural assets, and in particular for renewable natural resources. It is therefore important to identify the constraints to this implementation. To do this, the DRC can draw on the experience of countries that have implemented or tested the SEEA.

Furthermore, the current legislative framework does not favour the implementation of the SEEA in the DRC. Indeed, the diagnostic survey has shown that the laws in force do not contain any provisions for the integration of EWCs. Table 1 above is a perfect illustration of this, as it clearly shows that the accounts of environmental assets and services are not provided for in the accounting system in force in the DRC. This is a major constraint in the development of the SEEA implementation process. The major cause of this situation is also a lack of awareness of the existence of the SEEA-CC and its accompanying documents.

# Challenges for the effective implementation of the EWC

## 1. general challenges

Numerous evaluations on the effective implementation of the SEEA in different countries are available and report feedback since before 2012 (Hetch et al., 2000<sup>27</sup>; Eden, 2013<sup>28</sup>; Milligan et al., 2014<sup>29</sup>; Virto et al., 2018<sup>30</sup>). These have highlighted the main challenges faced by countries that have engaged in SEEA development. These challenges are best grouped at the global level into three broad categories (Milligan et al. 2014<sup>31</sup>):

- Political involvement and awareness raising
- Enabling the adoption of laws, policies, and the creation of institutions
- Technical knowledge and skills

With regard to political involvement and awareness, specific challenges relate to (i) low understanding of the characteristics, values and benefits of natural capital within governments, (ii) lack of public awareness and debate on the characteristics, values and benefits of natural capital, and (iii) lack of clear internal political justification for natural capital accounting. This is a group of challenges that strongly influence the initiation and planning of CEE implementation at the state level.

The challenge related to the adoption of laws, policies and institutions, the specific challenges are i) lack of vertical coordination between national and sub-national levels of government, ii) lack of horizontal and cross-sectoral coordination between different government agencies, iii) lack of clear allocation of responsibilities, iv) lack of transparency, information sharing and stakeholder engagement, v) legal and regulatory gaps and barriers, and vi) lack of a strategic policy and clear objectives for natural capital accounting

Finally, specific challenges related to technical knowledge and capacity include i) significant gaps in national databases, ii) lack of connection or harmonisation between national databases, iii) lack of financial resources to undertake natural capital accounting, iv) lack of standards and methodologies, v) scientific and economic complexity of natural capital accounting and lack of training and technical expertise.

More recent reviews of the use of natural capital accounts in several countries that have created them have identified the same types of challenges or barriers (Virto et al., 2018<sup>32</sup>; Pirmana et al., 2019<sup>33</sup>). Thus, these barriers are best grouped into six categories: i) structural, ii) policy, iii) institutional, iv) design, v) data availability and vi) lack of cooperation.

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<sup>27</sup> Hecht, Joy E., 2000. *Lessons Learned from Environmental Accounting: Findings from Nine Case Studies*. Washington, D.C.: IUCN - The World Conservation Union, vi + 42 pp.

<sup>28</sup> Eden B. 2013. *Reconciling the theory and practice in environmental accounting. Statistics Netherlands*. The Hague. 183p.

<sup>29</sup> Milligan B, Terama E, Jiménez-Aybar R, Ekins P. June 2014. *GLOBE Natural Capital Accounting Study, 2nd Edition: Legal and policy developments in twenty-one countries*. (GLOBE International and University College London, London). 144p.

<sup>30</sup> Virto LR, Weber, JL and Jeantil M. 2018. *Natural Capital Accounts and Public Policy Decisions: Findings From a Survey*. *Ecological Economics* 144: 244-259.

<sup>31</sup> Milligan et al 2014. Op cit

<sup>32</sup> Virto et al, 2018. Op cit.

<sup>33</sup> Pirmana et al, 2019. Op cit

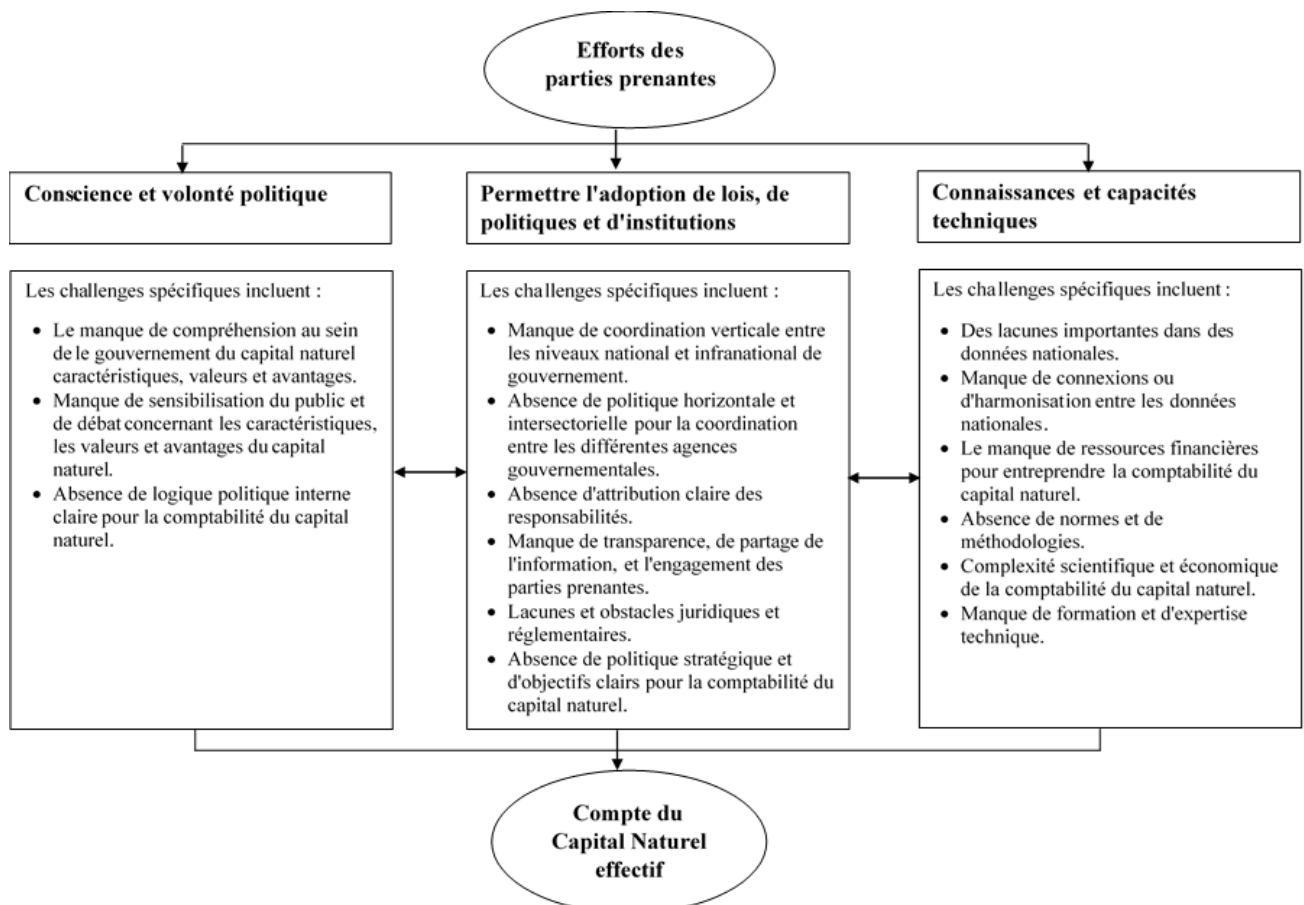


Figure 1: Main challenges to the implementation of CEE (from Milligan et al., 2014).

**The structural barriers** are mainly related to the level of development of a state to put in place a framework capable of undertaking natural capital accounts. This is mainly due to a weak capacity to create EWCs in a sustainable way because of a lack of resources (financial and infrastructural, etc.) and reliable data.

**Political obstacles** are caused by political interests, relations with other states and lobbying by private groups. For example, political decisions may support the development of a SEEA because of public sensitivity to environmental issues (electoral needs) or to meet criteria for international funding. On the contrary, they may decide not to develop one for the same reasons, but also for reasons related to the demands of important private interest groups (e.g., mining, forestry, farming corporations, etc.).

**Institutional barriers** are caused by a lack of collaboration between different institutions that may be involved in the EEA. For example, the Ministry of Environment must provide data to

the National Statistical Service or to the National Accounts. The latter two institutions may also find themselves in difficulty if they do not collaborate on how to present environmental data and how to integrate them into the EEA. At this institutional level there is also a problem of conflicting competences and leadership over the management of data relevant to the EEA. For example, ministries in charge of the environment and ministries in charge of finance or planning often claim leadership over the EWC. This lack of clear leadership is often at the root of the under-use of EEA data.

**The obstacles related to the design of the accounts** are due to the difficulty of using the chart of accounts as proposed by the SEEA Central Framework in a uniform manner in the different States. Indeed, they are not always easy to implement given the characteristics of the different accounts described. For example, some States may choose to limit themselves to physical flows for different Ecosystem Services (or natural capital in general) and not necessarily arrive at monetary valuations. Where monetary

valuations are carried out, there is also not always uniformity in the methodology applied. Furthermore, countries that have natural capital accounts need to update them regularly so as not to underestimate their environmental impacts. They should also assess annual inflows and outflows.

**Barriers related to data availability** concern both quality and quantity. Quantification (physical) data is the foundation of EWC. However, the data used in EWC are often data that have been generated for other purposes (specific biodiversity studies, mineral or water resources assessment, etc.). They are therefore secondary data that need to be properly processed for their optimal integration into the SEEA. Very few countries use primary data for the EEC (e.g., Canada).

**Obstacles to cooperation** concern above all the establishment of a framework for standardising the accounts of natural assets. This is all the more difficult as States often have no interest in moving in this direction, except for transboundary resources (water, national parks, etc.). This lack of cooperation also concerns institutions within a country, as mentioned above. There is therefore a need for more collaboration between states and between institutions within states.

Of the above obstacles, two major obstacles to the implementation and use of the EWC were identified at all income levels: the lack of political support from key people (political obstacle) and the conflict of leadership over the institutions that should implement the EWC (institutional obstacle).

## 2. in low-income countries (LICs) or developing countries (DCs)

The different assessments have shown that from a theoretical point of view there is a high integration of natural capital in country strategies and a relatively high number of commitments to include it in EEA. Nevertheless, it turns out that very few countries have created natural capital accounts and used environmental economic accounts in policy decisions (Virto et al., 2018<sup>34</sup>). However, the challenges seem to be greater in developing countries (Edens, 2013<sup>35</sup>; Virto et al., 2018<sup>36</sup>; Pirmana et al., 2019<sup>37</sup>).

Apart from political will being identified as the major challenge, studies have highlighted the level of development as the main obstacle to the implementation of CEE in developing countries (Pirmana et al., 2019<sup>38</sup>; Virto et al., 2018<sup>39</sup>). This low level of capacity development has led practitioners to list the following main challenges to CEE implementation: availability (or lack) of data in quantity and quality, lack of coordination between institutions, technical capacity development, availability of human and financial resources, and low user interest (Figure 2).

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<sup>34</sup> Virto et al, 2018. Op cit.

<sup>35</sup> Edens, 2013. Op cit

<sup>36</sup> Virto et al, 2018. Op cit.

<sup>37</sup> Pirmana et al, 2019. Op cit

<sup>38</sup> Pirmana et al, 2019. Op cit

<sup>39</sup> Virto et al, 2018 ·Op cit

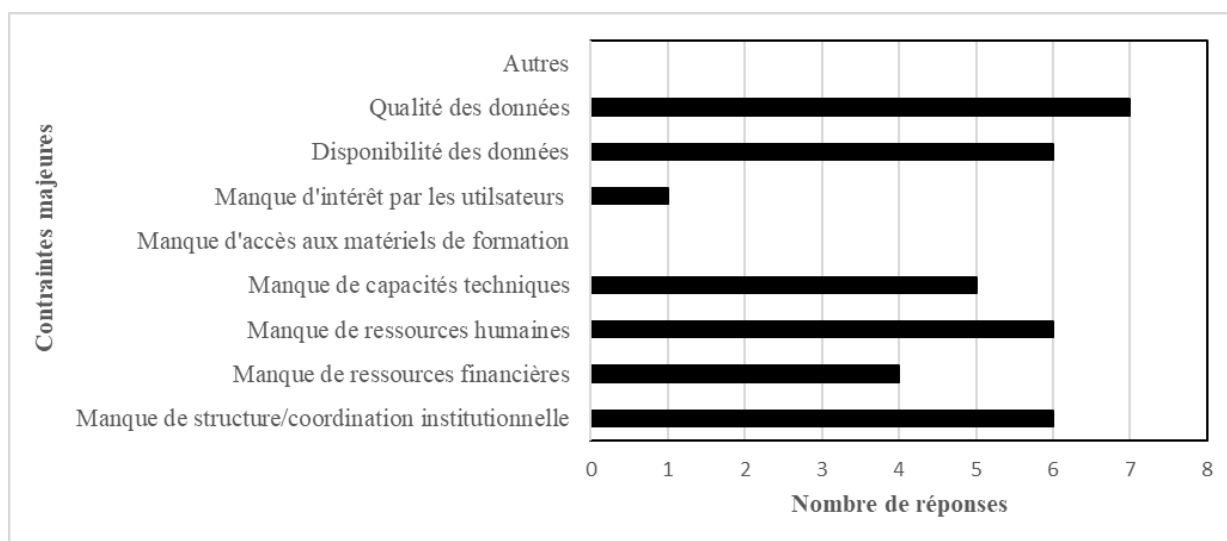


Figure 2. Main challenges to the implementation of CEE in developing countries (from Pirmana et al. 2019)

Ultimately for developing countries, the lack of political will is a major obstacle that significantly slows down the creation or use of natural capital accounts, and more specifically that of ecosystems. Political obstacles in developing countries also include the absence or slow adoption of legislation to support the creation and implementation of ECAs. There are several reasons for the low political will in developing countries, including

- Due to a lack or poor understanding of the extent of natural capital, in most developing countries, natural capital accounts are mainly concerned with non-renewable resources (minerals and hydrocarbons) and certain production services associated with ecosystems (timber and certain NTFPs). This is a major difficulty because it prevents an understanding of the contribution of ecosystem services to development.
- A lack of ownership of the findings of international agreements and data generated through international aid.
- Lack of awareness among policy makers and legislators at different levels of the importance of EEA as a tool for sustainable development and management of natural capital, in particular ecosystem services. It has been shown that local officials (regions,

territories, municipalities, etc.) are often not aware of the existence of environmental accounts.

This lack of political will affects all the other challenges listed above.

The inadequate level of development of the states constitutes an important structural obstacle which is linked to a low capacity to develop adequate infrastructures and to finance or properly equip institutions or activities useful for the implementation of the EWCs (research for data acquisition, statistical tools, training, etc.).

The institutional obstacles are often due to insufficient stakeholder commitment and the lack of clear leadership and coordination between the country's institutions. This leadership war is accentuated by the precariousness in which these institutions evolve, and they compete to capture as much as possible of the funds that come from tax collection or international aid through programmes or projects. The most involved institutions are the ministries in charge of the environment, finance, economy, planning, national statistics, and national accounts.

The difficulty of linking natural capital accounts to policy decisions (or other users), and the lack of a "general framework" combining natural capital accounts and statistics are the most

relevant design challenges for developing countries. This challenge also includes the difficulties of converting flows of some components of natural capital into monetary flows or designing the model account as suggested in the SEEA-CC 2012.

The challenges of data availability are mainly due to a lack of quality data in the necessary quantity. This is the result of low human, financial and technical resource capacities. For example, while specialists in biological or environmental sciences can be found, it is not easy to find specialists in environmental economics. As for financial resources, developing countries are often unable to finance priority actions for natural resource management and must resort to international

aid. The problem here is that these international institutions may change their funding priorities because projects often have a short life span (2-5 years).

Where such international assistance is effective, there are often problems of coordination to ensure coherence for effective implementation of EWCs. This constitutes a challenge to cooperation. This challenge is reinforced by the lack of clear leadership at the institutional level, which often leads to a dispersal of aid across several agencies or government departments. In this context, the direction of technical and financial assistance in a given sector will often depend on the weight of the institutions' leadership (politics, lobbying, etc.).



# Lessons learned to overcome or circumvent challenges to EWC implementation in developing countries

Primarily, the various reports on lessons learned from projects in different countries indicate that there is no single best approach or practice for implementing CEE. Approaches need to be contextualised to country realities (Virto et al., 2018<sup>40</sup>). Nevertheless, examination of the results,

or rather the difficulties in the process of implementing CEE in developing countries, point to elements that need to be considered in order to overcome or circumvent the challenges that have been identified.

## 1 Political and institutional challenges: institutionalisation of the EEC

As these two challenges are identified as the most important for the development of environmental economic accounts, it is crucial that policy makers at different levels take ownership of the environmental economic accounts development and implementation project. While commitments at the international level seem to indicate a high level of interest in the SEEA, the effectiveness of implementation in developing countries is very limited and very few have developed natural capital accounts, specifically for ecosystem services. The challenge here is to institutionalise the EEC as a tool for sustainable management of natural assets (Vardon et al., 2016<sup>41</sup>).

A first step in this ownership process is to raise awareness among decision-makers at different levels of government (Executive, Legislative, Judicial, etc.), civil society actors, the private sector, communities, and other stakeholders. The aim is to demonstrate the importance of EWC in promoting sustainable natural resource management and supporting development. To be more effective, this awareness-raising must take the form of information and capacity building in order to:

- To ensure a better understanding of the extent of natural capital (often limited to extractable resources such as minerals,

timber, etc.) and its contribution to the sustainable development of nations,

- To ensure a better understanding or stimulate the interest of EWCs in the sustainable management of natural resources in a context of global change and widespread erosion of biodiversity.

The added value of creating natural capital accounts needs to be clearly and unequivocally demonstrated to motivate decision makers to ensure their development and use. In reality, in countries with well-developed statistics on ecosystem services, it may not be necessary to create accounts because good data can already support decision-making. Indeed, since the problems of ecosystem degradation are primarily local, good environmental statistics can already guide decision makers. It is therefore necessary to make the right choice of accounts to create and to identify the most relevant services.

Awareness-raising should also be aimed at local decision-makers and elected representatives who are often less informed than at federal or central level. In this way, they can better promote the development of local accounts or

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<sup>40</sup> Virto et al, 2018. Op cit.

<sup>41</sup> Vardon et al, 2016. Op cit.

ensure better integration at local level, within the limits of their attributions.

In the long run, this awareness-raising should be an incentive for the elaboration of laws and the establishment of a legal framework binding the development of the EWC.

The second step in the EWC ownership process is the establishment of a national steering committee for the development of the EWC, bringing together several institutions. This is generally composed of the following institutions: the ministry in charge of the environment (with all its agencies or specialised departments), the ministry in charge of finance, the ministry in charge of planning, the ministry in charge of the economy, the ministry in charge of mineral resources, the central banks, the national services in charge of national statistics and the specialised services in charge of national accounts, as well as research institutions (universities, research centres, etc.). To these institutions can be added the agencies in charge of protected areas, commercial enterprises in the public domain, private enterprises, and non-governmental organisations. They are therefore a combination of institutions that generate useful data for the EEA, those that use them for decision making and users at different levels.

As already mentioned above, collaboration between these institutions is often ineffective and a major constraint to the implementation of EWCs. To this end, it is important that leadership is clearly identified. In general, many experts propose that leadership for the implementation of EWCs should be devolved to the ministry in charge of finance or the ministry in charge of planning to ensure the widest use of the accounts and their best integration in different sectors (Vardon, 2016<sup>42</sup>; Virto, 2018<sup>43</sup>). Indeed, these two ministries have a broader view of the different accounts and the countries' development objectives. Moreover, their level of interaction with other ministries is often very high.

In the evaluation of WAVES initiatives (Veron et al., 2016<sup>44</sup>), it was shown that the performance of

the national committee (or working group) is enhanced by frequent and regular meetings, high-level institutional representation, and a stable political environment, and that the creation and use of accounts is enhanced. For example, irregularity of meetings and low level of institutional representation were identified as causes of poor performance and delay in the creation of accounts.

To assist the steering committee from a technical point of view, a technical working group should be set up to coordinate all technical activities for the creation of the accounts as well as the mobilisation of the data.

Considering the sufficiently long process of institutionalisation of the ECA (awareness-raising for ownership by decision-makers, setting up the steering committee, technical committee, etc.), which takes one to three years, it is important to start these processes from the early stages of the programme (Vardon et al., 2016<sup>45</sup>). Furthermore, it has been shown that there is a positive correlation between the date of creation and the use of natural capital accounts, so one should not be too concerned about low use at the beginning (Virto et al., 2018<sup>46</sup>), but awareness-raising should continue.

In addition, the institutionalisation of the SEIA requires the adoption of laws that promote the acquisition of data for the creation of EIAs and their use by decision-makers at different levels. One of the few good examples of good practice in this area comes from Peru. In 2009, Peru amended its *Loi sur le système national d'évaluation des incidences sur l'environnement (SEIA)*. In 2009, Peru amended its 2001 law to include a provision that specifies the need for economic evaluation of environmental impact as part of the content of environmental impact assessments.

This provision creates a demand for the production of data for environmental economic accounting and valuation of ecosystem services, as the law cannot be enforced if the data does not exist. Thus, this amendment introduced a

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<sup>42</sup> Vardon, 2016. Op cit.

<sup>43</sup> Virto, 2018. Op cit.

<sup>44</sup> ? Veron et al

<sup>45</sup> Vardon et al, 2016. Op cit

<sup>46</sup> Virto et al, 2018. Op cit

legal basis for work on the economic valuation of natural capital and ecosystem services in Peru.

Article 26 of the Implementing Decree of this law envisages the economic evaluation of the environmental impact of investment projects in the following terms: "in order to economically evaluate the environmental impact in environmental studies, the following elements must be taken into account: the environmental damage generated, the cost of mitigation, control, remediation or environmental rehabilitation that may be required, as well as the cost of environmental management and compensation measures that may be required, among other criteria that may be relevant in each case. "

In 2015, the Peruvian Ministry of the Environment (MINAM) produced a national guide for the economic valuation of natural heritage, which established the basis for the implementation of environmental accounting at the national level. The guide is based on the UN-SEEA, and includes:

- pilot physical accounts for land and soil, subsoil resources, forestry, fisheries, water and biodiversity;
- pilot accounts for environmental protection expenditure;

- pilot accounts for environmental protection expenditure;
- pilot accounts for integrated economic and environmental spending;
- methodologies;
- information on data gaps for other accounts such as energy and mining;
- a set of 324 environmental indicators;
- an action plan for the implementation of environmental satellite accounts.

MINAM and INEI have also created an inter-institutional technical commission for environmental statistics and accounting to help with national standardisation of studies and their methodologies.

Peru's Strategic Planning Entity (CEPLAN) aims to complete the inventory and evaluation of the national natural capital by 2021. This is part of the "National Plan for Environmental Action". The inventory will serve as a contribution to decision-making and planning for the rational use and protection of natural resources.

## 2. Human, technical and financial capacity challenges

Capacity challenges were cited as the most important after those related to political will. In particular, this challenge is most acute for developing countries where human, technical and financial capacities are generally insufficient to enable the implementation of ECE. The implications of low levels of capacity to implement the EWC are discussed in the previous paragraphs.

To face this challenge, developing countries have resorted to international assistance for capacity building (or sometimes capacity creation). This assistance is mainly provided through specific programmes of international institutions (such as the World Bank, the International Monetary Fund, etc.), specialised agencies (of the United Nations, the African Union, GIZ, IUCN, etc.), international conventions (Convention on Biological Diversity, Gaborone Declaration, etc.) or bilateral or multilateral cooperation (European Union, United States, African Union, EU countries, etc.). These programmes support developing countries in the EEA implementation process by financing human and technical capacity building activities. In this context, the states benefit from:

- Training of human resources in various disciplines relevant to EWC (biological sciences, environmental sciences, economics, ecosystem services valuation, design, and creation of EWC accounts, etc.). These trainings can be degree courses (Master or PhD) or short courses on specific issues (e.g., design and creation of EWC accounts, prioritisation of ecosystem services, gender implication in EWC implementation, monetary valuation of physical flows, use of EWC accounts in decision making, etc.)

- Technical support through the provision of staff (technical assistants from partner organisations, international and local consultants, etc.) to help implement the EWC or through the provision of flow measurement equipment and data analysis tools (software, methodologies, etc.)

For international support to be effective, it is important that there is good coordination between the different institutions, that the problems are well defined and that the objectives are well defined. In this context, it is important that the steering committee and the technical working group are well constituted with clear institutional leadership.

Good examples to illustrate the resolution of capacity challenges exist and are documented. This is the case for the following initiatives:

- Support to ten developing countries (Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, Philippines, Rwanda, Uganda, and Zambia) through the WAVES programme, an initiative of the World Bank and the United Nations.
- TEEB's support to Bhutan, Ecuador, Liberia, Philippines, and Tanzania to develop natural capital accounts.
- NASA support for the spatialization of ecosystem service information in Botswana, Gabon, and Liberia.

This support has helped to overcome human, technical and financial capacity constraints to promote the creation of natural capital accounts, including accounts for water resource flows, arable land, forests (including mangroves), and minerals.

## 3 The challenge of data availability

As mentioned above, the challenge of data availability in developing countries concerns both quantity and quality. Indeed, the specialised services have insufficient data, which are not updated and unreliable in terms of collection protocols. The consequence is that these data often do not reflect the reality of real stocks or flows in nature.

The capacity building described in section 3.2.2 goes a long way to addressing the data problem. Indeed, training, financial, and technical assistance enable states to acquire the resources to develop protocols and collect good quality data to feed into the creation of natural capital accounts.

In addition to capacity building, another way to improve the availability of usable data is through collaboration with research institutions, which often have data from various natural capital research. Many countries have resorted to such collaboration to benefit from both the expertise of scientists in universities and other research centres (where available), additional financial resources from research project funding in these

institutions, and the data already produced and available. The challenge here is to reassure oneself of the quality of the data, knowing that the data available in research institutions are often collected for other purposes (and not for the creation of economic accounts) (Virto et al. 2018 <sup>47</sup>).

Moreover, the data collected is often punctual, whereas the monitoring of flows requires the spatialisation of information. In this context, many countries have also sought technical assistance for the acquisition of spatialised data in a relatively short timeframe in order to begin the process of creating accounts. This is notably the case of the support provided by NASA to Liberia and Gabon (de Sousa et al., 2020<sup>48</sup>). Note the significant role of the GDSA in these two NASA initiatives. This is also the case for WAVES-supported countries such as Rwanda (Bagstad et al., 2019 <sup>49</sup>).

At the same time, and to sustain the achievements, sustained training of managers and scientists is needed to ensure sustainable use of the accounts.

## 4 Challenges to cooperation

The challenges to cooperation mainly concern the capacity to mobilise aid (financial and technical) at regional, sub-regional or international level and to manage its distribution in a coherent manner between the different institutions. The objective is to overcome the human, technical and financial capacity deficit mentioned in section 3.3.2. In this context, the capacity building of States must be sustainable and the management and use of accounts (including data acquisition, etc.) must continue after the end of the support. This assistance may concern the whole process or a part of it.

As regards the capacity to mobilise international aid, this mainly concerns the capacity of

developing countries to sign partnerships with institutions or States to provide technical and financial support. To do this, extensive lobbying and the proper preparation of dossiers are crucial to ensure that international assistance is captured. Many developing countries face this difficulty in integrating and obtaining assistance from important initiatives such as WAVES, TEEB and many others, which are involved in the creation and implementation of EWCs in some developing countries.

For African countries in particular, obtaining assistance can sometimes be a tedious process. In this context, the Gaborone Declaration on Sustainable Development in Africa (GDSA) can

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<sup>47</sup> Virto et al. 2018. Op cit.

<sup>48</sup> De Sousa C, Fatoyinbo L, Neigh C, Boucka F, Angoue V, Larsen T. 2020. *Cloud-computing and machine learning in support of country-level land cover and ecosystem extent mapping in Liberia and Gabon*. *PLoS ONE* 15(1): e0227438. <https://doi.org/10.1371/journal.pone.0227438>.

<sup>49</sup> Bagstad K J, Ingram JC, Lange GM, Masozera M, Ancona ZH, Bana M, Kagabo D, Musana B, Nabahungu NL, Rukundo E, Rutebuka E, Polasky S, Rugege D, Uwera C. 2019. *Towards Ecosystem Accounts for Rwanda: Tracking 25 Years of Change in Flows and Potential Supply of Ecosystem Services*. *People and Nature* 2:163-188.

be an interesting support that should be used. Indeed, all GDSA member countries have developed or are already in the process of implementing natural capital accounts (see GDSA website) with international assistance: <http://www.gaboronedeclaration.com/nca> thanks to international assistance. However, it is important that states join GDSA to benefit from the facilitation. Of course, political will is important upstream of lobbying activities. Similarly, lobbying and fundraising activities should also be supported and monitored by the steering committee and the technical working group.

Nevertheless, it is important that the States progressively appropriate tools and techniques and can monitor the accounts and feed them with data from the field after the end of the

assistance. In this context, the experience of assistance for the implementation of EWCs in developing countries shows that the best results are obtained for long-term assistance that goes well beyond the five-year duration of the projects that are most common. Indeed, considering that the process of institutionalising EWCs (raising the awareness of political decision-makers and elected representatives, raising the awareness of various stakeholders, setting up steering committees and technical working groups, adopting laws, etc.) can itself take up to three years (Vardon et al, 2016<sup>50</sup>), sufficient time is then needed to effectively implement the accounts through the phases of identifying the most relevant natural assets or ecosystem services, assessment and data collection, to creating the accounts and testing their use.

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<sup>50</sup> Vardon et al, 2016. Op cit.

# Contextualisation of lessons learned for the implementation of the EWC

## 1. challenges and ways to overcome them in the DRC

The DRC faces various constraints that have been identified for the implementation of the EEC in developing countries. Indeed, although the will to improve the management of natural resources is demonstrated by the various commitments of the DRC at the international level and by the adoption of legal and regulatory texts to promote the good management of its natural assets, it must be noted that the political and institutional challenges, the capacities (human, technical and financial), the availability of data and cooperation are important.

Different institutions are engaged in various programmes to improve the management of the DRC's natural resources. Different ministries and specialised agencies of the government have several directorates that implement projects related to forestry, land, water, agriculture, mineral resources, etc. The challenge here is to ensure coherence between the different projects to ensure better impacts. In this context, this political and institutional challenge consists mainly of a lack of institutionalisation of the EEA and clear identification of leadership to take charge of the process and ensure its use in decision-making. To meet this challenge, the DRC must therefore embark on a process of institutionalisation of the EWC and clearly identify a lead institution to channel the various efforts.

Institutionalization will be done through sensitization of policy makers at different levels, notably the Presidency of the Republic and the Government, the National Assembly and the Senate, the Provincial Governments and the Provincial Assemblies and other decentralized entities. This sensitisation can be achieved through different workshops and events during which the basic concepts and situation of natural assets and their likely contributions to the development of the DRC (or decentralised entities) are presented.

Finally, laws and regulations will need to be passed to provide a legal framework for the SEEA. These will be the responsibility of the people's representatives in the national (including the Senate) and provincial assemblies, as well as all the relevant institutions. It will be important that the texts adopted are quickly followed by implementation measures at government level to ensure their rapid execution on the ground. This legal framework is also a major asset that institutionalises the EWC.

To overcome the institutional challenge, a leading institution should be clearly identified to lead the work and ensure the future implementation of the EEA. At first sight, the MEDD seems to be the institution that should embody this leadership when one considers its natural responsibilities and the involvement of its different directorates in sustainable management initiatives of renewable natural resources (forests, water, etc.). However, the question arises as to its future capacity to make use of EEA data in decision making. For this reason, the ministry in charge of finance, which already has leadership over national accounting, or the ministry in charge of planning can take the lead and more easily ensure the use of EWC in decision-making.

To facilitate the implementation work, a steering committee (COFIL) will have to be set up to ensure the coordination of activities and the optimal allocation of resources. Of course, it will be coordinated by the lead institution. The ministries in charge of finance and the MEDD will be active members of the COFIL, as will the ministries in charge of planning, the economy, mineral resources, the Central Bank of Congo (BCC), the department in charge of national statistics and the national accounting department, as well as research institutions, civil society, and local communities. The functioning of the COFIL will have to be defined and may be inspired by existing models.

The COPIL will be assisted by a technical working group which will constitute an executive body and will oversee the various day-to-day activities for the implementation of the EEC. It will be made up of scientists and experts qualified to carry out various tasks such as the definition of methodologies, data collection and compilation, and the drafting of technical and financial reports.

Capacity challenges are important obstacles for the DRC. The interviews and readings conducted for this study highlighted this problem of human, technical and financial capacity. Officials and experts in the specialised branches of government need capacity building to understand the EEA and the various activities involved in its implementation. Specific human capacity building programmes need to be planned and modules designed based on real needs. For this purpose, a mapping of the competence needs will have to be done very carefully. It is imperative that the expertise available in universities and other research institutions be used for both implementation work and capacity building. Foreign expertise may be sought for particular issues where it does not exist at national level.

Technical capacity building involves the acquisition of equipment, hardware, and software necessary for data acquisition and interpretation, and the functioning of the working group. Similarly, the improvement of financial capacities requires the allocation of a substantial budget for technical capacity building, but also for the remuneration of agents and other experts, as well as for the organisation of COPIL meetings.

The availability of good quality and reliable data is a recurring problem in the DRC, to the extent that there is a growing distrust of the statistics generally published by the relevant institutions. For some resources, there are no regular reviews of stocks and there is no control of flows. In this context, the environmental statistics project being implemented by the DEP (MEDD) is an asset and an important first step. The mastery of statistics is crucial for the development of the EEC. This challenge is linked to the capacity challenge in various ways. However, another important problem is that the data available, for those resources where this is the case, is often for purposes other than EEA development. Their

integration into the SNA can sometimes be problematic and methodologies for their use should be developed or contextualised. Ideally, primary data should be collected for the implementation of EWCs, at least for the resources that will be targeted. But this may be expensive and therefore require more allocations in the national budget. In this context, it is suggested that all institutions that generate data on stocks and flows of natural capital components, such as the MEDD and the Ministry in charge of mines, be integrated into the Commission des Etudes Statistiques et Comptes Nationaux (CESCN) to ensure the integration of existing data.

Considering the country's financial problems and the low allocation to environmental issues, the DRC government often resorts to the assistance of technical and financial partners for the implementation of various programmes. This demonstrates that the DRC can request and obtaining international assistance on issues related to the sustainable management of natural resources. However, it seems important to build up a specific file for an EEC implementation programme. Furthermore, despite the existence of a framework for consultation with technical and financial partners (TFPs), the Government must ensure clear coordination of international assistance to promote coherence and a better impact for the implementation of the EWC. In addition to the ability to capture international assistance on the specific issue of the EWC, coordination of international assistance is an important cooperation challenge because TFPs and other donors often have very specific objectives and may have preferences for particular government agencies. The identification of clear leadership and the establishment of a COPIL and a working group will be of great help in ensuring this coherence.

The assistance to be requested by the DRC should not be of short duration, as this would not favour a sustainable implementation of the EWC. Indeed, considering that the institutionalisation process can take up to three years, support limited to five years would not leave enough time for effective implementation and would not allow for the correction of possible mistakes. It is therefore advisable to provide assistance for at least ten years in order



to allow sufficient time for the effective implementation of the whole process.

As far as assistance for the implementation of EWCs is concerned, the DRC can initiate a process to integrate initiatives that have already proved their worth in this area and that have proven experience of working with developing countries. This is mainly the case of WAVES or TEEB. To do this, the country can request lobbying or assistance from GDSA for the constitution of the file and advocacy with donors and those responsible for these

initiatives. Indeed, GDSA member countries have been able to benefit from such assistance and the implementation of EWCs is very advanced for some of them. In this case, the DRC will have to start by applying to be a GDSA member country.

Table 2 summarises the main challenges identified for the implementation of CEE in the DRC. It also presents proposals for actions to address the challenges as well as activities to support the actions.

Challenges	Actions to meet the challenges	Activities to be considered
Policies	<ul style="list-style-type: none"> <li>• Ownership by policy makers and MPs and Senators.</li> <li>• Institutionalisation of the EEC</li> </ul>	<ul style="list-style-type: none"> <li>• Individual interviews and awareness-raising and information workshops with various stakeholders (Presidency, Government, National Assembly, etc.).</li> <li>• Adoption of laws and legal texts for the institutionalisation of the EEC</li> </ul>
Institutional	<ul style="list-style-type: none"> <li>• Designation of a lead institution.</li> <li>• Establishment of a COPIL and an Executive Committee</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of political institutions, specialized government offices and scientists.</li> <li>• Individual interviews and awareness and information workshops.</li> <li>• Implementation of the process of appointing a lead institution; the COPIL and the Executive Committee.</li> </ul>
Human, technical, and financial capacity	<ul style="list-style-type: none"> <li>• Use of expertise available in research institutions.</li> <li>• Human capacity building for the creation of environmental economic accounts.</li> <li>• Technical and financial capacity building</li> </ul>	<ul style="list-style-type: none"> <li>• Mapping expertise at national level.</li> <li>• Identification of capacity building needs in terms of human, technical and financial resources.</li> <li>• Identification and negotiation of TFPs for support;</li> </ul>
Availability of sufficient data in quantity and quality	<ul style="list-style-type: none"> <li>• Use of data available in research institutions.</li> <li>• Strengthening human, technical, and financial capacity for data acquisition</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of data needs for EEA.</li> <li>• Mapping expertise at national level.</li> <li>• Identification of capacity needs (human, technical and financial).</li> <li>• Support the process of creating Environmental Statistics.</li> </ul>

Cooperation	<ul style="list-style-type: none"> <li>• Better mobilisation of international assistance for EWC and better coordination of international assistance for implementation.</li> <li>• Integration of international initiatives (e.g., WAVES)</li> </ul>	<ul style="list-style-type: none"> <li>• Lobbying for mobilisation of international assistance, contacting, and negotiating with GDSA to integrate international initiatives (WAVES, TEEB, etc).</li> <li>• Workshops with TFPs for a better identification of assistance needs and for the coordination of the implementation of the EEC.</li> </ul>
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Table 2. Challenges to the implementation of the EWC as well as actions to be taken to address them and activities to be considered to support the proposed actions.

## 2 Elements of the roadmap for the implementation of CEE in the DRC

The implementation of the EWC is intimately linked to addressing the various challenges that have been identified. To ensure sustainability of the EWC, and based on the experience of WAVES countries, the implementation plan in DRC should include the following main priority activities

- **Activity 1:** Good business planning of the whole process of creating and implementing EWCs in the DRC. This should be based on a good study of local initiatives that affect the environment and nature conservation or sustainable use sector in the country.
- **Activity 2:** Institutionalisation of the SEEA through awareness raising and information activities, designation of a lead institution for the SEEA, and adoption of laws and establishment of a legal framework, identification of key partners to improve human, technical and financial capacity.
- **Activity 3:** Setting up a steering committee and a technical working group or executive committee, identifying capacity needs
- **Activity 4:** Human and technical capacity building. This capacity building will be a continuous and sequential process throughout the establishment of the EEA
- **Activity 5:** Implementation of EWC creation activities (identification of priority natural capital components, development of methodologies for data collection or centralisation and processing, testing the operation of accounts, evaluation, and improvement of created EWCs, etc.).

- **Activity 6:** Use of created EWCs and implementation of EWCs for other natural capital components

The institutionalisation phase proposed in Activity Group 2 requires the adoption of a specific law for the implementation of the SEEA in the DRC. This is proposed in Annex 2. The difficulty inherent in amending specific regulations in different sectors (mining code, forestry code, nature conservation laws, etc.) may make the task more complicated. In this context, based on the example of Peru, the proposed law on the implementation of the SEEA highlights the need to integrate economic valuation of ecosystem services into environmental impact assessments of projects. Indeed, this could be facilitated by making it clear that an ecosystem services assessment is an important element of the structure and content of ESIA. For example, the mining code requires an ecosystem services assessment to be carried out in ESIA. In this way, the country could generate useful data for the creation of ERCs and promote their use by decision-makers in the relevant departments (ministries, public administration) as well as in the entities that commissioned the ESIA (private companies, public enterprises, etc.).

The implementation of all the proposed activities requires assistance throughout the process. This assistance concerns human, technical, and financial resources. For this reason, the DRC needs to better define its objectives and expectations and start negotiations with the TFPs that can accompany it. As already mentioned in the previous sections, DRC should contact and negotiate with GDSA to ensure or facilitate its integration into international initiatives such as WAVES or TEEB to benefit from their long experience. Table 3 summarises the activities and needs.

Activities	Sub-activities	Concerned	Needs
Planning activities for the whole process of creating and implementing EWCs in the DRC.	<ul style="list-style-type: none"> <li>• Interviews with institutions and organisation of workshops to raise awareness of the CSEE and define the country's objectives and priorities,</li> <li>• Carrying out a study on the mapping of local initiatives related to the sustainable management of natural capital in the country,</li> <li>• Contact and negotiations with GDSA to integrate international initiatives.</li> </ul>	<ul style="list-style-type: none"> <li>• Government DRC</li> <li>• Directorates and specialised services</li> </ul>	<ul style="list-style-type: none"> <li>• Assistance from local and international consultants.</li> <li>• Technical and financial assistance</li> </ul>
Institutionalisation of the EEC	<ul style="list-style-type: none"> <li>• Raising awareness and informing the various stakeholders,</li> <li>• Adoption of laws and establishment of a legal framework,</li> <li>• Identification of key TFPs for assistance in human, technical and financial capacity building.</li> </ul>	<ul style="list-style-type: none"> <li>• DRC government and its specialised directorates</li> <li>• National and Provincial Assemblies + Senate DRC</li> <li>• Decentralised administrations</li> </ul>	<ul style="list-style-type: none"> <li>• Assistance from local and international consultants.</li> <li>• Technical and financial assistance</li> </ul>
The establishment of a steering committee and a technical working group or executive committee	<ul style="list-style-type: none"> <li>• Identification of institutions and designation of a lead institution for the EEA,</li> <li>• Composition of the COPIL,</li> <li>• Identification of local technical expertise to be included in the Executive Committee,</li> <li>• Installation of the Executive Committee.</li> </ul>	<ul style="list-style-type: none"> <li>• Institutions of Government,</li> <li>• Directorates and Specialised Services,</li> <li>• Universities and research institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants for process facilitation ;</li> <li>• Technical and financial assistance</li> </ul>
Capacity building	<ul style="list-style-type: none"> <li>• Strengthening the human capacity of experts in the Government and its specialised departments, of elected representatives in the national and provincial assemblies, and in research institutions.</li> <li>• Technical capacity building (equipment and infrastructure).</li> <li>• Financial capacity-building</li> </ul>	<ul style="list-style-type: none"> <li>• Government agents and experts ;</li> <li>• Elected officials of the National and Provincial Assemblies,</li> <li>• Experts from the Directorates and Specialised Services,</li> <li>• Researchers from universities and research institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants for training and interventions,</li> <li>• Technical and financial assistance for capacity building sessions</li> </ul>

Implementation of EWC creation activities	<ul style="list-style-type: none"> <li>• Identification of priority natural capital components,</li> <li>• The development of methodologies for data collection or centralisation and processing,</li> <li>• Experimentation with the operation of the accounts,</li> <li>• Evaluation and improvement of EWCs created, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Institutions of Government and National Assemblies,</li> <li>• Directorates and Specialised Services, Universities and Research Institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Local and international consultants,</li> <li>• Technical and financial assistance for capacity building sessions</li> </ul>
Use and evaluation of EWCs created and implementation of EWCs for other components of natural capital	<ul style="list-style-type: none"> <li>• Use of environmental economic accounts in decision making,</li> <li>• Evaluation of the whole process,</li> <li>• Feasibility of creating other components of natural capital</li> </ul>	<ul style="list-style-type: none"> <li>• Government institutions</li> <li>• National Assemblies,</li> <li>• Directorates and Specialised Services,</li> <li>• Universities and research institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Local and international consultants,</li> <li>• Technical and financial assistance</li> </ul>

Table 3. Proposed activities leading to the implementation of the EWC in DRC and identification of assistance needs

### Elements of the roadmap for the creation of EWCs in the DRC

In terms of environmental accounts themselves, there are three key pillars that can support their rapid creation in the DRC context:

- Integrating environmental and natural capital damage (depletion of natural resources, pollution, etc.) into the nation's accounts. This implies the adjustment (modification) of macroeconomic quantities, and in particular the gross domestic product (GDP).
- Annex the environmental satellite accounts to the SNA. This will then lead to the identification of expenditure on environmental protection and natural resource management.
- Develop a system of accounts that are independent of, but consistent with, the SNA. These accounts are usually expressed in terms of physical quantities.

In practical terms, the development of EWCs in the DRC could follow the plan outlined in Table 4. The Ministry of Mines and the EITI will be involved in the establishment of the mineral accounts. The establishment of the forestry account and the land use account can be achieved through additional support to the National Forest Monitoring System and specialised MEDD directorates and services. In particular for forests, the efforts undertaken to create environmental statistics also constitute an opportunity that should be seized. FONAREDD has initiated a study to capture financial flows related to REDD+. The results of this study could be enriched by extending it to all protection expenditures.

The proposed priority environmental economic accounts to be created are: (i) mineral resources accounts, (ii) forestry accounts, (iii) land use accounts, (iv) water accounts, and (v) financial flow accounts related to environmental protection dependencies. Depending on the consultations, the number of these accounts could be reduced.

Activities	Actors involved	Needs
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Capacity building on the EC-ECSC	<ul style="list-style-type: none"> <li>• Standing Committee on Macroeconomic Framework,</li> <li>• Macroeconomics Directorate,</li> <li>• Medium Term Budgetary Framework Committee,</li> <li>• National Institute of Statistics,</li> <li>• Central Bank of Congo,</li> <li>• FONAREDD</li> </ul>	<ul style="list-style-type: none"> <li>• National and international consultants,</li> <li>• Technical and financial assistance</li> </ul>
Evaluate, learn from and capitalise on previous SCN migrations	<ul style="list-style-type: none"> <li>• Executive Committee, COPIL,</li> <li>• Directorates and Specialised Services,</li> <li>• Consultants</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants,</li> <li>• Technical and financial assistance</li> </ul>
Validate the choice of priority accounts Priority accounts : <ol style="list-style-type: none"> <li>1. Mineral accounts (Mineral resource deposits already identified).</li> <li>2. The forest account</li> <li>3. The Land Allocation Account</li> <li>4. The water account</li> <li>5. The account of financial flows related to environmental protection (REDD+ and others)</li> </ol>	<ul style="list-style-type: none"> <li>• COPIL (on the proposal of the Executive Committee)</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants,</li> <li>• Technical and financial assistance</li> </ul>
Create a database, manage it and share the available information	<ul style="list-style-type: none"> <li>• Specialised departments and directorates, Executive Committee, COPIL, Consultants</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants,</li> <li>• Technical and financial assistance</li> </ul>
Produce and test pilot accounts	<ul style="list-style-type: none"> <li>• Specialised departments and directorates, Executive Committee, COPIL, Consultants</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants,</li> <li>• Technical and financial assistance</li> </ul>
Evaluate the process of producing the first accounts and identify adjustments required	<ul style="list-style-type: none"> <li>• Specialised departments and directorates, Executive Committee, COPIL, Consultants</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants,</li> <li>• Technical and financial assistance</li> </ul>

Table 4. Identification of the main activities, actors involved and needs for the effective creation of EWCs in the DRC.

# Conclusion

Like many low-income and developing countries, the DRC has ratified many international conventions on biodiversity and nature conservation. The country also has a legal framework for nature conservation and sustainable use of its natural resources. However, the EWC is not yet effective in the country for various reasons, mainly due to the low level of ownership of the issue at the national level because of a lack of information.

The review of lessons learned from the implementation of CEE in developing countries has identified the main challenges that the DRC will face in implementing CEE. Strong political ownership and institutionalisation of the EWC are paramount in the EWC implementation process.

Revisions to the Environmental Code and/or the regulations on environmental and social impact assessments could also be used to include explicit provisions for economic valuation of environmental impacts in future implementing decrees, as is the case in Peru. This would be of great importance because it would both require the construction of accounts and valuation of ecosystem services and ensure that the data, once available, would inform the decision-making process.

Similarly, good coordination of institutions involved in the exploitation and management of natural assets is important to ensure consistency of interventions and harmonise methodologies. In the current context of the country, a strengthening of human, technical and financial capacities is necessary. This will enable the acquisition of good quality data in sufficient quantity and long-term monitoring.

The present work therefore provides elements that can enable an in-depth and pragmatic reflection on the implementation of environmental economic accounts to contribute to a sustainable management of natural capital. Additional information can help to improve the directions that are proposed. For example, more in-depth interviews with technical and financial partners active in the DRC as well as with private extractive companies (forestry, mining, etc.) would help to refine the suggestions. In the same vein, a discussion with the secretariat of the GDSA and the WAVES and TEEB initiatives would certainly allow for better suggestions for DRC's accession to receive assistance in implementing the EWC.

In addition, this document can serve as a basis for sensitisation of the various policy makers and the legislative body of the DRC to initiate the institutionalisation process where appropriate.

