UGANDA BUREAU OF STATISTICS

THE REPUBLIC OF UGANDA

NATIONAL PLAN FOR ADVANCING ENVIRONMENTAL-ECONOMIC ACCOUNTING IN UGANDA

United Nations

System of Environmental Economic Accounting

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Uganda's 30-year development target under the Vision 2040 was to achieve a 19-fold increase in Gross Domestic Product (GDP) from US$506 to US$9500 per capita. World over, it is acknowledged that steady economic growth and human welfare are dependent upon the benefits obtained from the environment. The failure to achieve the First National Development Plan (NDP I) target of 7.2 percent per annum GDP growth was attributed to the impacts of climate change, drought, flooding and severe storms on productivity and infrastructure, among others. Under auspices of the Second National Development Plan (NDP II), the Government of Uganda put in place a Uganda Green Growth Development Strategy (UGGDS) to ensure that the goals of Uganda Vision 2040 and NDPII are attained in a sustainable manner. In turn, the UGGDS proposed a programme on sustainable Natural Capital Management and Development as one of the five catalytic interventions for achieving sustainable development in the implementation of the Vision 2040.

This National Plan for Advancing Environmental Economic Accounting (NP-AEEA) provides a framework for integrated environmental statistical development, taking into account sustainable development and the green economy. The plan outlines guidance for aligning and coordinating Uganda's current and future Environmental-Economic accounting initiatives and policy requirements with the United Nations (UN) System of Environmental Economic Accounting (SEEA) and other international statistical frameworks. At the same time, the NP-AEEA provides the foundation for initiating and integrating statistical development towards improved decisions related to and monitoring indicators of sustainable development and green economy.

The drafting of the NP-AEEA was based on information mobilised from the National Bilateral Assessment meetings with priority Ministries, Departments and Agencies (MDAs), review of the National Development Plan II, the Vision 2040, the Uganda Green Growth Development Strategy (UGGDS), development strategies and investment plans of the MDAs and the presidential strategic directives (September, 2017). The plan benefited from comments and contributions of the United Nations Statistics Division (UNSD), the National Environment Management Authority (NEMA), the National Planning Authority (NPA), the World Bank's Wealth Accounting and Valuation of Ecosystem Services (WAVES) project in Uganda, independent UN consultant on water accounts Jackie Crawford and the United National Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), among others.

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20. Directorate of Water Development (DWD) of the Ministry of Water and Environment;
21. Directorate of Environmental Affairs (DEA);
22. Makerere University Departments of Soil Science, Botany and Zoology;
23. Kawanda Agricultural Research Laboratories Soil Science Section;
24. Busitema University;
25. Petroleum Exploitation and Production Department;
26. Kampala Capital City Authority (KCCA) Environment Department;
27. The World Bank/ Wealth Accounting Valuation of Ecosystem Services (WAVES) Natural Capital Accounting (NCA) Project; and
28. United Nations Environment World Conservation Monitoring Centre (UNEP-WCMC).

LIST OF ABBREVIATIONS AND ACRONYMS

AMCEN	African Ministerial Conference on the Environment
BIOFIN	Biodiversity Financing Initiatives
CBD	Convention on Biological Diversity
CCD	Climate Change Department
CIF	Climate Investment Funds
DiFR	Directorate of Fisheries Resources
DWD	Directorate of Water Development
DWP	Directorate of Water for Production
DWRM	Directorate of Water Resources Management
EIN	Environment Information Network
ERA	Electricity Regulatory Authority
GDSA	Gaborone Declaration on Sustainability in Africa
GGDS	Green Growth Development Strategy
GGGI	Global Green Growth Institute
GGI	Green Growth Initiative
GRI	Global Reporting Initiative
GSBPM	Generic Statistical Business Process Model
IDEEA	Institute for Development of Environmental Economic Accounting
IES	Integrated Economic Statistics
IIED	Institute for International Environment and Development
ILF	Investment Logic Framework
IPBES	Inter-Governmental Panel Platform on Biodiversity and Ecosystem Services
KCCA	Kampala Capital City Authority
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MEMD	Ministry of Energy and Mineral Development
MFPED	Ministry of Finance Planning and Economic Development
MOU	Memorandum of Understanding
MTWA	Ministry of Tourism Wildlife and Antiquities (
MWE	Ministry of Water and Environment
NCCP	National Climate Change Policy
NDPII	National Development Plan II
NEMA	National Environment Management Authority
NFA	National Forestry Authority
NGGDS	National Green Growth Development Strategy
NPA	National Planning Authority
NPA-EEA	National Plan for Advancing Environmental Economic Accounting
NSO	National Statistics office
NSOER	National State of Environment Report
NSS	National Statistical System
OECD	Organization for Economic Cooperation and Development
PNSD	Plan for National Statistical Development
PPCR	Pilot Program for Climate Resilience
QUAF	Quality Assessment Framework
REDD+	Reducing Emission from Deforestation and forest degradation
SCP	Sustainable Consumption and Production
SEEA	System of Environmental Economic Accounting
SLA	Service Level Agreements
SNA	System of National Accounts
SOER	State of the Environment Report
SPCR	Strategic Program for Climate Resilience
SSPS	Sector Strategic Plan for Statistics

UBOS	Uganda Bureau of Statistics
UNCEEA	United Nations Committee of Experts on Environmental-Economic Accounting
UNEP WCMC	UN Environment World Conservation Monitoring Centre
UNFCCC	United Nations Framework Convention on Climate Change
UNMA	Uganda National Meteorological Authority
UNSD	United Nations Statistics Division
UTB	Uganda Tourism Board
UWA	Uganda Wildlife Authority
WAVES	Wealth Accounting and Valuation Ecosystem Services

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The National Plan for Advancing Environmental Economic Accounting (NP-AEEA) provides a framework for integrated environmental statistical development, taking into account sustainable development and the green economy. The plan seeks to align and coordinate Uganda's current and future Environmental-Economic accounting initiatives and policy requirements with the United Nations (UN) System of Environmental Economic Accounting (SEEA) and other international statistical frameworks. The NP-AEEA provides the foundation for initiating and integrating statistical development towards improving decisions related to and monitoring indicators of sustainable development and green economy. The development of the NP-AEEA was spearheaded by Uganda Bureau of Statistics (UBOS) and supported by the United Nations Statistics Division (UNSD), the Uganda National Planning Authority (NPA), and the Ministry of Finance, Planning and Economic Development (MoFPED), the Ministry of Water and Environment (MWE), the Ministry of Lands, Housing and Urban Development (MLHUD), the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), the Ministry of Tourism, Wildlife and Antiquities (MTWA), the National Forestry Authority (NFA), the National Environment Management Authority (NEMA) and the Uganda Wildlife Authority, among others key Ministries, Departments and Agencies (MDAs). By embracing SEEA, Uganda sought to develop capacity and provide guidance required in measuring key indicators in NDP II and SDGs relating to sustainable development and the green economy.

The NP-AEEA was developed in a participatory manner, with stakeholders involved in the review of national development policies and strategies including the National Development Plan II (NDPII), the long-term development strategy, Uganda's Vision 2040, the Uganda Green Growth Strategy (UGGDS), Presidential strategic directives on the environment and MDA development strategies and investment plans. The plan adopted international best practices for statistical development and statistical frameworks that once implemented would allow global comparison of data. The document will serve as a basis for engaging and rallying relevant stakeholders to support and embrace SEEA.

The NP-AEEA will guide the development of SEEA and subsequent generation of relevant Satellite Accounts as follows:

a. Support justification and articulation of the need for establishment of an integrated statistical system to generate integrated data and information to monitor sustainable development indicators;

b. Streamline policy priorities and opportunities in Uganda for further improvement of the National Statistical System (NSS) with a focus on SEEA;

c. Use an Investment Logic Framework (ILF) to identify the driving factors and preconditions for engaging in activities, generate outputs, impacts and long-term outcomes from these activities; and

d. Pilot use of selected accounts and draw lessons to enable deepening and scaling of SEEA at all levels of planning in Uganda.

The priority of SEEA in Uganda is drawn from the second National Development Plan (NDP II). The main goal of NDP II is to Propel the country towards middle income status by 2020 through strengthening competitiveness for sustainable wealth creation, employment and inclusive growth (GoU 2015). Attainment of the core goal of NDP II requires integrated data synthesis and reporting in order to measure progress. In piloting and rolling out Uganda's NP-AEEA, the SEEA process sought to work with the priority investment areas identified in the NDPII. The priority areas were: sustainable agriculture development, tourism; minerals, oil and gas, infrastructure development and human capital development. Similarly, the Uganda Green Growth Development Strategy (UGGDS) priorities were: agriculture, natural capital management and development, planned green cities, sustainable transport and sustainable energy. The combination of the two sets of priority investment areas jointly required integrated data and information on the environment, especially Natural Capital, for effective policy monitoring. Adoption and implementation of SEEA in Uganda will provide the required data to optimally implement actions, monitor the progress of these investment areas and ascertain the extent to which Uganda as a country is on course to achieving a sustainable middle income status. Therefore, implementation of SEEA in Uganda through adoption of the NP-AEEA will enable the country to draw and implement evidence based policies at the national level, report on sustainable development indicators, and also align with other global frameworks on the environment and other natural resources sector.

This plan is divided into six sections. The first section is the introduction within which the plan will be implemented. Section 2 provides the rationale for adopting SEEA at national and international levels. Sections 3 and 4 present an overview of the key components and methodologies following the Generic Statistical Business Process Model needed to implement the NP-AEEA in a participatory manner while ensuring collective ownership mindful of the burden on the data producers. The last sections 5 to 6 outline the details of the national work plan for implementing SEEA following an investment logic framework (ILF).

1. INTRODUCTION

Uganda embraced sustainable development as central to national development by adopting sustainability principles in the National Constitution (1995). These include implementing environmental policy reforms in the early 1990s, the water policy reforms in the mid-1990s and wildlife and forestry sector reforms in the late-1990s. Between 2000 and 2015, Uganda implemented the eight Millennium Development Goals (MDGs) including Goal 7 on ensuring environmental sustainability. The performance on the three outcome indicators showed that the target on (i) reduction of biodiversity loss by 2010 was missed; (ii) halving the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015 were attained; while (iii) achieving a significant improvement in the lives of slum dwellers by 2020 had no specific target.

At the end of 2015, Uganda joined the rest of the world in adopting the Sustainable Development Goals (SDGs). The risks and penalties associated with continued abuse of environmental resources were at the centre of concerns about sustainable development and, given the high degree of inter-connectedness of world economies and societies, environmental concerns were of relevance to all countries. In addition, given the pressing challenges of environmental and climate change and climate variability issues, there was renewed global attention such that the 2030 Sustainability Agenda was intertwined with globally agreed Sustainability Development Goals (SDGs) and environmentally related indicators. Reporting on the specific SDGs indicators requires cross sector and multi-stakeholder generated information and data. And generation of this integrated data and information necessitates coordination in data capture, synthesis and compilation as opposed to the traditional silo approach.

The environment, economy and society are closely linked and interconnected. From the environment, society draws resources that drive economic processes on which society directly or indirectly depends. On the other hand, from consumption and production processes in society and economic systems, wastes find their way into the environment. Adoption of the System of Environmental-Economic Accounting Central Framework (SEEA-CF) is one way of recognizing the inseparability between the economy, the environment and society. Therefore, in order to develop effective policies in the environment-economic and society-policy space, there is need for coordinated mechanisms to generate integrated data. Both the SEEA-CF and SEEA Experimental Ecosystem Accounting (EEA) use the accounting concepts, structures, rules and principles of the System of National Accounts (SNA). The SEEA-CF starts from the perspective of the economy and its economic units and incorporates relevant environmental information concerning natural inputs, residual flows and associated environmental assets. In contrast, SEEA-EEA starts from the perspective of ecosystems and links ecosystems to economic and other human activity. Together, the two approaches provide the

potential to describe in a comprehensive manner the relationship between the environment, the economy and society.

SEEA-EEA is a synthesis of the current knowledge in this area and can provide a starting point for the development of the ecosystem accounting at national or sub-national levels. While the SEEA-EEA does not give precise instructions on how to compile ecosystem accounts, it represents a strong and clear convergence across the disciplines of ecology, economics and statistics on many core aspects related to the measurement of ecosystems and thus a strong base for further research and development. This plan for advancing Environment-Economic Accounting in Uganda is a demonstration of the desire and aspirations of Uganda to embrace SEEA at all levels. This is to be done following a modular approach involving piloting, learning from the process, eventually deepening and scaling across all sectors.

The sequencing used in the NP-AEEA offers two principal advantages. Firstly, the NP-AEEA is aligned with the PNSD and the various SSPSs. Secondly, local, national and international synergies and commonalities were identified thereby enhancing the coordination and collaboration across differently platforms.

2. ENVIRONMENTAL-ECONOMIC ACCOUNTING RATIONALE

The global and national drivers and initiatives that provide the motivation and rationale for embracing the development of and integration of SEEA into countries statistical systems are centred on the Framework for Development of Environmental Statistics (FDES), and the System of National Accounts (SNA) for member states of the United Nations.

2.1 Global perspective

A number of countries both in the developed and developing regions have compiled Systems of Environmental Economic Accounts (SEEA). Examples of countries with extensive accounts include Australia, Canada, China, Colombia, Italy, Mexico, Norway, Philippines, South Africa and Sweden. The European Parliament and Council in July 2011 adopted the first EU regulation and law on environmental accounts that required all member states to compile annual data for three modules (UNCEEA report, 2012). The modules adopted are the Air emission accounts, the Environmental related taxes by industry and the Economy-wide material flow accounts.

In Africa, the Gaborone Declaration for Sustainability in Africa (GDSA) (AU 2012), provides a commitment to a new model of development that takes into account and makes the role of natural capital central to all economic decision making. The GDSA is the implementation vehicle for the African Ministerial Conference on the Environment (AMCEN). The twelve signatories including Botswana, Gabon, Ghana, Kenya, Liberia, Mozambique, Namibia, Rwanda, South Africa, Tanzania, Madagascar and Uganda have pledged to:

(i) Ensure that countries integrate value of nature into their national policies and programs, recognizing that nature is needed for economic growth and sustainability.

(ii) Ensure that countries reduce poverty by transforming agriculture, extractive industries, fisheries and other economic uses of nature practices that promote sustainable employment, food security, sustainable energy and protection of nature including protected areas.

(iii) Ensure that countries build the knowledge, capacity and policy networks to promote leadership and a new model in the field of sustainable development to increase momentum for positive change.

Whereas in the developed countries of the European Union (EU), the focus of NCA are the flow accounts both physical and monetary, there is higher interest among the developing countries in the physical and monetary asset accounts. This difference in compilation priorities may be due to differences in environment related policy perspectives. The policy agenda in developing countries (including Africa) may be understood from the need for sustainable resource management of their endowments of natural resources and specific security issues related to water and energy.

Optimizing the opportunities and addressing new challenges that stem from the quest for global sustainable development requires greater efficiency and integration of the functions of the national statistical systems through modernization of the institutional environment and the statistical production processes. The traditional way of organizing and managing the statistical system is not appropriate for making the transition to a modern integrated national statistical system that can meet the requirements of producing and reporting data for Agenda 2030[1], and related indicators and targets and providing information for integrated decision-making.

The UN published *Guidelines on Integrated Economic Statistics*[2] highlighting the need to move from the traditional isolated (silos) approaches to a more integrated approach to the production of statistics matched by institutional reforms, including access and use of administrative sources for statistical purposes. It recognises the significance of an integrated approach for increasing the consistency and coherence of economic statistics to enhance the quality and analytical value of the information that statistics convey for short-term, annual and benchmark economic and macroeconomic statistics. The guidelines present the integration framework of economic statistics based on current best practices for the entire spectrum of statistical agencies, including countries with centralized and decentralized statistical systems and countries at different stages of economic and statistical development.

Integrated economic statistics depict a consistent and coherent picture of economic activities for policy, business and other analytical uses. In addition, a number of recent emerging initiatives on the measurement of sustainability, social progress and well-being have raised the need for integrated and coherent official statistics to shed light on those complex issues and to support statistical offices in producing integrated economic, environmental and socio-demographic statistics.

The SEEA is a common measurement framework for several environment, biodiversity and sustainable-development related international initiatives including the 2030 Agenda-on Sustainable Development Goals (SDGs), the OECD Green Growth initiative, the World Bank Wealth Accounting and Valuation of Ecosystem Services (WAVES), Inter-governmental Platform on Biodiversity and Ecosystem Services (IPBES), Biodiversity Financing Initiatives (BIOFIN), Global Reporting Initiative (GRI), Sustainable Consumption and Production (SCP), and the Convention on Biological Diversity (CBD) Aichi Targets, among others. The 2030 Agenda for Sustainable Development[3] was adopted by the UN General Assembly in 2015. This set out 17 Sustainable Development Goals (SDGs) and 169 targets that build on the Millennium Development Goals (MDGs). Regular reporting on SEEA accounts will support the production of indicators to monitor several of the SDG goals:

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[1]www.un.org/sg/management/pdf/HLP_P2015_Report.pdf
[2]http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf
[3]https://sustainabledevelopment.un.org/post2015/transformingourworld.

- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture;

- Goal 6: Ensure availability and sustainable management of water and sanitation for all;

- Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all;

- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;

- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable;

- Goal 12: Ensure sustainable consumption and production patterns;

- Goal 13: To take urgent action to combat climate change and its impacts;

- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss; and

- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Therefore, implementing SEEA in Uganda will help to address national development objectives and also serve the purpose of international reporting on globally agreed indicators on SDGs.

2.2 Uganda's perspective on SEEA

In 2017, the Uganda Bureau of Statistics (UBOS) conducted a national assessment on readiness for an integrated satellite system of accounts (UBOS 2017). The study report highlighted the need for Uganda to fully embrace SEEA, providing building blocks to harness and create synergies for statistical development towards improving decision making related to sustainable development and green economy as spelt out in the NDPII, UGGDS and the national climate change policy for Uganda among others. The interest in SEEA is based on these existing national policy documents and a national assessment of environmental data and statistics to the different Ministries, Departments and Agencies (MDAs). The national assessment document further captured the policy priorities, institutional frameworks and statistical capacity needs for Uganda to engage in SEEA development. The national assessment report proposed to establish and strengthen SEEA in Uganda in the following ways:

(i) strengthen the coordination for an integrated statistical system for environmental information in Uganda;

(ii) summarize the priorities and opportunities in Uganda for improving the institutional framework necessary for SEEA implementation;

(iii) identify the priority sectors for environment statistics, and actions for improving these statistics (activities, outputs, impacts and long-term outcomes of engaging in these activities); and

(iv) outline the linkages to other activities, including capacity building and training and utilizing existing national initiatives.

This National Plan gives a broad direction and supports implementation at all levels, taking into account the available resources and national policy priorities. The plan synthesized lessons from other countries and international agencies involved in SEEA implementation over the past 20 to 30 years. It also considers the differences between countries in the choice of accounts to implement, the institutional frameworks within which the accounting is being undertaken, the country specific policy priorities and the other areas of relevance to all implementation efforts.

The implementation of SEEA Central Framework in Uganda brought together multiple stakeholders compiling environment statistics within Uganda. The effective coordination and collaboration mechanisms was formulated and adhered to during project and programme management, monitoring and reporting. The plan sought to attract multiple funding agencies within and across stakeholders hence the need for strong collaboration in order to maximize the gains and meet the objectives for the country and at the same time avoid overlaps and duplications. To date, a number of such collaborative arrangements (in terms of opportunities and initiatives) are in place and these include:

(i) The Government of Uganda commitment to production of statistics that can be used to make clear long-term policies and strategies for adaptation to the impacts of climate change while following a low carbon development path through adaption and mitigation policies and practices as indicated in the National Development Plan II (NDP II).

(ii) A section of Satellite Accounts and Environmental Accounting has been created within UBOS with a mandate to spearhead the implementation of SEEA.

(iii) A coordinated capacity enhancement programme developed and implemented.

(iv) Inclusion of National Environment Management Authority (NEMA) as an agency within the scope of the Plan for National Statistical Development (PNSD) of the National Statistical System (NSS). Currently, NEMA is preparing its first Sector Strategic Plan for Statistics (SSPS) covering the production and development of environment statistics, thus strengthening SEEA compilation.

(v) Implementation of a Country project for development of environment statistics in Uganda by UBOS and NEMA with support from UNSD.

(vi) Strengthening of the Environment Information Network (EIN) with NEMA as the Secretariat. The EIN comprises of 26 institutions and has a clear institutional framework

and characteristics. This arrangement is similar to that proposed by UNCEEA on creation of a program information structure to facilitate the coordination, monitoring and reporting of the SEEA in a multi-stakeholder environment. Its main characteristics are:

a. Open membership to all, although the initial emphasis was to ensure involvement of large data producing government agencies and more recently, major data users.

b. Create awareness of information management needs and issues, capacity development, promotion of standards, and elaboration of data release policies by the data producing institutions.

c. Provide a forum for communication on a range of technical, institutional and policy issues relating to the availability, dissemination and use of environmental information.

2.2.1 Linkage of SEEA to relevant programs, policies and projects in Uganda

1. Uganda National Development Plan II 2015-2020:

Uganda's Vision 2040 and the National Development Plan II identified five strategic investment areas to propel Uganda to a middle income status. In pursuit of this growth path, the NDPII identifies the need to embrace a green growth strategy. This entails mainstreaming environmental considerations, including climate change, in national policy and planning; improving the human environment; reducing energy use; making natural resources accessible in a sustainable way; protecting freshwater, and terrestrial ecosystems; improving environmental awareness and education; effective biosecurity; sustainable financing for the environment; and enhancing technical capacity to support environmental programs. In order to monitor the attainment of NDPII and Uganda's vision 2040, there is need for data on respective indicators. SEEA CF is an idea tool for providing data to track progress of these indicators in specific accounts on energy, water, forests, sustainable production and consumption among others.

2. Climate Change reporting:

In order to meet commitments made related to the United Nations Framework for the Convention on Climate Change (UNFCCC), Uganda pledged to conduct regular emissions reporting. With the creation of the Climate Change Department (CCD) in the Ministry of Water and Environment (MWE) and the Uganda National Climate Change Policy 2015 (NCCP, 2015), this commitment will be met. In May 2015, the Climate Investment Fund (CIF) selected Uganda as one of the second round of countries to prepare the Strategic Program for Climate Resilience (SPCR) under the Pilot Program for Climate Resilience (PPCR). The PPCR was designed to pilot and demonstrate ways to integrate climate risks and resilience into core development planning in developing countries. The CIF, in January 2016, approved a preparatory grant to support the Government of Uganda (GoU) to prepare its SPCR. The SPCR was

alignment with the National Vision 2040, the National Development Plan II (NDP II, 2015-2020), the National Climate Change Policy (NCCP, 2015), Uganda Green Growth Development Strategy (UGGDS) (2018-2030), and the global Sustainable Development Goals (2016-2030). The programme is aligned with priority strategies and plans of relevant sectors in the ministries, government departments and agencies. The SPCR will contribute to the PPCR objective of mainstreaming of climate concerns into Uganda's development programs and will specifically contribute towards achievement of the Nationally Determined Contributions (NDC) commitments. SEEA will be able to provide the required data in specific accounts to monitor and track progress of relevant indicators.

3. State of the Environment reporting

Uganda under the National Environmental Management Authority (NEMA) releases biannual State of the Environment (SOER) Reports on the status of the environment. However, there is need to improve the data and indicators in this report to reflect the priority Sustainable Development Goals (SDGs) and green growth strategy for Uganda as a country. In this way SEEA can help to provide the necessary data to enrich these SOERs by providing input to the district level environment reports. Data from the forest accounts, biomass data, land use/cover and change, and water accounts can provide useful inputs into the SOERs.

4. Uganda Green Growth Development Strategy (UGGDS)

The UGGDS seeks to operationalize the tenets of a green economy as espoused in the Uganda Vision 2040 and the National Development Plan (NDP II) and covers a time horizon of fifteen years. An implementation roadmap/action plan of the strategy was also developed to sequence interventions for the short term, medium term and long term.

In Uganda's context, green growth is defined as a system or development paradigm that aims at catalyzing economic growth through the efficient use of the country's natural, human, and physical capital in an inclusive manner along a low carbon emissions and climate resilient development pathway (GoU 2017). It is important to note that the transition to green growth entails a number of trade-offs for some investments which calls for evidence based policy making supported by SEEA.

The *Objectives of the Uganda Green Growth Development Strategy* are to:
  a) Enhance Uganda's economic growth while creating new opportunities for decent employment;
  b) Support a low-emissions economic growth pathway that integrates resource use efficiency, climate resilience, disaster risk reduction and optimal use of natural capital;
  c) Undertake a socially inclusive growth that improves food and nutritional security; and

d) Put in place an enabling institutional, governance, and financing framework to operationalize an optimal green growth development strategy.

In addition, the Green Growth Development Strategy has the following *Guiding Principles*:
  (i) Wealth creation and social inclusiveness;
  (ii) Creation and promotion of green jobs;
  (iii) Low carbon emission and climate resilient growth;
  (iv) Science, innovations and compliance;
  (v) Resource use efficiency; and
  (vi) Creation of partnerships at sub-national, national and global levels.

5. **Other relevant sectoral policies.**

There are a number of national policies that relate to the environment. These include the National Environment Policy, the Energy Policy, the Water Policy, the Agriculture policy and other policies related to forestry, marine resources, tourism, biodiversity, and water shed areas. In order for these policies to be effective they require data and information. These policies will be more evidence based in future when the corresponding accounts are compiled and published. For instance, the water account will be informative to the water policy, agriculture policy and energy policy (especially on hydro-electricity). The forest policy, tourism, biodiversity and water shed areas will receive inputs from the forest accounts, biodiversity and water accounts. All these will be available upon implementation of SEEA and compilation of respective accounts in Uganda.

2.3 Needs Assessment for Environmental-Economic Accounting

In order to assess the overall needs with regard to the Environmental-Economic accounting in Uganda, assessment tools in the form of questionnaires were used. These tools were developed by UNSD and were customized to the Ugandan situation. These tools included the following:

- Stakeholder assessment tool: this considered at the stakeholder (MDAs) as either a data producer, user or both. It assessed the MDAs statistical capacity, data sharing arrangements and data security measures in place. It also attempted to ascertain whether the institution has an information dissemination strategy, priority dissemination channels and the broad spectrum of source data for which the institution/MDA is responsible for (this was a global list of all the institution's mandate in terms of data production even if at the time of assessment, the institution may not be producing some data)

- Assessment of national policy priorities for Uganda: This tool provided the four policy quadrants (improving access to services and resources, managing supply and demand, improving state of the environment and reducing impact, and mitigating risks and adapting to

extreme events) as detailed in the agenda for sustainable development. The assessment anchored the various issues details by aligning them to the relevant policy quadrants, ranked the issues on 1-5 ranking scale and provided the specific Uganda national policy frameworks where the issues are highlighted. In addition, the policy priorities were also assessed in terms of geographical coverage (National or regional) and the responsible decision making organ(s) for the specific policy issue.

- Assessment of source data: This provided a 'wish list' of all indicators that are within the mandate of the institution i.e. those currently produced and any other that are within the mandate of the institution but not currently under production. Each indicator was assessed in terms of: current production, category (stock, flow or supply), reporting unit, responsible organization, statistical standard used, National statistical legislation, availability, accessibility, frequency, quality of indicator (reliability, relevance, accuracy and timeliness), and the overall quality of its source data in terms of percentages.

The overall initial synthesis of the results of the assessment of the key MDAs was provided in the National Assessment Report for Uganda (a list MDAs is appended to this NP-AEEA). From the national assessment, the synthesis results provided a consistent picture across all MDAs in terms of data availability, quality, and frequency of release and status of the particular indicator. From the national assessment, the following were the key findings:

1. Unresponsiveness of some of the MDAs in providing initial assessment data despite the earlier enthusiasm exhibited during the bilateral meetings.
2. Inconsistent collection of data leads to missing data sets for some years thus making it difficult to make accurate predictions. Further, there is limited data on the contribution of the ENR sector to the Ugandan economy, poverty reduction and improved livelihoods.
3. Lack of up to date data on soils, Uganda's major natural asset, and topographic data, meteorological data among others, are all not up-to-date; Fertilizer data continues to be difficult to collect.
4. Limited physical water data. The key MDAs on the water sector reported data gaps and these made compilation of water accounts challenging to UBOS. Moreover, data were also missing on crop water usage especially rain-fed agriculture.

Uganda Bureau of Statistics as the coordinator of the Plan for National Statistics Development (PNSD) has embarked on efforts to bring together all the environment statistics/data producers to have a Sector Strategic Plan for Environment Statistics. The plan is hinged on the following seven strategic goals/objectives:

1. Develop and implement an environment information knowledge management system and communication strategy;
2. Develop legislation and guidelines on environmental information gathering, sharing and dissemination;
3. Strengthen the Environmental Information Network (EIN) and the Environmental Information System in NEMA;
4. Promote use of ICT in information dissemination and make ICT facilities compatible across MDAs;
5. Strengthen environment information units within lead agencies through training and logistical support, and formally link them to the national environmental information network to be operated by the information centre;
6. Document, evaluate, store, disseminate and utilize existing indigenous knowledge and practices with regards to environment and natural resource management; and
7. Ratify data sharing arrangements/agreements between UBOS and other MDAs

3. IMPLEMENTATION METHODOLOGY AND EXPECTED OUTCOMES

The linkage between proposed activities and their ultimate outcomes is crucial for meaningfully attaining of such outcomes. In this section, the key outcomes that can be achieved for Uganda by adopting and implementing the proposed National Plan for Advancing Environmental Economic Accounting (NP-AEEA) are highlighted. The description includes the *NP-AEEA – Investment Logic Framework* program activities along with the timelines, milestones and steps required to attain the outcomes. The expected outcomes of the NP-AEEA are:

a) A holistic environmental-economic accounting information system that responds to the requirements for information on sustainable development and green economy;

b) An enhanced statistical coordination between levels of government in Uganda and initiatives for the advancement of SEEA, including water accounts, energy accounts, forest accounts and ecosystem accounting among others;

c) Training and capacity building in environmental-economic accounting, covering among others water accounts, energy accounts, forest accounts and ecosystem accounting;

d) Enhanced coordination with international and donor agencies for assistance with environmental-economic accounting and related data initiatives;

e) Improved financial resources, data quality, access, technical capacity and statistical infrastructure for environmental-economic accounting;

f) Development of a set of priority accounts, namely; land accounts, fisheries resources accounts, forest accounts water accounts, and energy accounts, and selected experimental ecosystem accounts for tourism biodiversity, wetlands and forests, among others; and

g) Production of the Environmentally Extended Supply and Use Table (EE-SUT).

3.1 Methodology and building blocks for SEEA implementation in Uganda

This section provides an overview of the building blocks and methods necessary to implement the NP-AEEA. The purpose is to provide generic guidance on a standardized approach based on current frameworks, systems, methods and guidance and training materials. The guidelines on Integrated Economic Statistics (IES)[4] suggest three main interlinked and mutually reinforcing building blocks for developing integrated statistical systems:

a. Conceptualizing an organizational framework,

b. Institutional arrangements and

c. Statistical production processes.

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[4]http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf.

Linking these to the needs assessment and high-level outcomes sections above, the building blocks when applied to the *NP-AEEA – Investment Logic Framework*, are:

1) Mainstream the Environmental-Economic Accounting Frameworks;
2) Rationalise and Integrate Institutional Arrangements;
3) Integrate the Data, Tools and Statistical/data Production Processes; and
4) SEEA Water, Land, Forestry, Wetlands, Fisheries, Energy accounts and selected Experimental Ecosystem Accounts[5].

Building blocks 1-3 are the core and required to achieve the overall aim while building block 4 ensures continuous improvement including research and development, testing and experimentation to adapt the guidelines of the SEEA to the country's situation. The building blocks are combined with the Generic Statistical Business Process Model (GSBPM)[6]. The GSBPM describes and defines the set of business processes needed to produce official statistics. It provides a standard framework and harmonised terminology to help statistical organisations to modernise their statistical production processes, as well as to share methods and components. The GSBPM can also be used for integrating data and metadata standards, as a template for process documentation, for harmonizing statistical computing infrastructures, and to provide a framework for process quality assessment and improvement.

The GSBPM should be applied and interpreted flexibly and used to provide guidance. It is not a rigid framework in which all steps must be followed in a strict order. Instead, it identifies the possible steps in the statistical business process, and the inter-dependencies between them.

Although the presentation of the GSBPM follows the logical sequence of steps in most statistical business processes, the elements of the model may occur in different orders in different circumstances. In addition, some sub processes will be revisited a number of times forming iterative loops, particularly within the Process and Analyse Phases (PAP).

GSBPM is a matrix, through which there are many possible paths. In this way, the GSBPM aims to be sufficiently generic to be widely applicable, and to encourage a standard view of the statistical business process, without becoming either too restrictive or too abstract and theoretical. The building blocks are expanded on below followed by a discussion of methodologies to support their implementation.

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[5]Experimentation has been added as an additional building block in support of SEEA EEA and the experimental nature of work needed. In essence the accounts are water, forestry and energy but for future considerations SEEA-EEA may be considered.
[6]www.unece.org/stats/gsbpm/GSBPM/GSBPM+v5.0
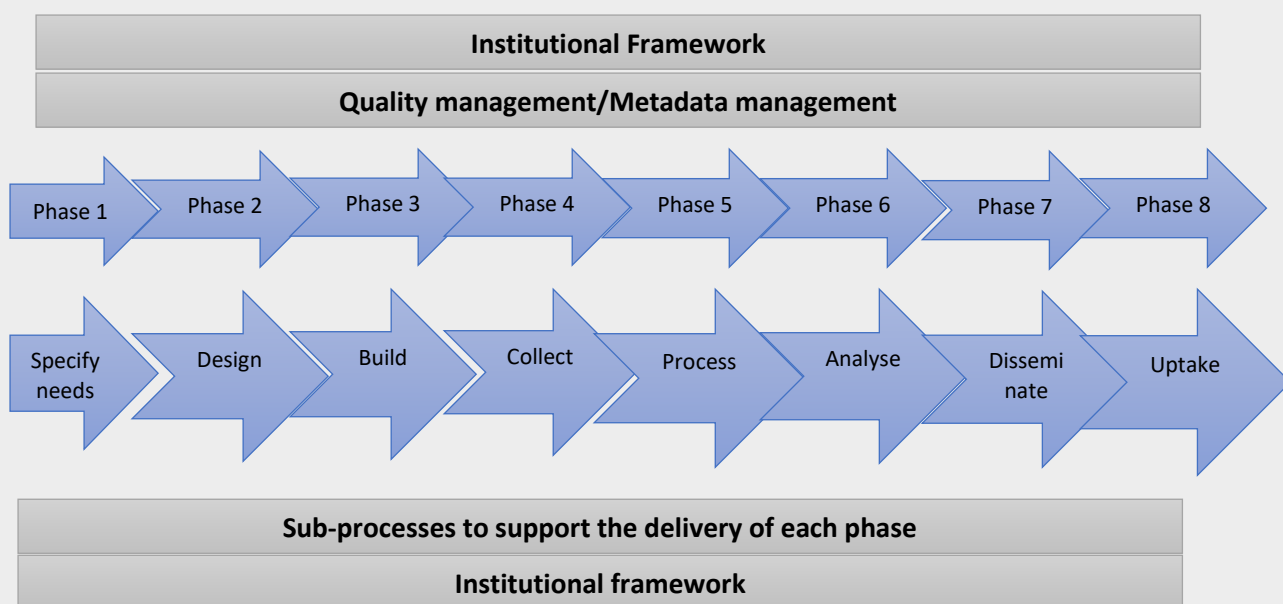
Figure 1: Generic Statistical Business Process Model (GSBPM)

3.2   Mainstreaming the environmental-economic accounting frameworks

The fundamental objective of this building block is to communicate with and engage national and international partners for the implementation of environmental-economic accounts. The foundations of the GSBPM are quality management and metadata management frameworks of which the SEEA is one.

This building block aims to mainstream the environmental-economic accounting frameworks and to structure it in stages that can be implemented and monitored. The framework builds on SNA principles, but is extended based on ecological foundations and under the umbrella of SEEA-CF and SEEA-EEA. Novel concepts and ideas need to be mainstreamed for the purposes of experimentation and familiarisation across government agencies and academia. It is an umbrella block of work that guides the development of the others and is necessary for their success. Building and publishing environmental-economic accounts relies on a number of related processes, all geared towards the advancement of organizational design (institutions), technical (data collection and processing), scientific discovery (generating new data) and ultimately an improved understanding of natural resource and ecosystem values as assets that provide essential services. These processes combine available knowledge from many disciplines and agencies including national statistics and accounting, management of energy, minerals, land, water, ecosystems and biodiversity and studies of key ecological processes among others. All these require clear communication tailored to their needs so that mainstreaming, adaptation and application of the available knowledge can occur.

3.3 Rationalise and integrate institutional arrangements

The "One-UN" process recommends that countries move towards one integrated National Statistical System. That is, all agencies should work within the same quality guidelines and seek opportunities for reducing duplication of effort by improving coordination in statistical production.

Any new system, process or framework that affects several agencies to be adopted by government requires very careful assessment of current institutional arrangements and possible impacts on those arrangements. The GSBPM recognises this as a condition to achieving adoption, funding, monitoring and enforcement of any new system. Further, it can be applied to all stages in the process and, at each stage, institutions and agencies will understand clearly their roles and responsibilities.

There are many agencies involved in the collection and publication of data. In many instances, the need has arisen from within individual agencies to meet their reporting and policy requirements. For instance, an environmental agency may focus on the classification and measurement of important ecosystem assets in the landscape whereas an agricultural agency will focus on agricultural resources and economic benefits of the same landscape. Both approaches are valid in their own right, but the aim of environmental-economic accounting is to build an integrated set of information to support decision making and trade-offs across domains. Further, the movement towards a more integrated and streamlined process for the collection and publication of data provides opportunities for lowering the overall cost and increasing its use and efficacy. This does not imply reducing the control that agencies have over their own data collection processes, but it does require rationalising the standards used for data collection and strengthening the NSS to share data in real time where appropriate. While the individual agencies are recognised due to their strength in understanding specific subject areas, the National Statistics Office has the overall mandate of ensuring quality in statistical production systems.

3.4 Integrate the data, tools and statistical production process

Environmental-economic accounting is a multi-disciplinary activity, spanning across different Ministries, Departments, Agencies (MDAs) and civil society interest groups. That is, the concepts and tools require a common language between and among disciplines. Integrating existing concepts and tools that have been developed for specific purposes will require adaptation to a common framework, provided by the SEEA-CF.

This building block links to GSBPM Phases 3, 4, 5 and 6 and addresses the main challenges of data gaps, scientific credibility, comparability and data uncertainties that can be bridged by building on the existing data systems, methods and tools. Building environmental-economic accounts provides new challenges for both economic and environmental data collection and production. There is a need to harmonise concepts and rationalise the principles of both disciplines to maintain the integrity of both

areas. In many instances there will be a need to adjust to a shared conceptual framework to facilitate an integrated outcome.

Many of the tools and infrastructure required already exist. However, they operate on different platforms and standards making integration costly in terms of both time and resources. In the medium to long term, the aim of the NP-AEEA is to leverage current systems that offer the flexibility needed to support future demands for integration. Key to achieving this will be the review and assessment of current systems and approaches. This would be followed by the development of a strategic investment plan for their integration. This integration will also identify opportunities for further research and experimentation.

3.5 Water, Forest, Energy Accounts and Ecosystem accounting experimentation

There remains some uncertainty in the science and its application in *ecosystem accounting* within the broad umbrella of environmental-economic accounting. A cost-effective approach to determining the best pathway is to experiment on a number of fronts at the same time whilst keeping in mind the long-term aim of full integration and publication at the national level. Testing the SEEA-EEA is part of a global experiment to develop effective ecosystem accounts. In this respect, the experience of all countries will contribute to this experiment.

Experimentation also serves as an important vehicle for mainstreaming ecosystem accounting. During the experimentation phase, agencies less familiar with ecosystem accounting can be involved and grow to understand how demands for data are changing and how the accounts can be tailored to their policy needs.

Uganda as a country has expressed interest to participate in this experimentation with initial compilation of Forest and Wetland EEA, and on-going work on the Land, Fisheries and Tourism (Biodiversity) Accounts through strategic MDAs including NFA, NEMA, UWA, MWE, MAAIF and MHLUD. Despite the high-level interest in sustainable development and the need articulated among a range of stakeholders to assess the economic benefits, the scientific and technical capacity to undertake some of the sustainability initiatives is low. This establishes the need for capacity development in light of SEEA-EEA in Uganda.

4. FRAMEWORK FOR IMPLEMENTING SEEA IN UGANDA

4.1 Operational framework for Implementing SEEA in Uganda

The operational framework for SEEA implementation will facilitate the creation of an environmental-economic accounting sphere aimed at providing environmental indicators and information necessary to track the national and international development frameworks. As illustrated below, the information will be compiled using the UN SEEA CF as operationalized by the Plan for National Statistics Development (PNSD) and the Sector Strategic Plans for Statistics (SSPS) of MDAs which highlight the environmental indicators needed in the Sector Strategic Plans and consequently the NDPs and Vision 2040.
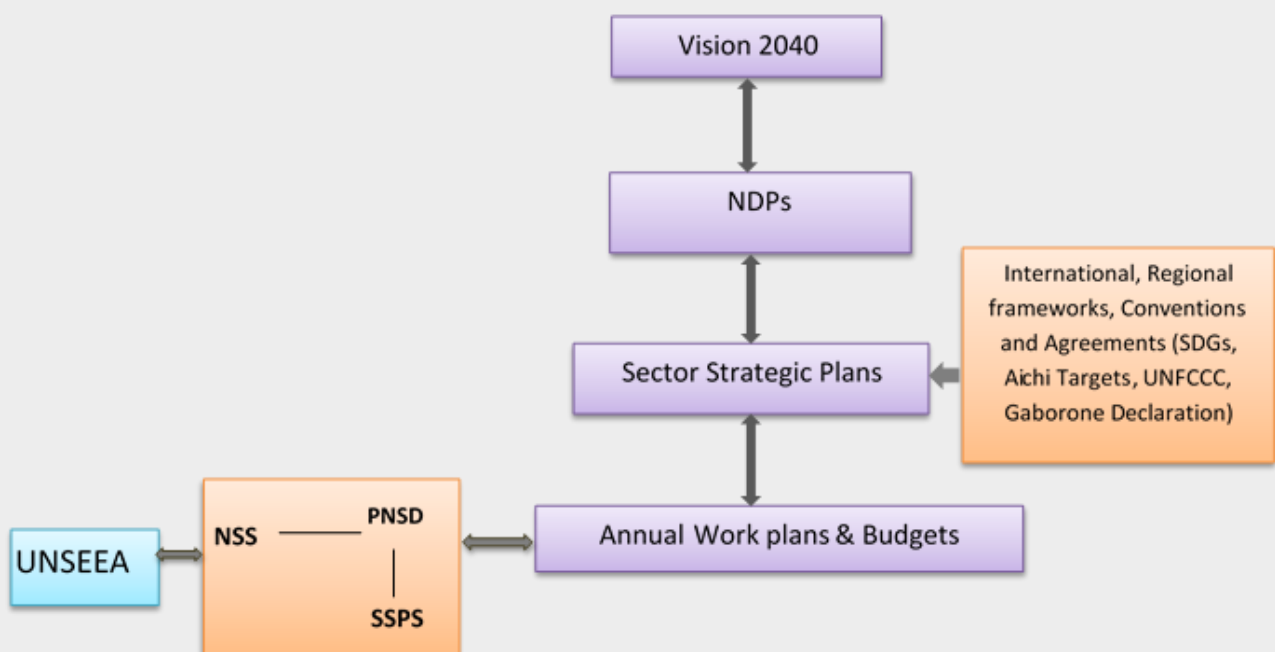
Figure 2: Operational framework for the NPAEEA

4.1.1 Operational architecture of Uganda's NP_AEEA

4.1.1.1 Accounting architecture

As the SEEA implementation will entail design of new accounts, it is crucial to ensure not only timely availability of micro-data but also the time required for processing such data. A part of the experimentation should be to test the design for feasibility within the business and software architecture. This will reveal any consequences for the Information Technology (IT) environment (Geographic Information Systems (GIS) capacity, running time, storage etc.). If the feasibility tests show bottlenecks, such hindrances should be resolved at reasonable cost before one can embark on the next phase. Should a need arise to adapt the design, the experimentation, the estimated costs and benefits, a decision must be made whether the programme is feasible and acceptable for all partners

involved. The accounting architecture should be able to outline the sequence of steps required to attain the outputs. These may include but are not limited to the following:

1. Determining accounting inputs;
2. Data collection (or generation – through sampling, inventories/surveys, detailed process-modelling, spatial and remote-sensing applications);
3. Data harmonization (processing, quality control, imputation);
4. Accounting outputs estimation; and
5. Accounts validation.

The modular program of work proposed offers an opportunity to adapt and tailor these elements to the needs of each individual country for all the different phases of the Generic Statistical Business Practice Model (GSBPM).

4.1.1.2. Information and decision support tools architecture

Besides statistical systems managed by UBOS, there are many systems in place for the collection and collation of data for decision-making. These include geographical information systems, biophysical models, agency databases, business and land registers and taxation registers (at Uganda Revenue Authority –URA).

Many of the compilation and statistical systems are amenable to producing data that can be used for environmental-economic accounting, but may require further work to integrate with other systems. This area of experimentation is very important because there are significant opportunities to leverage the current systems in these organizations and thus save crucial resources and avoid duplication.

It is important that experimentation has clear links with policy and decision making in order to demonstrate the benefits of change. Examples may include:

1. The specification of ecosystem assets and services that are important for guiding investment in ecological infrastructure;
2. Land use change programs for carbon sequestration[7];
3. Trade-offs between optional and mandatory uses of land in land use planning; and
4. Setting geographic priorities for conservation.

4.1.1.3 Moving from experimentation to official production

Case studies (pilots), specialized national statistical collections, sub-national collections and experimental accounts all offer opportunities for scaling-up to national-level GSBPM-compliant statistical processes. Whether or not these have been conducted in accordance to the Phases 1

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[7]http://www.un-redd.org/aboutredd/tabid/102614/default.aspx

through 7 of the GSBPM, more efforts will still be required to ensure that these collections are in tandem in terms of quality, frequency, consistency in concepts, resourcing and long-term planning.

A key step in scaling-up is the development of prototype accounts, which simultaneously use a data quality assessment approach (for example UBOS Data Quality Assessment Framework (DQAF). Prototyping allows the accounting process to proceed to publication with the understanding that both the accounting architecture and the quality of data will be subject to continuous improvement.

The recommended approach to accomplishing this is for UBOS to assess a candidate data collection with respect to quality and coherence with the SEEA. In the case of well-established collections, the SEEA team will need to decide how the collection may be adapted and scaled to the national standard without affecting its original purpose. This scaling up of existing work should be seen as a national strategic investment, since it will:

1. Make a new data source available to address national policy priorities at a relatively low cost;
2. Improve the consistency and coherence of existing data collection activities; and
3. Provide new uses and users for existing data.

4.2   Institutional framework for Implementing SEEA in Uganda

The Institutional framework for SEEA builds from the operational framework adopted of integrating SEEA into national policy formulation, implementation and evaluation. There are six institutional nodes. The nodes comprise Technical Committees (TCs) at sector level, Technical Working Groups (TWGs) at a multi-sectoral level, the national statistical office at UBOS, the National Steering Committee (NSC), along Partners. Technical committees within the sectors will be constituted by technical staff from the Ministries, Agencies and Local Governments (MALs), private sector, CSOs and partners associated with the accounts under development. For instance, the Technical Committees for the Forestry Accounts were formed under the Water and Environment sector and consisted of represented from MALs from the sector. The TCs are the primary data producers, and provide technical insight to guide compilation. Compilation of the accounts will be initiated at the TC level. Technical Working Groups bring together MALs, private sector, CSOs and partners. The TWG is composed of data providers and users to provide technical oversight for accounts compilation, synthesis and reporting. The National Statistics Office in Uganda is UBOS. UBOS is mandated to develop national accounts including satellite accounts of SEEA. UBOS provides statistical expertise to coordinate and complete compilation of SEEA. At the apex of the institutional structure is the NSC. In addition to coordinating the activities undertaken by all actors, the NSC will provide strategic guidance towards implementation of the national plan. The NSC will ensure that the accounts developed are aligned with national and international commitments and obligations. The NSC will also have a feedback role of ensuring the implementation of the national plan is integral to development planning

priorities of public sector, private sector, civil society and partners. Whereas partners are an important node, they are concurrently cross cutting across the other four nodes. It is expected that partners will seek engagement at different levels based on their interests and mandates. For example, UNSD engaged with the UBOS, the NPA and NEMA to support development of the national plan, while the World Bank Wealth Accounting and Valuation of Ecosystem Services (WB/WAVES) engaged across all four nodes in the implementation of the WB/WAVES Natural Capital Accounting (NCA) project.
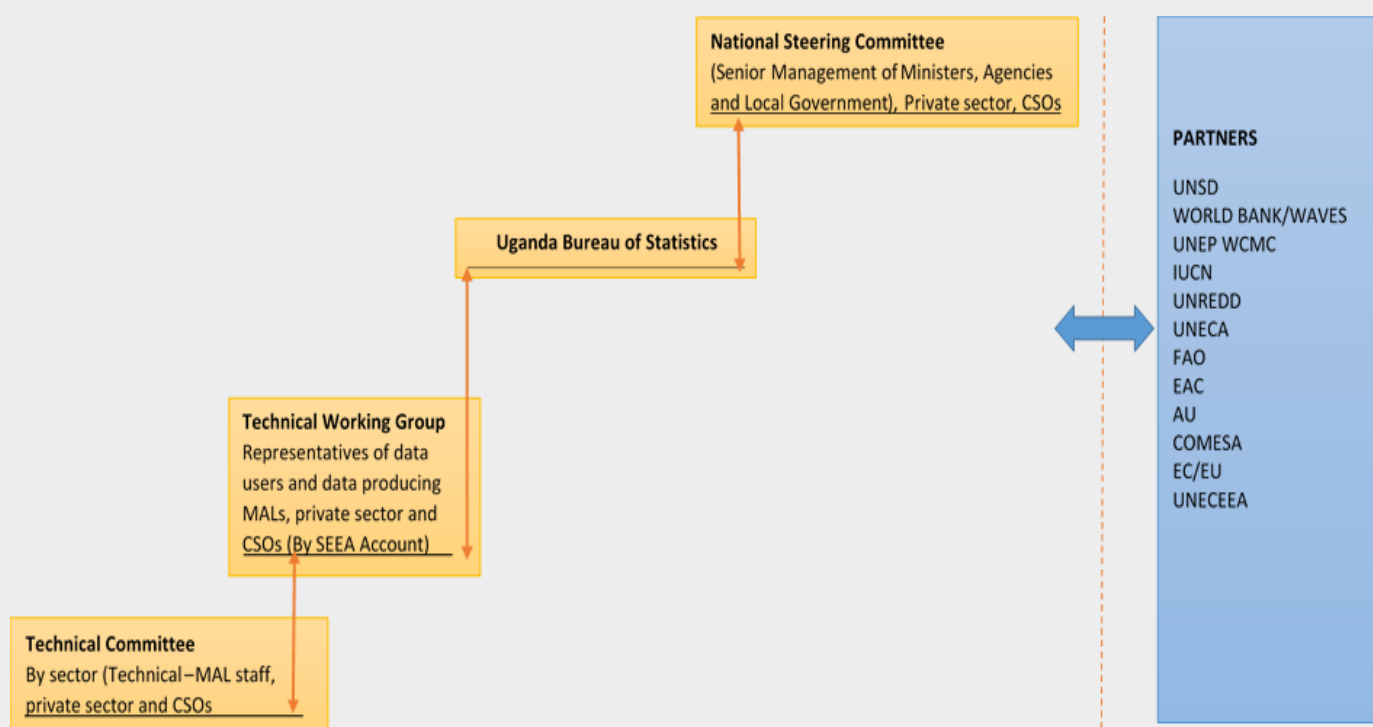
Figure 3: Institutional Framework for NPAEEA

4.3   Roles and responsibilities for environmental-economic accounting

Ministries, local governments and agencies that compile data are placed outside the National Statistics Office (UBOS). Therefore, an integrated system of statistics is necessary to create and harmonize the partnering space. The first step is to engage all relevant agencies in the discussion of the necessity and the mutual gains of improving integration within the National Statistical Systems (NSS). Partnering and maintenance of the institutional linkages will be the responsibility of the top management of the ministries and agencies involved.

The second step is agreement on the possible new roles and responsibilities of the agencies in the new systems. When general agreement on the scope of the integrated systems of statistics has been reached, a detailed design of the whole chain of all processes, inputs, intermediary products, outputs and all interdependencies will be undertaken. Design of the operations of the national accounting system will be iterative, pilot accounts will be compiled following a modular approach and further

improvements will come from cumulative learning and experiences gained. Initial design and testing will require paying attention to the following:

1. Relevant working groups;

2. Strong advocacy;

3. Workshops – for policy, buy-ins and awareness building, etc.;

4. Demonstrations based on methods and results;

5. Feasibility assessments;

6. Proof of concept – experimentation, structural change;

7. Training sessions for purposes of retooling and capacity enhancement; and

8. Customised communication plans for example regular production of statistical compendium on selected accounts.

4.4 Research, development and experimentation

As a good practice measure, the United Nations Statistical Division (UNSD) invites individual countries to carry out extensive experimentation and pilots to test whether methods and concepts are appropriate, and what data can be used or developed. The SEEA-EEA provides a core measurement framework, but has not yet been developed to the point where all methodological issues have been resolved and universal compilation guidelines can be provided. Issues that require further experimentation include:

1. Accounting classifications, with standardised item definitions and measurement methods (Accounting classification enables the translations between existing classifications);

2. Country-specific classification of ecosystem assets;

3. Units for ecosystem accounting;

4. Environmental indicators and aggregates;

5. Up-scaling and down-scaling;

6. Valuation; and

7. Validation data and specific quality assessment criteria to formally track progress.

These methodological issues will be addressed in collaboration with an international community of practice on ecosystem accounting and thus, the critical representation of the international Community in the operational and institutional framework of the plan. This can be enhanced by considering the pilot accounts as experiments in which concepts, classifications and methods are tested and improved in successive iterations. Different options, for example, for classifications or data sources could be applied in parallel and evaluated.

5. INVESTMENT LOGIC FRAMEWORK

The NP-AEEA serves as both a policy document and strategic planning guidance for environmental economic accounting in the country. The Investment Logic Framework (ILF) provides a structured approach to analysing the different activities that may be undertaken to achieve the desired outcomes (Figure 2). The ILF comprises the key elements that are essential to the effective delivery of outcomes of the NP-AEEA.

5.1   Participation and enabling factors

Participation is central to the mainstreaming of environmental-economic accounting and achieving buy-in and engagement. Often, an assessment of participation and enabling factors occur together. Enabling factors may require changes in institutional arrangements/mandates before statistical development activities commence. Additional resources may need to be allocated in order to achieve all enabling factors. It is, therefore, important for all participants to be very clear from the outset what their involvement may mean in terms of budget and other resources (Figure 4**)**. The detailed synthesis of participation and enabling factors are discussed below:

A. Participation:

1.   Continuous Institutional Assessment

There was agreement on the need to have a strategic approach for continuous institutional assessments (of needs and data availability). This approach would be best served by a National User Training Workshop focusing on users and data providers as well as stakeholders across the full spectrum of EEAs. Thereafter, UBOS can follow up with bi-lateral assessments as and when required. This proposed National User Training Workshop would serve as a capacity building element (see below).

2.   Committees and working groups

There was agreement to replace the "Technical Working Group" with UBOS, and then move the "senior steering committee" and the "Technical committee" to the Participation section. The "senior steering committee" may comprise political stakeholders: Office of the prime minister, Ministry of Planning and Finance, permanent secretaries of MAAIF, MWE, MEMD and MTWA depending on the accounts to be compiled. The "Technical committees" will be positioned alongside UBOS as a partner. Members of this committee may vary depending on the type of account. Members will be selected based on their role as users of the accounts and as data providers to the account. Each committee will receive a TOR specific to the particular account.

Participation

National Steering C0mmittee (MoFPED, MWE, UBOS, Key MALs, CSOs, Private Sector)

National Statistics Office (UBOS - National Accounts)

Technical Working Group (Core Sector MALs, Private sector, CSOs, Partners)

Technical Committies drawn from focus sector MALs, private sector, CSOs and Partners

Enabling factors

Policies, laws and regulations.

NDPII and NDPIII, Vision 2040, DSIP, PNSD, UBOS DQAF, SNA, EIN, BIOFIN.

Guidance on UNSEEA process and international comparability.

Appropriate Institutional working arrangements and data harmonization

Governance and funding mechanisms

Activities

Developing priority accounts

Water accounts, Forest acoounts

Energy Accounts

Land accounts, Air emission and waste accounts

Ecosystem extent and condition account

Technical analyses and case studies on dependence of economy on natural resources including ecosystems and their services

Capacity building (Human resource, Infrastructure)

Development of protype integrated indicators

Outputs

Pilot accounts:

Water, forest, land, Energy, Fisheries, Wood Resources, Soil, Experimental Ecosystems accounts.

Deepening and scaling of publications, compendium of statics, Environmental outlook, National State of the Environment reports, National Biodiversity assessment. Environment Extended-SUT.

Integrated indicators and policies on sustainable development.

Enhanced statistical coordination within Uganda

EEA Curriculum integrated into education system.

Aligned SSP

Outcomes

An integrated EEA platform embedded in national, subnational development planning.

Improved data infrastructure.

Coordinated Government and development partner programming on SEEA.

Stronger linkages between national & international platforms.

Strong understanding of the dependence between livelihoods, the economy and natural resources management.

A sustainable funding mechanism for EEA in Uganda

Impacts

Slow down and reversal of in environmental degradation, and restoration degraded natural resources, and ecosystems.

Behavioural change leading to sustainable use of the environment and natural resources.

Sustainable livelihoods, especially among natural resource dependent communities.
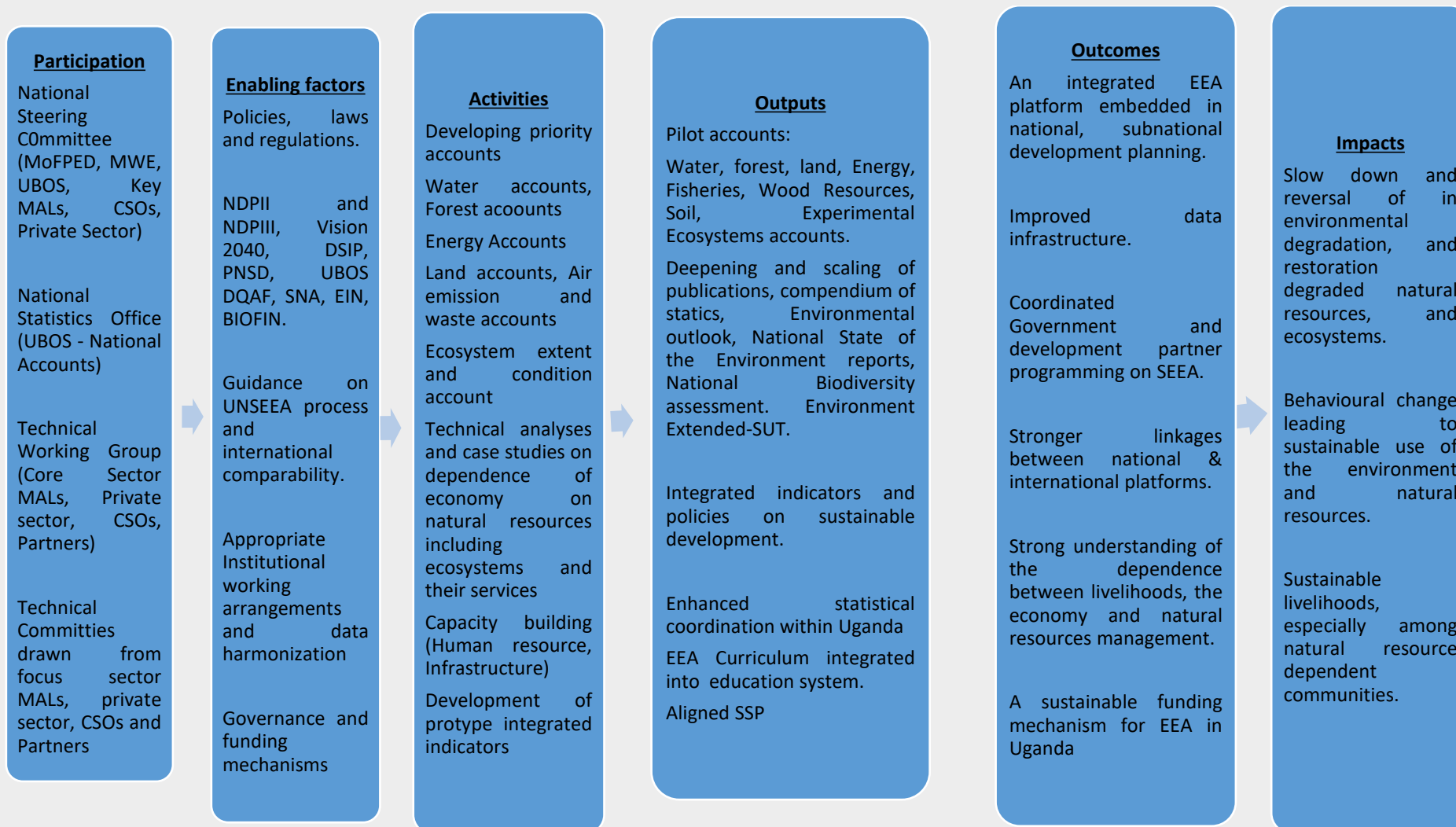
Figure 4: Investment Logic Framework for SEEA implementation in Uganda

B. Enabling Factors:

1. Publication strategy

There was agreement that a publication strategy for the EEAs provides a very practical milestone of action and success. It was further resolved that the near term strategy would be to publish the statistical tables of the accounts in the Annual Statistical Abstract, as an inclusion in the relevant chapters. UBOS will, however, work towards a separate publication, i.e. a "compendium of EEAs" once the water, forest and energy accounts are in place – this will enable UBOS to do value addition to the EEAs e.g. development of indicators and detailed analysis of data. In the interim, UBOS would require to do capacity building of users and data producers to enable use of the data tables (refer to the National User Training Workshop).

2. Framework for Development of Environmental Statistics (FDES)

The Framework for Development of Environment Statistics (FDES) covers issues and aspects of the environment that are relevant for analysis, policy and decision making. It is designed to assist all countries including Uganda in the formulation of environment statistics programmes by:

- Delineating the scope of environment statistics and identifying its constituents;
- Contributing to the assessment of data requirements, sources, availability and gaps;
- Guiding the development of multipurpose data collection processes and databases; and,
- Assisting in the coordination and organization of environment statistics, given the inter-institutional nature of the domain.

Uganda Bureau of Statistics, through the Directorate of Agriculture and Environment Statistics (DAES) is steadily using the FDES to guide its development of Environment Statistics. To date, the Bureau has been able to accomplish the following using the FDES:

- Completed the Environment Statistics Self-Assessment exercise which helped in identifying the data requirements, sources, availability and gaps in the various MDAs;
- Drafted a National Action Plan (NAP) for Environment Statistics which will guide compilation of Uganda; and,
- Started the regular compilation of the Uganda Environment Statistics Annual reports based on the Six Components of the FDES 2013.

3. Indicative budget for prioritized SEEA activities (2017/18, 2018/19 and 2019/20)

A summarised indicative budget for the activities for the first three years estimated a cost of UGX 1.5 billion (Table 2), even though subsequent events show that the actions required would easily surpass the indicative estimates. Nonetheless, in the first year the pilot water accounts for 2015 and the water accounts for 2016 were compiled. In the second year, the first Compendium for EEA will be published. It will include Water Accounts for 2017, Forest Accounts for 2015 and the pilot energy accounts for 2016. During the third year, the second Compendium for EEA, 2018 will be produced with the

following accounts: Water Accounts for 2018, Forest Accounts for 2017, Energy Accounts for 2017, Environment Protection Expenditure Accounts and Environment Taxes and Subsidies.

The activities covered within the budget include data collection and analysis, validation and reconciliation meetings, research studies, publications and dissemination activities for each of the expected outputs.   It is expected that the budget will be spread between GoU budgetary appropriations and contributions from partners through on-budget and off budget appropriations through public, civil society and private sector.

Table 1: Indicative three-year Budget for the NPA-EEA for Uganda

Year	Expected Out put	Proposed Budget (UGX)	Amount Required (USD)	Approved Budget (UGX)	Projected Budget (UGX)	Funding Gap (UGX)
Proposed three year budget for NP_AEEA for Uganda						
2017/18	Pilot Water Account (2017)	183,798,000	48,368	44,584,000		139,214,000
	Water Account (2016)	247,942,000	65,248	17,750,000		230,192,000
	Total	431,740,000	113,616	62,334,000		369,406,000
2018/19	Water Account (2017)	183,198,000	48,210		102,958,650	80,239,350
	Pilot Forest Account	183,798,000	48,368		80,078,950	183,798,000
	Pilot Energy Account (2016)	178,559,263	46,989		99,639,400	178,559,263
	Pilot Land Account	11,404,000	3,001		11,404,000	11,404,000
	Total	556,959,263	146,568		294,081,000	454,000,613
2019/20	Water Account (2018)	183,798,000	48,368			183,798,000
	Comprehensive Initial Land Accounts[9] Forest Resource Accounts, Experimental Forest Ecosystem Accounts and Wetland Accounts[9] Natural Capital Accounting (NCA) Strategy[9]		Approx. $1,000,000			
	Energy Account (2017)	206,988,737	54,471			206,988,737
	Publish Initial Compendium of EEA, 2020	11,404,000	3,001			11,404,000
	Implement first Dissemination of Findings of Natural Capital Accounting in Uganda[8]					
	Carry out International Natural Capital Forum[9]					
	Total	402,190,737	105,840			585,988,737
	Grand Total	1,574,688,000	366,024	62,334,000	294,081,000	1,409,395,350

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[8] Covered under WAVES activities

5.2 Coordination with Key stakeholders for SEEA in Uganda

Several government institutions in Uganda are involved in providing data on SEEA and using sustainable development information. They are:

- Ministry of Water and Environment (MWE);
- Ministry of Finance, Planning and Economic Development (MoFPED);
- Directorate of Environmental Affairs (DEA);
- Directorate of Water Resources Development (DWRD);
- Directorate of Water Resources Management (DWRM);
- National Water and Sewage Corporation (NWSC);
- National Forestry Authority (NFA);
- National Planning Authority (NPA);
- National Environment Management Authority (NEMA);
- Ministry of Energy and Mineral Development (MEMD);
- Ministry of Agriculture, Animal Industry and Fisheries (MAAIF);
- Ministry of Tourism, Wildlife and Antiquities (MTWA);
- Kampala Capital City Authority (KCCA); and
- Uganda National Metrological Authority (UNMA).

5.2.1 Enabling Factors and other initiatives

Adequate knowledge base and firm foundation for EEA exists in Uganda. This is a result of several capacity enhancement initiatives such as the UN facilitated SEEA-CF training in which several Ministries, departments and Agencies (MDAs) participated. This section highlights the progress on environmental-economic accounting and the data available to enable the development and on-going production of environmental-economic accounts and the related data sources needed for them. An assortment of projects already completed or that are in progress in Uganda and are directly relevant to environmental-economic accounting are provided. Projects and activities identified include:

Projects/Actions coordinated by Uganda Bureau of Statistics (UBOS)

- Training capacity on the SEEA-CF and SEEA-EEA;
- Participation in interdepartmental Data Forums;
- Implementing SNA 2008; and
- Uganda Statistical Quality Assessment Framework (UBOSQAF).

Projects/Actions coordinated by Ministry of Finance Planning and Economic Development (MFPED)

- National Development Plan (NDP) II and NDP III;
- Uganda's Vision 2040; and

- Lead development of National Strategy for Sustainable Development and Action Plan.

Projects/Actions coordinated by Ministry of Water and Environment(MWE) through NEMA and NFA

- National State of the Environment Reporting (NSOER) a biannual publication;

- District State of Environmental Reports (DSOER);

- Environmental Sustainability Indicators;

- BIOFIN (with UNDP);

- National Biodiversity Strategy and Action Plan (NBSAP);

- National Biodiversity Assessment;

- National Ecosystem Classification System;

- Mainstreaming ecosystem services in planning and decision-making;

- Experimental Ecosystem Accounts for Uganda (Project by UNEP-WCMC & IDEEA);

- Feasibility study for Biodiversity accounting in Uganda (conducted UNEP-WCMC);

- Uganda Climate Change Policy (CCP,2015) and department of Climate change policy;

- Global Water Initiative projects (GWI);

- Diagnostic study on Small and Medium Forest Enterprises (SMFEs) in Uganda; and

- REDD+ Projects in MWE.

NP-AEEA proposes a cost-effective and sustainable statistical infrastructure for producing statistics to support and integrate the statistical production aspects of these programs into the National Statistical Systems. To accomplish this, the implementation of the NP-AEEA may be able to build on the existing interdepartmental data forums but will also require senior and technical oversight as well as governance and funding mechanisms. These are discussed further below.

5.2.2   Planning and coordination

Planning and coordinating the implementation of the NP-AEEA will require establishment of a High-Level Steering Committee for Environmental-Economic Accounting. This would provide a forum for senior representatives of core stakeholders, (UBOS, NPA, MWE, MTWA, MAAIF, OPM and MFPED) to set priorities and coordinate the work. The scope of the Steering Committee could be expanded to include other stakeholders to address broader issues of providing supporting information for sustainable development, green economy and climate change. A broader committee could also include, among others; UBOS, NFA, NEMA, NARO, UNMA, KCCA, University representatives, civil society, DWRM and DWRD among others.

The Steering Committee for the EEA would be most effective by coordinating closely with other national data integration initiatives such as responding to the SDGs and aligning the production of indicators for the NDP and MTSF.

Terms of Reference for the Steering Committee would need to be developed and discussed at its first meeting. Key tasks of the Steering Committee would be to:

- Develop, endorse and advocate for NP-AEEA within government and with relevant international agencies and Development Partners;
- Coordinate with relevant data collection and capacity building activities.
- Ensure the establishment and effective functioning of Technical Working Groups (described below).
- Facilitate the mobilisation of resources necessary for the production of the accounts.
- Monitor the progress towards the production of priority environmental-economic accounts and related outputs (spatial datasets, collaborative databases, indicators, case studies).

There are various organisational models for implementing SEEA. The structures suggested below are intended to provide a starting point for discussion about what may be most appropriate in the Ugandan institutional context. It is likely that a Technical Committee (UBOS) will need to be established to address the priorities set by the Steering Committee. The role of the Technical Working Groups may include building the information systems, undertaking data collection, processing and analysis, and ensuring that these activities are appropriately co-ordinated between key stakeholders and partners. In order to keep in line with the principles of the GSBPM, the work may best be organized into groups of subject-matter experts and functional experts.

The subjects of the initial accounts to be developed include water accounts, energy accounts, forest accounts national land cover accounts, ecosystem extent and condition accounts, and accounts for selected ecosystem services (e.g. those related to food security and water security). Additional SEEA-CF accounts may also be identified following emerging priorities. Technical Working Groups should be established and these should be linked to specific accounts or sets of accounts that form part of the NP-AEEA. A separate Working Group on SEEA-CF accounts may need to be established to support the further development of the SEEA-CF accounts. It would ensure consistency with SEEA-CF, bring existing SEEA-CF accounts into ongoing production, and develop new SEEA-CF accounts.

Rather than duplicating the capacity to integrate spatial data, classify data and to maintain quality standards, a separate Functional Group may be assigned to support all the subject-based Technical Working Groups. Its role would include designing and building the spatial information system, developing and maintaining data quality standards, providing GIS and data processing support to other Working Groups where required. This initial set of working groups could be expanded as work becomes more specialized or covers more accounts.

The composition of each Technical Working Group will need to reflect the particular account being developed, but in general would need to contain representatives from the physical sciences, ecology,

economics, accounting, geography, information technology and statistics. The group of statisticians can be viewed more generally as ensuring on-going production of data by government. The main government agencies responsible for the collection, management and distribution of data relevant to the account would need to be represented in each Technical Working Group.

Each of the Technical Working Groups would need to meet regularly, for example, in the order of quarterly in the first 1-2 years, and less frequently thereafter that. The focus of the work is the production of pilot accounts, with a view to establishing the technical processes for the regular production and use of accounts within government. This will be accomplished initially by inventorying available data, assessing its quality, identifying gaps, and integrating the data into a common spatial infrastructure. Priority data gaps could then be filled based on the most feasible approach (e.g., new data collection, adaptation of existing data or adaptation of global datasets).

At least once a year, all Technical Working Groups should come together to report progress, share experiences and revise their work plans. As part of the planning and coordination phase, each of the Technical Working Groups would produce a detailed project plan for each of the priority environmental-economic accounts.

5.2.3   Activities, outputs, outcomes and impacts

The program of work is made up of series of activities that lead to a number of outputs. Activities are elements of work that are carried out in agreed time frame while outputs are visible products (deliverables) of that work. Achieving one output may require several activities and other puts may be dependent not only on activities but earlier outputs. It is important to ensure that each activity can be linked to an output to ensure relevance and timing. Finally, outputs can be linked to outcomes and impacts (**Figure 2**). Over the medium term, the pilot project will not only produce several pilot accounts and case studies, it will also produce prototype integrated indicators that address the needs of the NDP and MTSF, and a coherent spatial database.

Activities

1.   Priority Accounts

Through a participatory process, Water, Forests and Energy Accounts were selected as the 3 priority accounts. These accounts will be compiled and published within the next two years. (The time frame is as follows: Prototyping /data collection /data cleaning /compilation to be completed by end of March each year; Reviews (by the Technical Committee) completed by end of April each year; Publication in the Statistical Abstract by June each year). Other accounts that may follow at a later stage, to be informed by the continuous national assessments, include land accounts, air emissions accounts, biodiversity accounts, and ecosystem services accounts, among others.

a. Data management

Whereas data availability is an enabling factor, there is need for an explicit data management activity. Data for the respective accounts will come from three sources: (1) "mined" from UBOS databases (e.g. HH surveys, additional publications); (2) other data providers by agreement (mostly ministries and public entities, who we would like to be part of the Technical Committee); (3) from the FDES once it is fully functional.

In order to manage these data sources, a quality control system based on Statistical Quality and Certification Framework (SQACF) will be applied to the data. This will enable UBOS to move forward with all manner of data sources, while allowing UBOS to conduct continuous improvement of data (e.g. improved and/or expanded questions in existing questionnaires).

b. Improving usage and applicability

In order to improve the user-friendliness of the EEA outputs, in addition to continuous institutional assessments and the National User Technical Training Workshop, the structure of the account tables will be in a manner that most users are familiar with. This may require adjustments to the architecture of the accounts. The architecture of the accounts should also allow for ease of update of the accounts. It should also allow for use of different types of data quality and would thus serve to prioritise data gaps and weaknesses as part of a continuous improvement process.

5.2.4 Building priority accounts based on policy needs

The need for a range of environmental and economic accounts was identified after a review of the major policy documents and discussions with a range of stakeholders. The link between policies, accounts and agencies is shown in **Table 2**, below.

Table 2. Overview of policies and accounts relevant SEEA in Uganda

Type of account	Policy or issues	Agencies
Water Accounts	• NDPII: Environmental sustainability and green economy • Water for production Strategy, Domestic and industrial water use, sewage and waste discharge • Irrigation, Hydro electricity generation • Food and nutrition security • Climate change and disaster preparedness • Aichi Target 2 • SDGs	UBOS, NFA, NEMA, DWRM, DWRD, MWE, MAAIF, OPM, MEMD, ERA, KCCA, NWSC, UNMA
Land Accounts	• Effective regulation of land use and development; • Optimal land use and sustainable management for economic productivity and commercial competitiveness; • Transparency and accountability in democratic land governance; and	Ministry of Lands Housing and Urban Development (MoLHUD), UBOS, NFA, MWE, District Local Governments

Type of account	Policy or issues	Agencies
	• Land as the central factor in leveraging other productive sectors.	
Forest Accounts	• Environmental sustainability & green economy • Food security& water shed protection • Climate change & disaster preparedness • Halt environmental degradation • Halt deforestation and increase overall forest cover Protect and increase benefits from forest ecosystem services	MWE, NFA, NEMA
Wetland Accounts	• National Wetland Policy 1995, National Environment Act 2017 • Food security • Water storage and water supply for agriculture and other livelihoods • Wetland ecosystem services	MWE (Wetland Management Department), NEMA, District Local Governments, Urban Authorities,
Energy Accounts	• Energy for industrialization • Rural electrification projects • Petroleum and gas extraction • Clean energy SDG	MEMD, ERA, REA
Fisheries Accounts	• National Fisheries Policy 2017 • A modern, productive, profitable and sustainable fisheries and aquaculture sub-sector. • To increase fisheries and aquaculture production to 1.7 million tonnes annually so as to contribute to food security, nutrition and economic growth.	MAAIF, Directorate of Fisheries Resource (DiFR), MWE, Directorate of Water Resources Management, District Local Governments - Natural Resources and Production Departments
Tourism Accounts	• National Tourism Policy (2015), National Wildlife Policy (2014), Uganda Wildlife Act (cap 200), • Natural based Tourism Development • Ecotourism development • Cultural and other tourism development	Ministry of Tourism, Wildlife and Antiquities (MTWA), Uganda Tourism Board (UTB), Uganda Wildlife Authority (UWA)
Agriculture Accounts	• National Agriculture Policy (2015), Agriculture Sector Strategic Plan 2015/16 – 2019/20 • Food security, • Agricultural led industrialisation and agricultural value chain development	MAAIF, PMA, NAADS, NARO, Parliamentary Committee on Agriculture

The priorities identified for the development of SEEA in Uganda include:

- Water Accounts (including detailed supply, use and quality); and

- Energy Accounts (Hydro-energy, fossil, biomass, wind and solar energy)

- Forest Accounts.

Other accounts that may be developed in future include:

- National Land Accounts (especially national land cover, land use and ownership)

- Air emission accounts

- Ecosystem Extent and Condition Accounts (ideally across realms i.e. terrestrial and freshwater)
- Ecosystem Service Accounts (especially those relating to food security and water security)
- Priority SEEA-CF accounts

Pilot accounts for water will be progressively produced starting in 2019. Following the pilot production of water accounts, the aim should be to produce it again in two more consecutive years and as well as to publish the water accounts in Uganda.

Ensuring the use of the accounts in government and other decision-making processes will be addressed in a number of ways. Until the production of the first pilot accounts, the primary approach will be engagement with policy-makers at different levels via the Steering Committee and Technical Working Groups. It is important that this first pilot account for water be seen as proof of concept that addresses the specific needs of one or more stakeholders. After the pilot account is produced, discussions on the possible applications of the account, including any additions or refinements, will be held directly with key government agencies. In addition, stakeholder workshops to communicate the results of the account may be useful.

5.2.5   Capacity building

Both human resources and infrastructure will need to be built to develop, implement and regularly produce, publish and use environmental-economic accounts in Uganda. A key part of the capacity enhancement initiative will involve learning-by-doing via the production of pilot accounts and prototype integrated indicators. In this, the building/enhancement of both human resources and infrastructure would occur especially in the first 1-2 years, with the pilot accounts being produced in 2-3 years.

Three distinct forms of capacity development were identified: (1) an active regional networking system enabling African countries to learn from one another – this may take the form of regional working sessions and day-to-day communications; (2) technical working support especially during the prototyping process; and (3) lecture-type training of users and data providers.

5.2.6   Human Resources

Capacity building will be a critical part of the development of environmental-economic accounts in Uganda. In addition to the prior trainings conducted by UNSD, there is need for more training exercises on environmental-economic accounts as well as more specific training and technical support on each of the accounts including water, forest, energy, land, air emission and waste accounts and ecosystem accounts, among others. Additional training would occur as soon as possible, with more specialised training and technical support for each of the following types of accounts; for example:

- Workshop and/or technical support on water accounting;

- Workshops and/or technical support on energy accounts;

- Workshop and/or technical support on forest accounting;

- Workshop and/or technical support on land accounting;

- Workshop and/or technical support on ecosystem service accounting; and

- Workshop and/or technical support on carbon accounting.

Additional detailed training and engagement is likely to be needed as the production of the pilot accounts and aggregates draws nearer. Following the in-country training and technical support so far received from the UNSD, a range of other capacity building activities should be considered including:

- Government officials, working groups, technical committees and other key stakeholders of SEEA implementation in Uganda can be supported to participate in relevant international meetings (such as the planned regional workshops on environmental-economic accounting);

- Use of distance or on-line learning resources;

- Placement of project staff in countries or international agencies with existing environmental-economic accounting programmes;

- Sponsorship of account producers or users for relevant higher degree studies (e.g. on economics, ecology and accounting) in universities; and

- Local and regional capacity can be augmented by developing course materials and establishing courses on environmental-economic accounting for Ugandan universities. Young Universities like Gulu University can be supported to develop curricular in environmental-economic accounting to build long term regional capacity.

5.2.7 Infrastructure

In order to ensure that the account developers have the necessary information technology and data to support the development of accounts, it is important that the necessary infrastructure is put in place. This will include both soft and hardware, in addition to addressing Information Technology compatibility issues across MDAs. This will ease the processes of sharing data and improving on and off-site data storage.

UBOS already has most of the necessary infrastructure, however, other MDAs have limited infrastructural capacity and issues of compatibility of IT systems, security and safety measures need to be developed to the required standards.

5.2.8 Impacts and final outcomes

Impact evaluation measures the difference between what happened with the programme and what would have happened without it (Figure 2). It answers the question, "How much (if any) of the

observed change occurred because of the programme activities?" Impact evaluation considers the notions of attribution (what is observed is completely attributed to the programme intervention) and contribution (the programme intervention is one of the many that could have contributed to the observed impacts).

Outcome evaluation on the other hand measures the programme results or outcomes. These can be both short and long-term outcomes.

Whereas activities and outputs are tangible and generally observable, the impacts and outcomes may be more difficult to observe, may require much long time to manifest or may occur in different dimensions, with spin-off effects. However, the impacts are important because they are the changes expected as a result of the activities of SEEA implementation in Uganda. Table 3 provides a high-level assessment of the impacts linked to the activities. The outputs are expected to contribute to the benefits for a more integrated National Statistical System and a more engaged and better-coordinated body of stakeholders for SEEA implementation. The contribution of the project to the attainment of Uganda's sustainable development initiatives depends on many factors, including unforeseen circumstances and events beyond the control of the NP-AEEA in Uganda. The experience of the international statistical community contends that a robust and flexible NSS is an important tool and a prerequisite for adapting to future uncertainties, data needs and priorities.

Table 3: Linking SEEA activities to impacts in Uganda

Activities	Impacts
Building priority accounts based on policy needs and priorities	• Providing Ministries, departments and their agencies with empirical evidence of changes resulting from sustainable development policies • Improved knowledge on natural resources including ecosystems and well-being • Better policies and decisions on trade-offs between development and conservation • Foundations to build integrated indicators on sustainable development
Capacity enhancement Human resources Infrastructure	• The ongoing capability to integrate environmental-economic information into government decision making • Training for agency and academic staff to support the ongoing implementation of environmental-economic accounts. In addition, long term curricular development at Ugandan universities. • A civil service and civil society that is informed about the interaction between the environment, society and economic development • The ongoing cost effective production of environmental-economic accounts that meet the needs of policy in a timely manner • Improved statistical collaboration between ministries, departments and agencies (MDA), research institutions, National Agricultural Research Systems (NARS), Civil society and private sector.
Development of integrated indicators	• Provide Ministries and their agencies with a set of indicators linking government policies to sustainable development goals.

5.2.9 On-going initiatives

5.2.9.1 Capacity building to compile SEEA accounts, developing the National Plan for Advancing Environmental Economic Accounts (NPAEEA) and pilot water accounts

The United Nations Statistics Division (UNSD) between 2015 and 2017 implemented the Development Account project in Indonesia, Kenya, Malaysia and Uganda. The Development Account project was a capacity development programme of the United Nations Secretariat aimed at enhancing capabilities of developing countries in the priority areas of the United Nations Development Agenda. Together with the United Nations Economic Commission for Africa (UNECA), and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), UNSD implemented the SEEA in the four countries (Indonesia, Kenya, Malaysia and Uganda) as part of a three-year project (2015-2017) to improve monitoring of sustainable development.

Typically, the UNSD works in close collaboration with national and international partners to lead several projects advancing environmental and ecosystem accounting in Member States. By working with Member States to compile SEEA accounts and initiate pilot testing of SEEA Experimental Ecosystem Accounting, UNSD aims to mainstream SEEA-related analysis and decision making at the national, city and corporate level and build technical capacity in Member States.

The main in-country activities of the Development Account project consisted of developing national plans for the implementation of the SEEA framework and compiling a pilot account for a policy relevant area. The national plans serve as blue prints for the implementation of the SEEA by identifying policy priorities and the environmental-economic accounts that can best inform these priorities. In each of the implementing countries, consultations on the national plans were held with relevant national stakeholders to ensure broad uptake and increase awareness and buy-in from data producers and users of the accounts. Furthermore, in each of the four countries, the national plans have either been adopted or are in the process of being adopted.

In all four countries, there was a focus on specific accounts that would help address key policy issues. Indonesia focused on energy and air emission accounts; Kenya on energy accounts; Malaysia on energy, air emission and water accounts; and Uganda on water accounts. The compilation of the pilot accounts provided an opportunity to work with partners across government to determine how best to compile the accounts. In all countries, the pilot accounts were compiled using already available data from the national statistical office and/or other government institutions. Countries, including the project countries, often already have the data needed for SEEA accounts. However, data and technical know-how alone will not lead to the sustained production of accounts. What really facilitated compilation and made the pilot accounts such a success in all four countries were the institutional mechanisms created and collaboration among the various data producers.

The Uganda Bureau of Statistics (UBOS) is completing the pilot water accounts for Uganda with financial support from the Government of Uganda. At the end of the Development Account project in 2017, UBOS has compiled the draft water accounts for 2015 with technical capacity support from UNSD. Currently, UBOS is completing Water Accounts for 2015 and 2017.

5.2.9.2 The World Bank-WAVES - Uganda Natural Capital Accounting Program

The objective the World Bank-WAVES Natural Capital Accounting (NCA) project is to mainstream natural capital into development policy dialogue and planning by integrating a set of accounts that will inform the National Development Plan (NDPIII) and other national and sectoral policies. The NCA project has developed Land Physical Accounts, and will also develop Forest and Wetland Accounts. The NCA is increasing the understanding of the real contribution of natural assets and the ecosystem services to the economy and how does the economy and its sectors affect this natural asset base.

The NCA project is supported by the World Bank-led Wealth Accounting and the Valuation of Ecosystem Services Global Partnership (WAVES). WAVES is a World Bank-led global partnership that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts. The program provides technical and institutional support for producing natural capital accounts, analyzing results, and using the findings to inform policy. The NCA project has supported knowledge exchange on SEEA and NCA for Uganda and Zambia to the Netherlands.

The WB-WAVES NCA program supported completion of the NP-AEEA, development of Land Physical Accounts, and Forest Resource (Central Framework) Accounts, and development of national macro indicators for adjusted net savings and comprehensive wealth for Uganda. The NCA project will support development of Forest Ecosystem and Wetland Accounts, and a SEEA compendium for 2020.

In addition, the program will include a study on the forest-energy nexus, the wood fuel sector; an issue paper on NCA for the third National Development Plan (NDP III); and a study on the contribution of nature-based tourism to the economy, among others.

Institutional working arrangements include a Technical Working Group, and a Steering Committee for the project. The TWG is leading activities related to NCA preparation and implementation. The TWG is chaired by the Ministry of Finance, Planning and Economic Development (MoFPED) and co-chaired by National Planning Authority (NPA) and Uganda Bureau of Statistics (UBOS). The core members include the Ministry of Water and Environment (MWE), National Forest Authority (NFA), and National Environment Management Authority (NEMA). Water and Environment Sector Working Group (WESWG) will create the WAVES Steering Committee. The WESWG provides policy and technical guidance for the water and environment sector and comprises representatives from all key sector institutions (government, academia, development partners, and NGOs). The Uganda NCA Program will

run until August 2020. Since the October 2018 launch up to October 2019, the program has achieved the following under the leadership of the Technical Working Group (TWG): Developed a detailed work program with assigned roles and responsibilities; conducted trainings on SEEA basics, NCA for forests and wetlands, and macroeconomic indicators; developed land accounts on national and subnational levels; developed forest resource accounts; drafted an issue paper on the wood fuels sector; drafted an issue paper on NCA for the NDP III; presented at the WAVES Global Partnership meetings in November 2018. Uganda will host the 4th Policy Forum on NCA for Better Decisions and the Africa Regional Forum on NCA in on 18-21 November, 2019.

5.2.9.3 *Integrating Natural Capital into Sustainable Development Decision Making in Uganda*

The National Environment Management Authority (NEMA) in collaboration with the UN Environment World Conservation Monitoring Centre (UNEP-WCMC), National Planning Authority (NPA), Uganda Bureau of Statistics (UBOS), the Institute for International Environment and Development (IIED) and the Institute for the Development of Environmental-Economic Accounting (IDEEA) is implementing a project on Integrating Natural Capital into Sustainable Development Decision Making in Uganda. The project is funded by the Darwin Initiative through UNEP-WCMC (See https://www.unep-wcmc.org/featured-projects/nca-in-uganda). The project aims at supporting: (a) the delivery of the Ugandan National Development Plan, Green Growth Development Strategy and the National Biodiversity Strategy and Action Plan (NBSAP); (b) integration of the value of biodiversity into national reporting, poverty reduction, and planning processes; (c) organizing biodiversity related natural capital data using internationally endorsed accounting frameworks; (d) enabling decision-makers to implement integrated environmental-economic planning for green growth, poverty alleviation and attaining the SDGs and Aichi Targets; (e) developing capacity of account compilers and users to institutionalize the accounting approach

The project will deliver across these objectives by partnering with stakeholders and institutions in Uganda to identify planning decisions where it is important to consider values of biodiversity and ecosystem services and key areas where natural capital framing is likely to be influential. The project will provide the technical support to national institutions on the compilation and supply of natural capital accounts to meet these demands. It will further develop demand and capacity amongst decision makers to employ natural capital accounting processes in different decision contexts. The project is focusing on three biodiversity-related natural capital accounts (NCAs) namely: tourism and biodiversity accounts, fisheries accounts and land and land degradation accounts.

The project directly addresses Aichi Biodiversity Target 2, and it will also support attainment of NBSAP Target 4.1.6 that calls for biodiversity accounting in pursuit of incentives for conservation and sustainable use. The objective of these targets is to establish the information systems to support more

holistic integrated economic and land use planning, which better consider biodiversity, the impacts of managing biodiversity and the ecosystem services biodiversity provides. Such an integrated approach would be a significant improvement from traditional planning regimes. This project therefore aims to deepen the implementation of Target 2. This includes generating the policy support information for natural capital management called for in Uganda's Green Growth and Development Strategy. It also responds to the Gaborone Declaration for Sustainability in Africa (GDSA) and the support requested by Parties in UNEA Resolution 2/13 specifically relating to natural capital, capacity building and technical assistance.

The project has four main outputs: These are (i) Awareness of the value of biodiversity-related natural capital raised; (ii) The accounting approach is developed and tested; (iii) Communities of practice built; and (iv) The accounting approach is institutionalized. In terms of impact, the project will help Uganda to deliver on its Green Growth Development Strategy, National Development Plan, National Biodiversity Strategy and Action Plan (NBSAP), Aichi Target Two and SDG 15.9 through integrated planning that recognises the value of biodiversity and poverty reduction.

5.2.9.4 *Forestry and Macroeconomic Accounts of Uganda: The Importance of Linking Ecosystem Services to Macroeconomics*

In March 2017, the United Nations Reduced Emissions from Deforestation and Forest Degradation (REDD+) completed pilot Forestry and Macroeconomic Accounts of Uganda. In the report, the economic value of Uganda's forest resources was analyzed. The methodology followed to conduct this analysis included: 1. Development of a Forestry Resource Account (FRA) for Uganda's forest ecological infrastructure; 2. Ecosystem Service Assessment (ESA) mapping of socio-economic benefits provided by forest resources; 3. Valuation of ecosystem services and linking these to the macro-economic situation in Uganda; and 4. Testing of some policy instruments aimed at combating deforestation.

The Forestry Resource Account (FRA) for Uganda's forest ecological infrastructure estimated by UN-REDD+ in the report "Forestry and Macroeconomic Accounts of Uganda: The Importance of Linking Ecosystem Services to Macroeconomics" conducted during 2017 (UN-REDD 2017). UN-REDD (2017) defines the FRA as a national and regional account of the spatial and temporal characteristics and context of the country's forest reserves.

The construction of the physical assets accounts was done in parallel using two different data sources for 1990, 2000, 2005, 2010 and 2015: the Global Forest Resource Assessment country report for Uganda compiled by FAO (FAO, 2000, 2005, 2010, 2015), and local data from the National Forest Authority (NFA). The forest accounts were not developed under standard SEEA methodology but provided an intermediate step towards developing comprehensive forest accounts for Uganda.

6. CONCLUSIONS AND NEXT STEPS

6.1   Conclusions

The NP-AEEA in Uganda focuses on medium-term (3-5 year) activities that will result in production of new information to address Uganda's development policy priorities. This is the first stage of creating a common, cost-effective and sustainable statistical infrastructure for environmental-economic accounting in Uganda. Maintaining the momentum generated by these medium-term activities including new data collection and continuous improvement and learning will require more than just specific funding opportunities. It will require embedding the activities into the programmes of government, national planning processes and above all undivided commitment from the respective stakeholders.

The NP-AEEA provides the foundations to write proposals that provide full details for each activity and the funding required. It contains many of the elements including: the policy priorities, the needs assessment and a set of activities that will advance EEA in Uganda. Funding opportunities may be sought from different sources including:

1. National initiatives;
2. National development agencies; and
3. International agencies.

Identification of funding opportunities may be the responsibility of UBOS and other stakeholders. It is therefore important that all stakeholders are familiar with the NP-AEEA for Uganda such that once opportunities/calls for proposals are identified, teams can be quickly organize to respond. To ensure that these opportunities are open to all, it is important that the NP-AEEA is summarized and presented at relevant meetings, made available to all MDA stakeholders and published on the Internet.

6.2   Next steps

To make the necessary progress from a plan on paper to specific actions may entail the following:

a. Adaptation of the NP-AEEA to the needs of potential sponsors and available funding opportunities; and
b. Additional detail on participants, implementation, timelines, deliverables and budget.

6.2.1   Adaptation of the NP-AEEA to the needs of potential sponsors

Sponsors may indicate their interests in funding projects by distributing Terms of References (TORs) or Calls for Proposals (CFPs). This would be based on the sponsor's vision of what is required.

The interests of sponsors may be less comprehensive and integrated than those covered in the NP-AEEA. Generally, sponsors may look for proposals that focus on specific aspects of environmental-economic accounting, such as biodiversity, ecosystem services, mapping, poverty alleviation, food

security, etc. They may also be interested in specific ecosystem types: forests, rivers or ecological topics such as desertification, pollution or species loss. They may be looking to support feasibility studies, capacity building or valuation of environmental resources. The NP-AEEA provides the foundations for most of the above proposal types and presents them as an integrated package. It also emphasizes the importance of a strong statistical infrastructure so that the results of any project will contribute to building technical, institutional and statistical capacity in the NSS on SEEA. Although the need to strengthen the NSS may not be explicitly mentioned in the TOR or CFP, it is in the interest of Uganda as a country to emphasize and articulate this in proposals.

A TOR or CFP may also suggest a maximum amount of funding for projects. Furthermore, some sponsors may require co-funding (i.e. a country is expected to contribute a proportion of the costs of the entire project). Co-funding may sometimes be stated in terms of "in-kind" contributions of human and other resources. Available funding and the willingness of national stakeholders to co-fund a project will determine which aspects of the NP-AEEA are included in any given proposal.

6.2.2   Additional details

The amount and nature of details contained in a proposal will also depend on the expectations of the sponsor. Ideally, the proposal will link the expectations of the sponsor with the needs of the country.

6.2.2.1 Participants

The first step in developing a proposal is to assemble the team that may include MDAs and other stakeholders who will commit to participating in developing a project and later on implementing if it is funded. This may involve putting together teams and finding options for co-funding.

6.1.2.2 Implementation

The participants will need coherence on how the project will be implemented and how funds will be disbursed. For example, who will be the lead agency? What will be the governance structure? Ideally, multiple projects could be coordinated within the overall governance structure of the NP-AEEA.

6.2.2.3 Timelines

TORs or CPFs will usually specify the length of time for a project. If the funding is for one year, this will determine the nature of the activities and provide due dates for deliverables. It is important, not only for the proposal, but also for the implementation of the project to divide the project into steps (e.g., preparation, implementation, data collection, analysis, report production, review and evaluation), dissemination and to allocate sufficient time to each step. The timelines are also important to coordinate the participation of stakeholders.

6.2.2.4 Deliverables

Generally, TORs and CFPs require a clear specification of the expected deliverables. They could be very specific such as "an assessment of…", "a report on…", "a database of…", "training on…". Or, they could be less specific such as "improving decision making on…", "integrating…with…".

In either case, the success of the project will be judged on these deliverables. It is important to be very clear on what deliverables the sponsor is expecting. Sponsors may wish to review progress during stages of the project. Sometimes payments are linked to progress at each stage. In this case, it is important to prepare documents that can be easily reviewed showing progress at each stage. For example, sponsors may wish to review a Table of Contents of a report, an annotated outline and the draft, among others. Sponsors may also require structured progress reports as the project progresses. Resources for this planning, evaluation and reporting should be built into the proposal.

6.2.2.5 Budget

The available budget for the project enables one to plan realistic activities that can be accomplished with the funds. During planning, the costs that need to be taken into account may include salaries of core participants, overhead costs of administration, capital equipment, data, translation (if necessary), travel, meeting venues, and dissemination, among others.

For multi-year projects, then an indicative project plan (Table 4) would help to determine requirements at which stage including costs of inputs. This is an opportunity to balance the year-to-year requirements. For example, an activity could be moved from one year to another if the project is expected to have the same cost for each year.

Table 4: Template of indicative project plan for NP-AEEA in Uganda

Year	2018				2019				2020			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Stage	Prep		Short-term						Medium-term			
Work package							Head count					
Compilation of water accounts	data											
2												
3												
4												
Salary ($)												
Operations ($)												
Total ($)												
Annual ($)												
Outputs												

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8.1 Diagnostic tools for initial assessment

ASSESSMENT OF SOURCE DATA FOR THE IMPLEMENTATION OF THE SYSTEM OF ENVIROENMENT-ECONOMIC ACCOUNTING (SEEA)

A.	Name of Institution/Department:			Name of Respondent 1:	
				Tittle:	
A1.	Is the institution/department a data producer, user or both?	A5.	If institution is data producer, List all the source data for which your institution is responsible below:	Department:	
A2.	Please rate the institution's statistical capacity to produce and release relevant statistics, skip if data user only.	A5.1		Tel:	
A3.	Are there any data sharing agreements in place with Uganda Bureau of Statistics?	A5.2		Email:	
A4.	Please rate the strength of existing data security arrangements with your stakeholders	A5.3			
A6.	Do you have an outlined dissemination strategy?	A5. 4		Name of Respondent 2:	
A7.	List the common communication channels used for your dissemination in order of preference, starting with the most preferred:	A5. 5		Tittle:	
A7.1		A5. 6		Department:	
A7.2		A5. 7		Tel:	
A7.3		A5. 8		Email:	
A7.4		A5. 9			

Table 1: Assessment of national policy priorities						
	SEEA and sustainable development policy quadrant	Issue sub category -Select from master list (1)	Issue detail	Priority: 1=highest, 5=lowest (2)	Scope: national or region specific (3)	Name of policy (4)	Decision making body (5)
	1. Improving access to services and resources	Costs of provisioning of services					
		Equity of natural resource exploitation					
		Losses in distribution (water, energy, food)					
		Quantity of resources used					
		Sustainability of resource exploitation					
		Tourism					
	2. Managing Supply and Demand	Carbon and energy embedded in products					
		Coordinating land use (e.g., watershed) and activities					

		Decoupling indicators of emissions and resource use					
		Energy supply and demand					
		Environmental goods and services sector					
		Environmentally-adjusted aggregates for depletion					
		Fish stock					
		Food supply					
		Forest stock and use; Deforestation					
		Generation of emissions and wastes					
		Green jobs					
		Investment in infrastructure					
		Natural wealth and changes in natural capital					
		Resource efficiency (e.g., resource productivity)					
		Resource rent					
		Resource use of production and consumption					
		Sustainability of production and consumption					
		Sustainable agriculture					
		Sustainable economic development					
		Water supply and demand					
	3. Improving the state of enviroment and reducing impact	Air quality: emissions and treatment					
		Ecosystems and biodiversity	Coastal ecosystems				
			Ecosystem health and condition				
			Ecosystem services				
			Forests				
			Freshwater (lakes, rivers, streams, groundwater)				
			Other ecosystems (tundra, grasslands, mangrove, desert, etc.)				
			Wetlands				
		Endangered species					
		Environmental impact of exploitation					
		Environmental protection expenditures and resource management					
		Land use and land cover					
		Nature and recreation					
		Protected areas					
		Sea level rise					
		Solid waste and treatment					
		Stock of natural resources					
		Water quality: effluents and treatment					
	4. Mitigating risks and adapting to extreme events	Adaptation to climate change and extreme events					
		Capacity and capacity building					
		Compensation for environmental damages					
		Contaminated land (e.g., brownfields)					
		Coordination of sustainability policies					
		Education and awareness					

	SEEA and sustianable development policy quadrant	Issue sub category -Select from master list (1)	Issue detail	Priority: 1=highest, 5=lowest (2)	Scope: national or region specific (3)	Name of policy or program (4)	Decision making body (5)
	4. Mitigating risks and adapting to extreme events	Effectiveness of policy instruments					
		Environmental research					
		Expenditures on mitigation (e.g., technologies)					
		Extreme events: floods, landslides, heat waves, droughts, etc.					
		Greenhouse gas emissions					
		Investment and incentive infrastructure					
		Legislative and regulatory infrastructure					
		Progress of societies					
		Residuals in food					
		Urbanization and urban planning					

Table 2: Initial assessment of source data

S/No.	Indicator (List all the indicators for which the institution is responsible including those currently not being produced)	Do you produce this indicator?		Category of indicator (1)			Reporting unit (2)	Responsible organistaion (3)	Status (4)	Statistical Standards (5)	National Statistical Legislation (6)	Availability (Yes/No) (7)	Accessibility (8)	Frequency (9)	What is the Quality of this Indicator?				What is the Quality of the source data in terms of percentage? (14)
		Yes	No	Stock	Flow	Supply									Reliablity (10)	Relevance (11)	Accuracy (12)	Timeliness (13)	
1	Precipitation																		

8.2 List of Ministries, Departments and Agencies (MDAs) selected as priority stakeholders for the initial assessment exercise on SEEA.

MDA	Location	Contact person (s)	Status/schedule
1. National Planning Authority (NPA)	Kampala	Mr. Ronald Kaggwa/ Kabagambe Sufian	Assessment tools filled and received
2. National Environment Management Authority	Kampala	Mr. Kamugisha Godwin	Assessment tools filled and received
3. National Forestry Authority	Bugolobi Kampala	Mr. Diisi John	Assessment tools filled and received
4. Uganda National Meteorological Authority (UNMA)	Kampala	Mr. Mujuni Godfrey	Assessment tools filled and received
5. National Water and Sewage Corporation	Kampala	Rachael Natunda/Anna Nyadoi	Assessment tools filled and received
6. Directorate of Water Resource Management (DWRM)	Entebbe	Carolyn Nakalyango	Assessment tools filled and received
7. Directorate of Water Development	Luzira Kampala	Mr. Wakooli Watson	Filled tools expected
8. Ministry of Water and Environment (MWE)	Luzira Kampala	Mr. Wakooli Watson	Filled tools expected
9. Directorate of Environmental Affairs (DEA)	Luzira Kampala	Mr. Ocare Denis	Filled tools expected
10. Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	Entebbe	Mr. Ndyakurwaho and Ms. Jovan Lubega	Assessment tools filled and received
11. National Agricultural Research Organization (NARO)	Entebbe	Jovan Lubega	Filled tools expected
12. Makerere University Soil science Department	Kampala	Dr. Twaha Atenyi and Prof MM Tenyw	Filled tools expected
13. Makerere University Department of Botany and Zoology	Kampala	Christine	Filled tools expected
14. Kawanda Agricultural Research Laboratories Soil science section	Kawanda, Wakiso	Dr.Ssemalulu Onesmus	Filled tools expected
15. Busitema University	Busitema, Tororo	Prof Isabirye Moses	Filled tools expected
16. National Fisheries Research Institute (NaFIRRI)	Jinja	Dr. John Balirwa/ Esther Kagoya	Filled tools expected
17. Ministry of Tourism, Wildlife and Antiquities (MTWA), Uganda Wildlife Authority (UWA), Uganda Tourism Board (UTB)	Kampala	Charles Tumwesigye	Assessment tools filled and received
18. Uganda Bureau of Statistics (UBOS)	Kampala	Mr. Menhya Emmanuel/ Matovu Mulindwa	Assessment tools filled and received
19. Electricity Regulatory Authority (ERA)	Kampala	Helen/Ian	Filled tools expected
20. Rural Electrification Agency	Kampala	Helen/Ian	Filled tools expected
21. National Petroleum Authority	Kampala	Helen/Ian	Filled tools expected
22. Ministry of Energy and Mineral Resource	Kampala	Helen/Ian	Filled tools expected
23. Petroleum Exploitation and production department	Kampala	Helen/Ian	Filled tools expected
24. Kampala Capital City Authority (KCCA) Environment Department	Kampala	Mr. Sitenda Peter	Filled tools expected