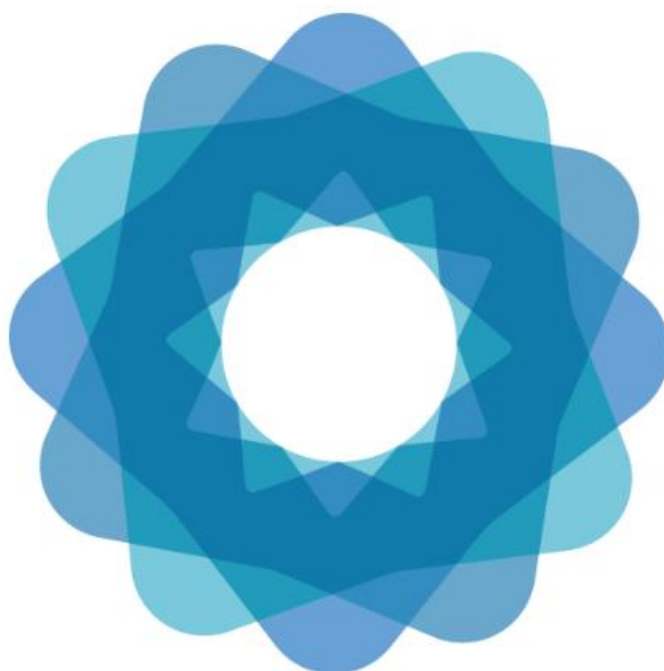


## **RESEARCH DISCUSSION PAPER**

**04 September 2025**

### **Exploring the Links Between SEEA Ecosystem Accounting (SEEA EA), SEEA Central Framework (SEEA CF), and the System of National Accounts (SNA): Insights from Namibia**



**Dr. Ningiree Daleen Kavezepa**

Subdivision Environmental Information and Natural Resources Economics

Directorate of Environmental Affairs

Department of Environmental Affairs and Forestry

Ministry of Environment, Forestry and Tourism

Private Bag 13306, Windhoek, Namibia

*This series of Research Discussion Papers is intended to present preliminary, new or topical information and ideas for discussion and debate. The contents are not necessarily the final views or firm positions of the Ministry of Environment Forestry and Tourism. Comments and feedbacks are welcomed*

## Contents

Abbreviations.....	3
Abstract.....	4
1. Introduction.....	5
2. Conceptual Overview of SEEA CF and SEEA EA.....	5
3. Integrating Environmental and Economic Accounts in Namibia: Advancing Policy through SEEA and SNA Synergies .....	6
4. Namibia’s Experience and Institutional Insights.....	8
5. Literature Review.....	9
Glossary of Key Terms.....	10
6. Methodology.....	10
Research Design .....	10
.....	10
Data Sources .....	10
Justification for Namibia as a Case Study.....	12
Limitations .....	12
8. Conclusion.....	13
REFERENCE .....	14

## Abbreviations

<b>Abbreviation</b>	<b>Full Name</b>
<b>CBD</b>	Convention on Biological Diversity
<b>CBNRM</b>	Community-Based Natural Resource Management
<b>CF</b>	Central Framework (in SEEA context)
<b>EA</b>	Ecosystem Accounting (in SEEA context)
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
<b>GDP</b>	Gross Domestic Product
<b>MAWLR</b>	Ministry of Agriculture, Fisheries, Water and Land Reform (MAFWLR)
<b>MEFT</b>	Ministry of Environment, Forestry and Tourism
<b>MFPE</b>	Ministry of Finance and Public Enterprises
<b>NCA</b>	Natural Capital Accounting
<b>NCAVES</b>	Natural Capital Accounting and Valuation of Ecosystem Services
<b>NBSAP</b>	National Biodiversity Strategy and Action Plan
<b>NDCs</b>	Nationally Determined Contributions (under the Paris Agreement)
<b>NDP</b>	National Development Plan
<b>NSA</b>	Namibia Statistics Agency
<b>SDGs</b>	Sustainable Development Goals
<b>SEEA</b>	System of Environmental Economic Accounting
<b>SEEA CF</b>	System of Environmental Economic Accounting – Central Framework
<b>SEEA EA</b>	System of Environmental Economic Accounting – Ecosystem Accounting
<b>SNA</b>	System of National Accounts
<b>UN</b>	United Nations
<b>UNSD</b>	United Nations Statistics Division
<b>WAVES</b>	Wealth Accounting and the Valuation of Ecosystem Services

## **Abstract**

This paper explores the linkages between the System of Environmental-Economic Accounting Central Framework (SEEA CF), Ecosystem Accounting (SEEA EA), and the System of National Accounts (SNA), using Namibia as a case study. The purpose is to assess how integrated environmental-economic accounts can inform sustainable development beyond conventional GDP measures. A qualitative case study methodology was applied, drawing on document analysis, official accounts, and policy frameworks to evaluate conceptual alignment, institutional linkages, and methodological challenges.

Findings show that Namibia has developed comprehensive accounts for water, minerals, forestry, fisheries, tourism, wildlife, and ecosystems, positioning it as a regional leader in natural capital accounting. These outputs have directly supported drought planning, water allocation, tourism investment, and community-based resource management. Key results highlight that 60.0 percent of national water use comes from groundwater, diamonds make up nearly 80.0 percent of mineral production value, and tourism contributes 4.8 percent to GDP and 7.2 percent to employment.

The study concludes that integrating SEEA with the SNA enables beyond-GDP indicators and strengthens policy coherence under Vision 2030, NDP6, and the Harambee Prosperity Plan. Namibia's pathfinder role underscores the importance of institutional coordination, capacity building, and methodological innovation for mainstreaming SEEA into macroeconomic planning.

**Keywords:** SEEA Ecosystem Accounting (SEEA EA), SEEA Central Framework (SEEA CF), System of National Accounts (SNA), Natural Capital Accounting, Namibia, Environmental-Economic Integration, Sustainable Development, Policy Coherence, Ecosystem Services, Green Growth

## 1. Introduction

Global environmental degradation, climate change, and unsustainable resource use have intensified the need for integrated systems that capture both economic and ecological dimensions of development. Traditional macroeconomic indicators, such as Gross Domestic Product (GDP), fail to account for the depletion of natural capital and ecosystem degradation that underpin long-term economic resilience. In response, the System of Environmental-Economic Accounting (SEEA), comprising the Central Framework (CF) and Ecosystem Accounting (EA), complements the System of National Accounts (SNA) by integrating environmental assets, ecosystem services, and resource flows into national statistics (United Nations, 2021a; Obst, 2015).

The SEEA CF measures stocks and flows of resources such as water, energy, and minerals in physical and monetary terms, while the SEEA EA incorporates spatially explicit data on ecosystem extent, condition, and service flows to people (United Nations, 2021b; Hein et al., 2020). Both frameworks align with the SNA, bridging environmental and economic data to enable evidence-based, inclusive development planning (Obst & Vardon, 2014).

Namibia has emerged as a regional leader in applying SEEA for national policy. Since the 1990s, the Namibia Bureau of Statistics, in partnership with the Ministry of Environment, Forestry and Tourism (MEFT), developed natural capital accounts covering water, minerals, fisheries, land, and ecosystems. Following the establishment of the Namibia Statistics Agency (NSA) in 2011, these efforts were strengthened with support from the World Bank's Wealth Accounting and Valuation of Ecosystem Services (WAVES) and the UN's Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) project (NSA, 2021; Lange et al., 2004). Outputs from these accounts have informed strategic policies, including Vision 2030, the Fifth National Development Plan (NDP5), sectoral strategies, and reporting to the UN Convention on Biological Diversity and the 2030 Agenda for Sustainable Development.

Namibia's success is underpinned by strong institutional coordination and constitutional commitment. Article 95 of the Namibian Constitution mandates sustainable management of ecosystems and biodiversity to promote public welfare (Republic of Namibia, 1990). This has enabled integration of ecosystem accounts into policymaking, with water accounts guiding allocations in drought-prone regions and wildlife accounts supporting community-based natural resource management (CBNRM) programmes (Chaminuka, Kativu, & Tregurtha, 2021).

Challenges remain in fully integrating SEEA outputs into budget and macroeconomic planning, valuing ecosystem services, and aligning methodologies with the SNA. This paper examines the conceptual and operational linkages between SEEA CF, SEEA EA, and the SNA in Namibia, identifies institutional and methodological challenges, and offers recommendations to strengthen integration. By combining global standards with Namibia's experience, the study provides insights for countries seeking sustainable and inclusive national accounting systems. Specifically, the study addresses three key questions: how Namibia has combined environmental and economic data, what the main challenges in doing so are, and which policies could improve the integration of these frameworks into national planning.

## 2. Conceptual Overview of SEEA CF and SEEA EA

The System of Environmental-Economic Accounting (SEEA) comprises two complementary frameworks SEEA Central Framework (CF) and SEEA Ecosystem Accounting (EA) both aligned with the System of National Accounts (SNA) in terms of accounting logic and structure.

The SEEA CF integrates environmental statistics with economic accounts using the same principles and classifications as the SNA. It provides a structured system to record physical flows (e.g., energy

and water use), stocks of environmental assets (e.g., minerals, forests), and environmental transactions such as taxes and expenditures. By capturing interactions between the environment and the economy in both physical and monetary terms, SEEA CF allows policymakers to assess environmental efficiency, sustainability, and resource depletion in alignment with macroeconomic aggregates (United Nations et al., 2014).

In contrast, SEEA EA expands the analytical scope to include ecosystems as functional spatial units that generate a wide array of ecosystem services, including provisioning, regulating, and cultural services such as water purification, climate regulation, and recreation. It introduces accounts for ecosystem extent, condition, and services, providing both physical and monetary valuations. EA emphasizes spatially explicit data, recognizing ecosystem heterogeneity and their varying contributions to human well-being. Unlike CF, EA extends beyond the SNA production boundary by incorporating non-market services traditionally excluded from GDP (United Nations, 2021).

Together, SEEA CF and EA offer a comprehensive approach to environmental economic integration that supports informed and holistic policymaking. Namibia's implementation of SEEA has evolved through sectoral pilots and satellite accounts, including:

**Water Accounts:** Informing drought resilience and infrastructure investment.

**Tourism and Fisheries Accounts:** Enhancing sectoral planning and investment strategies.

**Ecosystem Accounts:** Supporting land-use decisions, biodiversity monitoring, and climate adaptation.

To fully leverage SEEA's potential, Namibia is exploring the development of bridge tables that translate ecosystem service values into SNA compatible aggregates. This approach strengthens the policy relevance of SEEA outputs and facilitates their integration into budgetary and planning cycles, enhancing sustainable and inclusive development decision making.

### **3. Integrating Environmental and Economic Accounts in Namibia: Advancing Policy through SEEA and SNA Synergies**

The global imperative to align economic development with environmental sustainability has increased the demand for integrated information systems that bridge environmental and economic domains. The System of Environmental-Economic Accounting (SEEA) provides an internationally recognized framework to measure the contribution of natural assets to the economy and the impacts of economic activities on the environment (United Nations, 2014; United Nations, 2021). It comprises two complementary components: the SEEA Central Framework (SEEA CF), which focuses on physical and monetary accounts for environmental assets, and SEEA Ecosystem Accounting (SEEA EA), which extends this approach to include ecosystem condition, extent, and services many of which are not captured by traditional GDP. Both frameworks complement the System of National Accounts (SNA), enabling integrated analysis of the economy and the environment.

Namibia's ecological vulnerability and economic reliance on natural resource particularly mining, agriculture, tourism, and fisheries make environmental economic integration essential. As a semi arid country with a small population and frequent exposure to environmental shocks, Namibia has emerged as a pioneer among developing nations in operationalizing SEEA. Since the 1990s, environmental accounting efforts began with water and energy accounts and expanded through international collaboration, including the World Bank's Wealth Accounting and the Valuation of Ecosystem Services (WAVES) program and the GIZ-supported Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) project and the ResMob project, which produced a feasibility study on natural capital accounting in 2016/17. (Namibia Statistics Agency, 2021). Institutional capacity building has been a cornerstone of this journey. Namibia benefited from training by the United Nations Statistics Division (UNSTAT), with local experts such as Mr. Olimpio

Nhuleipo and Dr. Humavindu serving as trainers. The country has also been part of the Gaborone Declaration for Sustainability in Africa, supported assessments by Conservation International, and prioritized natural resource accounts within its National Biodiversity Strategy and Action Plans (NBSAPs). Initially, responsibility for natural capital accounts was decentralized to line ministries in 2005, but progress stalled due to lack of positions and funding. Since 2016, coordination has been centralized under MEFT, working in partnership with the Namibia Statistics Agency (NSA) and other ministries

Through these efforts, Namibia has developed a wide range of accounts: Water Accounts (2015, 2018), Land Accounts (2017), Mineral Accounts (2020), Forestry Accounts (2019), Fisheries Accounts (2014, 2019, 2024), Wildlife Accounts (2014), and experimental Ecosystem Accounts for the Otjozondjupa Region (2021). These outputs have been instrumental in informing drought planning, water allocation, bush-to-energy initiatives, community-based natural resource management, and tourism investment strategies. They are further guided by national development frameworks such as Vision 2030, the National Development Plans (NDPs), the Green Economy Policy Framework, and the Harambee Prosperity Plans. (NSA, 2022; Chaminuka, Kativu, & Tregurtha, 2021).

The SEEA strengthens the SNA in three key ways. *First*, it expands the asset boundary by incorporating a broader set of environmental assets, including degraded ecosystems and non-market services. *Second*, it enables the development of beyond-GDP indicators such as inclusive wealth, adjusted net savings, and ecosystem service values, supporting long-term planning and intergenerational equity. *Third*, SEEA serves as a satellite system to the SNA by providing sectoral accounts, such as for water, energy, agriculture, and tourism, thus deepening the relevance of national accounts for sustainability-focused decision-making (United Nations, 2014; United Nations, 2021).

Namibia's integration of SEEA has significantly strengthened evidence-based policymaking. For example, the 2018 Water Accounts revealed that about 60.0 percent of national water use is derived from groundwater, critical for agriculture, industry, and households (NSA, 2018; Shikongo, 2021). Mineral Accounts highlighted the dominance of diamonds, which contributed nearly 79.9 percent of mineral production value in 2018 (NSA, 2019; Barry, 2023). Forestry Accounts showed that while formal forestry contributed only 0.2 percent to GDP, roughly 65.0 percent of biomass is concentrated in the north-east, making it strategically important for energy and conservation (NSA, 2020; UNFCCC, 2023). Fisheries remain vital for employment and exports, though their GDP contribution declined from 3.2 percent in 2007 to 2.7 percent in 2019 (NSA, 2014; 2019). Tourism, confirmed by the 2021 Tourism Satellite Account, contributes 4.8 percent to GDP and 7.2 percent to national employment (NSA, 2021).

**Policy Impacts:** Collectively, these outputs have directly supported policy design and implementation. Water accounts have guided drought and allocation strategies; forestry accounts have supported community-based resource management and bush to energy initiatives; fisheries accounts inform resource use and export planning; and tourism accounts underpin job creation and investment. Together, they demonstrate how SEEA-SNA synergies can align Namibia's economic planning with sustainability objectives, ensuring resilience and inclusive growth.

**Summary Table: Contribution of SEEA Accounts to National Indicators**

Account	Key Indicator	% Contribution	Reference
Water Accounts	Groundwater use (agriculture, industry, households)	60.0	Shikongo, A. (2021). <i>The Namibian</i> . <a href="#">Link</a>
Mineral Accounts	Diamond share of total mineral production (2018) (Diamond Share (%)=Total Mineral Production Value/Diamond Production Value X100. Diamond Share (%)= 20.9/16.7)×100=79.9%)	79.9	Barry, 2023; Namibia Statistics Agency, 2019
	Mining share of GDP (1990–2018 average)	11.1	Naminga & Mubita, 2021
Forestry Accounts	Forestry contribution to GDP (formal sector)	0.2	Namibia Statistics Agency, 2020; UNFCCC, 2023
	Biomass stock in north-eastern regions	65.0	Namibia Statistics Agency, 2020
Fisheries Sector	Contribution to GDP (2007)	3.2	Namibia Statistics Agency, 2014
	Contribution to GDP (2019)	2.7	Namibia Statistics Agency, 2019
	Export share of fish output	>85	Namibia Statistics Agency (implied, 2019)
Tourism Satellite Account	Contribution to GDP (nature-based tourism)	4.8	Namibia Statistics Agency, 2021
	Tourism share of total employment	7.2	Namibia Statistics Agency, 2021

Despite notable progress in integrating SEEA into national planning, several technical and institutional challenges persist. These include low prioritization at political and management levels, lack of sustainable funding for accounts and positions, limited technical skills within line ministries, and fragmented institutional coordination. Data-related issues also remain significant, as most information is still recorded manually in hard copies, with limited electronic databases, while confidentiality restrictions particularly for mineral reserves data further constrain compilation. Methodological inconsistencies and the complexity of valuing non-market ecosystem services, such as carbon sequestration and cultural values, add to the difficulty of harmonizing SEEA EA with national accounts. Aligning valuation techniques and asset boundaries across institutions demands sustained collaboration among the Namibia Statistics Agency (NSA), the Ministry of Environment, Forestry and Tourism (MEFT), the Ministry of Agriculture, Water, and Land Reform (MAWLR), and the Ministry of Finance and Public Enterprises (MFPE).

Namibia’s experience demonstrates the potential of SEEA to support resilient and inclusive policymaking. By integrating SEEA CF and EA into macroeconomic frameworks, the country has strengthened environmental stewardship, informed public investment decisions, and improved policy design in sectors such as agriculture, tourism, and natural resource governance. As Namibia accelerates its transition to a green economy, mainstreaming SEEA across all levels of planning will be critical for achieving national development, sustainability, and climate objectives, reinforcing the relevance of environmental-economic integration in guiding long-term development.

#### 4. Namibia’s Experience and Institutional Insights

Compared to its regional peers, Namibia leads in water and tourism accounts; South Africa has advanced land accounts, while Botswana has developed mineral accounts but struggles with integrating them into planning. Kenya has piloted ecosystem accounts linked to climate resilience. This positions Namibia as a continental leader in environmental economic accounting while highlighting shared challenges across Africa (United Nations, 2021; Namibia Statistics Agency, 2021; Obura et al., 2020).

Namibia’s leadership reflects a strong institutional commitment to integrating environmental sustainability into national planning. The Namibia Statistics Agency (NSA) has developed a wide range of natural resource accounts, covering water, minerals, energy, fisheries, and forests. These

outputs are supported by technical guidelines that ensure methodological consistency with SEEA and SNA standards (United Nations, 2014; Namibia Statistics Agency, 2021).

Engagement in the NCAVES project marked a significant step in ecosystem accounting. Through this initiative, Namibia developed pilot ecosystem extent and condition accounts, particularly for wetlands and protected areas. The Ministry of Environment, Forestry and Tourism (MEFT) has played a pivotal role, leading ecosystem assessments, land cover mapping, and biodiversity strategy development. The third National Biodiversity Strategy and Action Plan (NBSAP III) incorporates ecosystem indicators informed by SEEA EA principles (United Nations, 2021; MEFT, 2020). Valuation studies in areas such as Etosha National Park and the Zambezi wetlands have further demonstrated the economic significance of Namibia's natural capital (Chaminuka, Kativu, & Tregurtha, 2021).

Despite these achievements, challenges remain. Limited data integration across agencies, gaps in valuation expertise, and difficulties reconciling non-market ecosystem service values with the SNA's production boundary continue to constrain full operationalization (Hein et al., 2020). Nevertheless, significant opportunities exist. Aligning SEEA outputs with National Development Plan 6 (NDP6) and green economy initiatives can strengthen sustainability planning. SEEA EA can also support tracking of climate finance under Namibia's Nationally Determined Contributions (NDCs) and inform employment strategies for green jobs in sustainable tourism and resource management (NSA, 2022). Collectively, Namibia's experience underscores how institutional coordination, methodological rigor, and policy integration are essential for translating environmental-economic accounts into actionable development outcomes.

## **5. Literature Review**

The integration of environmental and economic accounting has been widely examined as a response to the inadequacies of traditional economic indicators such as GDP, which fail to capture environmental degradation and the loss of ecosystem services. Stiglitz, Sen, and Fitoussi (2009) highlight that GDP overlooks key aspects of sustainability and well-being. The SEEA frameworks were developed to address this gap by offering standardized systems for integrating environmental information into economic statistics.

The SEEA Central Framework (SEEA CF), adopted in 2012, focuses on physical and monetary accounts for natural resources like water, energy, and minerals. In contrast, the SEEA Ecosystem Accounting (SEEA EA), endorsed in 2021, emphasizes spatially explicit data on ecosystem assets and the flow of ecosystem services (United Nations, 2021). Empirical studies, such as those by Edens and Hein (2013), show that integrating SEEA EA into the SNA enhances national income estimates by internalizing environmental externalities.

In the Southern African context, Chaminuka, Kativu, and Tregurtha (2021) emphasize the potential of ecosystem accounting in achieving the Sustainable Development Goals (SDGs). Namibia, in particular, is noted as a regional leader in the application of SEEA, with successful examples in water, minerals, and land accounts. However, institutional fragmentation and limited technical capacity are noted as key barriers to sustainability.

Obst and Vardon (2014) argue that developing bridge tables and harmonized classifications can help align SEEA outputs with SNA aggregates, making environmental data more relevant for macroeconomic planning. Despite technical progress, challenges in valuation methods, data consistency, and cross-sectoral collaboration persist, particularly in developing countries.

In Namibia's case, capacity building and inter agency coordination are seen as vital to advancing SEEA implementation. While the Namibia Statistics Agency (NSA) has made progress in compiling

natural capital accounts, the incorporation of SEEA indicators into national development planning and budgeting remains limited (Likukela & Kavezepa, 2023). The literature thus calls for sustained investment, institutional innovation, and strategic policy engagement to ensure meaningful integration of SEEA frameworks into national accounting systems.

### Glossary of Key Terms

**System of Environmental Economic Accounting Ecosystem Accounting (SEEA EA):** A framework that organizes biophysical and monetary data on ecosystems and their services using spatial units. It tracks changes in ecosystem condition and the flow of services to people (United Nations, 2021).

**System of Environmental-Economic Accounting Central Framework (SEEA CF):** An international statistical standard that provides physical and monetary accounts for natural resources and environmental expenditures (United Nations, 2014).

**System of National Accounts (SNA):** The foundational system for compiling economic statistics, including GDP, national income, and wealth, focusing on production, consumption, and accumulation (United Nations et al., 2009).

**Natural Capital:** The stock of natural resources such as land, water, and biodiversity that provide essential ecosystem services for human well-being (Obst & Vardon, 2014; Chaminuka et al., 2021).

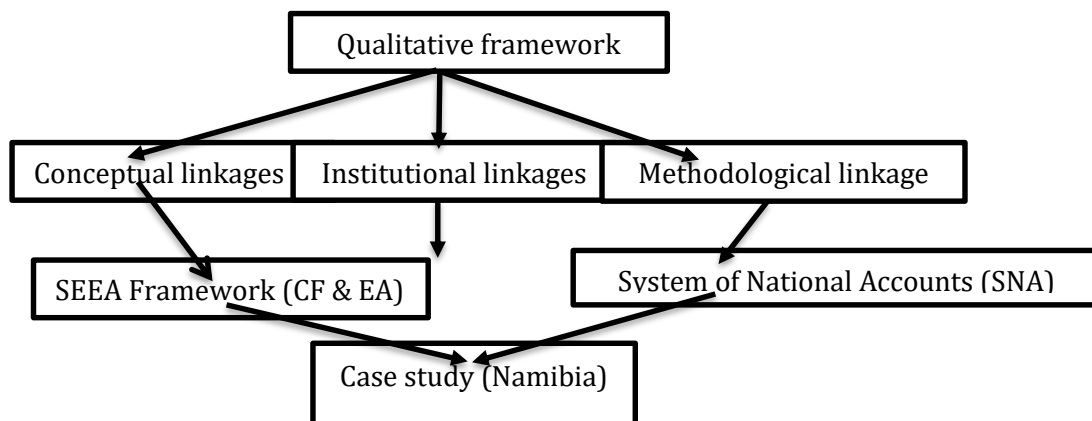
**Ecosystem Services:** Benefits derived from ecosystems, including provisioning (e.g., food), regulating (e.g., flood control), cultural (e.g., recreation), and supporting (e.g., nutrient cycling) services (Millennium Ecosystem Assessment, 2005).

## 6. Methodology

This paper employs a qualitative, descriptive case study approach to explore the interconnections between SEEA EA, SEEA CF, and the SNA, focusing on Namibia as a country case. The methodology integrates document analysis, literature review, and stakeholder insights to assess how environmental and economic data can be harmonized within national accounting frameworks.

### Research Design

A qualitative interpretive framework is applied to explore the conceptual, institutional, and methodological linkages between the SEEA frameworks and the SNA. The case study method is well-suited to understanding context specific challenges and institutional dynamics, particularly in complex systems like environmental economic integration (Yin, 2018).

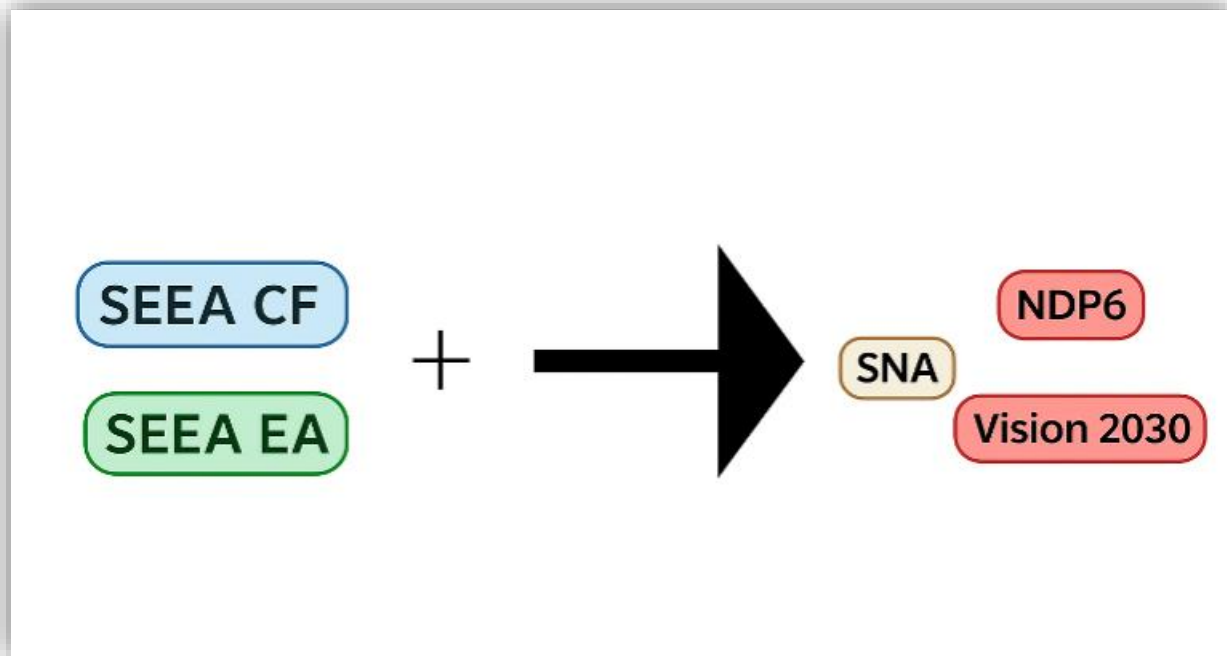


### Data Sources

- The study is based on and secondary sources, including:
- Official natural capital accounts and statistical publications from the Namibia Statistics Agency (NSA),
- Technical guidelines from the United Nations Statistics Division (UNSD),

- National economic reports and SNA data compilations,
- Regional and international case studies, such as those from World Bank WAVES and the London Group,
- Insights from expert consultations (where available) involving MEFT, NSA, and the Ministry of Finance and Public Enterprises.

### Analytical Framework



This framework illustrates the integration of environmental economic accounting into national planning processes. It begins with the System of Environmental Economic Accounting Central Framework (SEEA CF) and Ecosystem Accounting (SEEA EA), which together provide structured data on natural capital and ecosystem services. These are linked to the System of National Accounts (SNA), enabling alignment with conventional economic indicators. The resulting synthesis informs Namibia’s strategic development goals, notably Vision 2030 and the Sixth National Development Plan (NDP6), ensuring that environmental sustainability is embedded in macroeconomic planning and policy formulation.

**To evaluate the effectiveness of integration, the paper applies four key analytical dimensions:**

- **Conceptual Integration:** Assessing theoretical alignment among SEEA EA, SEEA CF, and SNA.
- **Institutional Linkages:** Examining coordination mechanisms across Namibia’s agencies.
- **Policy Relevance:** Measuring the uptake of SEEA outputs in strategic plans (e.g., NDP5, Vision 2030).
- **Methodological Convergence:** Identifying gaps and synergies in valuation techniques, asset boundaries, and classifications.

A **comparative matrix** is used to track the inclusion of various account types (e.g., water, land, ecosystems) within Namibia’s national statistics.

## **Justification for Namibia as a Case Study**

Namibia was selected due to its pioneering role in natural capital accounting in Africa. Through participation in global initiatives like WAVES and NCAVES, Namibia has produced experimental and operational environmental accounts that have informed policy reforms in water management, land use planning, and biodiversity conservation. The NSA's outputs are recognized for their methodological rigor and regional relevance.

## **Limitations**

The study is primarily qualitative and relies on existing documentation and expert knowledge. While it provides robust insights into institutional practices and methodological issues, the absence of new empirical surveys or interviews may limit stakeholder depth. However, the breadth and quality of available secondary sources compensate for this limitation.

## **7. Policy Recommendations and Strategic Pathways**

To strengthen the integration of the SEEA frameworks into Namibia's development planning, a set of coordinated policy, institutional, and technical measures is required.

### **Institutional Coordination**

- Establish and fund a permanent inter-ministerial task force led by the NSA and MEFT, with participation from key line ministries. This body should have clear mandates, standardized methodologies, and formal data-sharing protocols to avoid siloes implementation.
- Strengthen coordination mechanisms under MEFT and NSA while ensuring that environmental economic accounting is elevated as a priority at Cabinet, Parliament, and senior management levels.

### **Capacity Building**

- Establish structured training programmes with NUST and UNAM, offering both short-term courses and degree-level modules to build a pipeline of national expertise in SEEA, environmental valuation, and modelling.
- Provide regular capacity building opportunities for members of the Technical Working Group on NCA, planners, and budget officers to enable practical application of SEEA in development planning and budgeting processes.

### **Data and Information Systems**

- Invest in geospatial infrastructure and integrated environmental information systems to digitize existing data, reduce reliance on manual records, and produce timely, spatially explicit accounts.
- Harmonize classifications and valuation approaches across institutions to ensure consistency, comparability, and policy relevance.
- Address confidentiality barriers, particularly for mineral reserves data, through clear data-sharing agreements and safeguards.

### **Policy Integration**

- Secure sustainable funding to enable the NSA and line ministries to jointly compile and maintain environmental accounts.

- Link SEEA outputs explicitly to NDP6, Vision 2030, the Harambee Prosperity Plan, the Green Economy Strategy, and the Circular Economy Roadmap so that environmental accounts inform policy, investment, and climate planning.
- Translate SEEA outputs into accessible policy briefs, dashboards, and communication tools that present natural capital values in a clear and engaging manner for decision-makers and the public.

### **Regional and International Collaboration**

- Leverage platforms such as SADC and the African Group on Environmental Accounting to share best practices, build technical capacity, and mobilize regional and global investments for natural capital accounting.

### **Priority Actions**

- Establish a permanent and well-funded inter-ministerial SEEA task force.
- Mainstream SEEA training programmes at NUST/UNAM and enhance TWG upskilling.
- Develop integrated digital databases and strengthen data sharing protocols.
- Raise political awareness and institutionalize SEEA in all national planning frameworks.

## **8. Conclusion**

Namibia's experience shows that environmental-economic accounting is not just a statistical exercise but a strategic tool for sustainable and inclusive development. By integrating the SEEA Ecosystem Accounting (SEEA EA), the SEEA Central Framework (SEEA CF), and the System of National Accounts (SNA), Namibia is moving toward a more comprehensive assessment of national wealth beyond GDP by capturing the value of ecosystems, natural resources, and their services.

Significant progress has been made: Namibia has developed water, tourism, fisheries, forestry, and wildlife accounts, supported by strong institutional partnerships and international collaboration. Yet challenges remain, including limited funding, fragmented data, insufficient capacity, and low prioritization at political levels.

Addressing these barriers requires sustained political commitment, targeted investment in skills and data systems, and closer coordination across ministries. By mainstreaming SEEA into NDP6, Vision 2030, and related strategies, Namibia can ensure that environmental values directly inform policy, budgeting, and investment decisions.

Institutionalizing SEEA within Namibia's national planning frameworks will position the country as a regional frontrunner in sustainable development accounting. This integration enables more informed decision-making that balances economic advancement with ecological integrity and long-term resilience.

## REFERENCE

- Chaminuka, P., Kativu, S., & Tregurtha, N. (2021). Natural capital accounting and valuation of ecosystem services in Namibia: Insights and policy applications. Namibia Statistics Agency.
- Chaminuka, P., Kativu, S., & Tregurtha, N. (2021). Opportunities for ecosystem accounting in Southern Africa: Achieving the SDGs through natural capital data. *Development Southern Africa*, 38(4), 564–580. <https://doi.org/10.1080/0376835X.2021.1879771>
- Edens, B., & Hein, L. (2013). Towards a consistent approach for ecosystem accounting. *Ecological Economics*, 90, 41–52. <https://doi.org/10.1016/j.ecolecon.2013.03.003>
- Hein, L., Obst, C., Edens, B., & Remme, R. P. (2020). Progress and challenges in the development of ecosystem accounting as a tool to analyse ecosystem capital. *Ecosystem Health and Sustainability*, 6(1), e01220. <https://doi.org/10.1080/20964129.2020.1792611>
- Lange, G. M., Mungatana, E., & Hassan, R. (2004). Water accounting for the Orange River Basin: An economic perspective on managing a transboundary resource. *Ecological Economics*, 61(4), 660–670. <https://doi.org/10.1016/j.ecolecon.2006.07.028>
- Likukela, M., & Kavezepa, P. D. (2023). Integrating environmental-economic accounts into national development planning in Namibia: Challenges and opportunities. *Namibian Journal of Development and Policy Studies*, 5(1), 22–39.
- MEFT. (2020). Namibia's third National Biodiversity Strategy and Action Plan (NBSAP III) 2020–2030. Ministry of Environment, Forestry and Tourism.
- Millennium Ecosystem Assessment. (2005). *Ecosystems and human well-being: Synthesis*. Island Press.
- Nambinga, V., & Mubita, L. (2021). The impact of mining sector to the Namibia economy: Assessing socio-economic and environmental effects [Final report]. National Planning Commission of Namibia. <https://www.npc.gov.na/wp-content/uploads/2022/02/The-Impact-of-Mining-sector-to-the-Namibia-economy-FINAL.pdf>
- Namibia Statistics Agency. (2018). *Namibia statistical yearbook 2018*. Namibia Statistics Agency.
- Namibia Statistics Agency. (2019). *Namibia mineral accounts 2010–2017*. Namibia Statistics Agency.
- Namibia Statistics Agency. (2020). *Forest Resource Accounts for Namibia 2000–2018*. Windhoek: NSA [https://www.npc.gov.na/wp-content/uploads/2021/12/Voluntary-National-Review-2018.pdf?utm\\_source=chatgpt.com](https://www.npc.gov.na/wp-content/uploads/2021/12/Voluntary-National-Review-2018.pdf?utm_source=chatgpt.com)
- Namibia Statistics Agency. (2020). *Namibia forestry accounts 2019*. Namibia Statistics Agency.
- Namibia Statistics Agency. (2020). *Namibia water accounts 2018*. Namibia Statistics Agency.
- Namibia Statistics Agency. (2021). *Experimental ecosystem accounts for Namibia: Otjozondjupa pilot region*. Namibia Statistics Agency.
- Namibia Statistics Agency. (2021). *Tourism Satellite Account Report 2021*. Namibia Statistics Agency.
- Namibia Statistics Agency. (2022). *Environmental-economic accounting progress report*. Namibia Statistics Agency.
- Obst, C., & Vardon, M. (2014). Recording environmental assets in the national accounts. *Oxford Review of Economic Policy*, 30(3), 126–144. <https://doi.org/10.1093/oxrep/gru014>
- Republic of Namibia. (1990). *The Constitution of the Republic of Namibia*. Government of Namibia.
- Shikongo, A. (2021, October 14). New hydrogeological map key to groundwater management. *The Namibian*. <https://www.namibian.com.na/new-hydrogeological-map-key-to-groundwater-management/>
- Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2009). Report by the Commission on the Measurement of Economic Performance and Social Progress. <https://ec.europa.eu/eurostat/documents/118025/118123/Fitoussi+Commission+report>

- United Nations Statistics Division. (2021). SEEA EA global implementation strategy. <https://seea.un.org/content/global-implementation-strategy>
- United Nations. (2014). System of environmental-economic accounting 2012: Central framework. <https://seea.un.org/content/seea-central-framework>
- United Nations. (2021). System of environmental-economic accounting – Ecosystem accounting (SEEA EA). <https://seea.un.org/ecosystem-accounting>
- Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE Publications.