Integrating the Values of Nature into Policy and Investment Decisions: Wealth Accounting of Ecosystem Services

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CLOSE-OUT REPORT (2016-2022)

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WAVES

Acronyms

CIC
Core Implementing Countries

CoP
(Regional) Communities of Practice

CWON
Changing Wealth of Nations

EAP
East Asia and Pacific

GPS
Global Program on Sustainability

JIT
Just in Time support

LAC
Latin America and Caribbean

MDTF
Multi Donor Trust Fund

M&E
Monitoring and Evaluation

MSG
Middle Sized Grants

NCA
Natural Capital Accounting

NSO
National Statistical Office

PMT
Program Management Team

RF
Results Framework

SDG
Sustainable Development Goals

ToC
Theory of Change

TTA
Targeted Technical Assistance

WAVES
Wealth Accounting and the Valuation of Ecosystem Services

WBG
World Bank Group

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In addition, we want to acknowledge the key role of ENB Regional Managers for their leadership and support to WAVES Plus in providing technical assistance to countries for integrating the unpriced contributions of natural capital and ecosystem services into development planning and decision-making processes.

Preface

The growing demands on nature are leading to degradation of natural resources and the environment, threatening sustainability and accelerating climate change. However, current metrics for assessing economic progress do not reflect these losses. Wealth Accounting and Valuation of Ecosystem Services (WAVES) Plus was designed to address these gaps and to strengthen wealth and Natural Capital Accounting (NCA) activities initiated under the previous WAVES program. It aimed to promote sustainable development by incorporating the physical and monetary values of natural capital in decision-making processes. This closeout report present the main findings and lessons from this experience without being comprehensive. The report is based on desk review and synthesis of evidence from various sources, complemented by selected case studies.

The report shows WAVES Plus has achieved its main targets. The performance indicators for all three components were fully achieved. The case studies show the positive contributions made in demonstrating the proof-of-concept for NCA and valuation of natural capital and ecosystem services. The program managed to support 16 countries through different types of grants. All the four core implementing countries managed to produce NCA for at least two sectors and some are expanding to new accounts. All countries have been using data for policy analysis and this has informed investments and/or policies in some countries. The regional Communities of Practice need further strengthening but have contributed to sharing of NCA experiences and peer learning. The global policy forum and flagship report Changing Wealth of Nations (CWON) also enriched the global dialogue on natural capital and going beyond GDP in measuring economic progress.

The report also highlights challenges that many countries face in closing capacity gaps, including acquisition of data, creation of NCA and integration of natural capital into national balance sheets and policy processes. It shows that redesigning national accounting systems to integrate nature is a challenging task and cannot be achieved through limited technical support. A stepwise approach with learning by doing, sustained support, significant resources, national commitment, and a whole-of-government approach are vital for success. The report also offers following additional lessons:

Cross-sectoral collaboration is key to facilitate data collection and sharing for NCA. Technical partnerships with World Bank and specialized agencies help foster capacity development.

Focus on upfront analysis is key to produce timely evidence to inform investments and policies for larger grants. NCA data could be leveraged for integrated analysis of economic and environmental linkages. Small grants could help countries explore and define their needs and priorities and custom design larger initiatives for integrating sustainability.

The impact of analytical work in informing investments or policies is enhanced when identified opportunities are articulated in the grant's theory of change and actively pursued.

The progress with regional Communities of Practice (CoPs) in Africa and LAC shows the importance of peer learning and exchange of experiences to advance NCA. CoPs are more effective when there are role models and sufficient funding with a dedicated coordinator to champion knowledge sharing.

The participatory process embedded in the NCA Policy Forum events has facilitated open dialogue and exchange of ideas based on experiential learning and evidence. Background papers issued before the Forum, followed by proceedings enhance the policy dialogue.

Proactive communication with webinars and access to global repository of knowledge and tools on NCA could enhance global reach and impact.

Given the need for sustained support and commitment, an important contribution of WAVES Plus was its role in bridging the transition to the Global Program for Sustainability (GPS) as the new umbrella program on natural capital accounting and economics of sustainability.

Executive summary

The growing demands on nature are leading to degradation of natural resources and the environment, threatening sustainability of economic growth and accelerating climate change. However, current metrics for assessing economic success do not reflect the loss of nature and impacts on the environment, and yet the poorest countries and communities that depend on these resources suffer the most from such losses. The Wealth Accounting and Valuation of Ecosystem Services (WAVES) Plus program was a 6-year program (2016 – 2022) designed to help address these gaps, building on the Global Partnership on Wealth Accounting and the Valuation of Ecosystem Services (WAVES, 2012 – 2019). Total funding amounted to US$10.3 million.

The main objective of WAVES Plus was to promote sustainable development by incorporating the physical and monetary values of natural capital in decision-making processes. The program had three components:

- **Country component:** support individual developing countries to implement Natural Capital Accounting (NCA) and mainstream natural capital into decision making.
- **Regional component:** meet the growing demand from countries through establishing regional Communities of Practice.
- **Global component:** promote the global adoption of policy relevant NCA through communications, networking and contributing to the development of methodology, particularly for ecosystem accounting.

Without claiming to be comprehensive, this close-out report summarizes the activities and results from the WAVES Plus program. This includes assessment of how lessons from the program have informed the design of the successor program, Global Program for Sustainability (GPS). The report is based on desk review and synthesis of evidence from various sources, complemented by selected in-depth case studies to illustrate the overall results and lessons.

WAVES Plus has successfully built both on practical experiences gained during the first WAVES program and on the successive reviews. This includes how the World Bank could strengthen its support for properly reflecting and mainstreaming the value of natural capital into development planning and national economic accounts (e.g., WAVES Mid-Term Review 2015; Vardon, Lange and Johansson, 2016).

WAVES Plus has achieved or exceeded all targets set for the three components of the program focusing on country, regional and global activities. The case studies on selected country programs confirm the positive contributions of the program in demonstrating the proof of concept and creating the demand for NCA and valuation of natural capital and ecosystem services in client countries. The report also highlights the challenges that many low-income countries face in closing capacity gaps that hinder acquisition of data and integration of the diverse values of nature into national balance sheets and policy processes. The findings and lessons of the three components are highlighted below.

Country results

The main objective of the country component aimed to build a critical mass of developing countries implementing NCA and using to inform policies and investments. This was achieved through developing new types of grants and making the implementation more effective through building on experiences under the first WAVES program. The country program covered 16 countries (see Box 1). To achieve this with the small funding envelope available, WAVES Plus allowed less time and funding for the CICs compared to the WAVES program. The CIC programs were typically between 2-3 years ($0.7 million to $1 million). The Targeted Technical Assistance (TTA) programs were typically 1-2 years long ($150,000 – $ 250,000). The end-of-project targets for the country component were achieved (140 percent).

In total, the country programs supported the development of several natural capital accounts and analytics. This includes 12 natural capital accounts and 27 analytical studies, ranging from valuation of ecosystem services to environmental-economic modeling. The results have informed policies and plans in 4 countries, as well as the design and implementation of investment projects in 13 countries.

Box 1. Country programs in WAVES Plus

Program/ window	Number of countries	List of countries
CIC	4	Egypt, Morocco, Uganda, Zambia
TTA	12	Cambodia, Kyrgyz Republic, Lao PDR, Madagascar, Myanmar, Morocco, Mexico, Nepal, Uzbekistan, Vietnam, WACA Regional program (focusing on Ghana and Nigeria)

The key to achieving this level of policy uptake has been to design the programs with concrete policies or plans in mind. Three of the CIC and all TTAs were linked to World Bank-funded investment projects, which has shown to be beneficial for impact to improve use of data. Identifying specific policy needs a priori and working with data producers and policymakers are key for impact. This has fed into GPS which requires a "reverse causation logic" to be used in designing GPS CIC grants.

Kick-start with preliminary data. Since building capacity and developing official accounts take time and resources, a successful strategy has been to develop preliminary accounts using available data (e.g., global datasets, remote sensing) These can be used ahead of getting fully validated, official accounts.

Having a central economywide Ministry (e.g., Finance or Planning) is key for coordination and mainstreaming. This is critical in championing natural capital and integrating results and findings into national strategies, policies, accounts, and budgets. The case studies from Uganda and Zambia demonstrate the key role of the Ministries of Finance and Planning in this process.

Integration into national development planning and recurring policy reviews enhance sustainability of the NCA approach and its use in decision-making. The case of Uganda shows that integration into economic models and development of macro-indicators crucially enhances uptake into economic policy. These indicators do not necessarily need to build on NCA, but can use other data sources while the accounts are being developed. Integration of environmental-economic indicators into government's monitoring and review instruments was key in mainstreaming natural capital into policy. Simple models like input-output models can be useful for rapid assessments and can be appropriate if modeling capacity is low. More advanced models provide more relevant insights and can be valuable in countries where capacity and relevant data exist to adapt/use such tools.

Experiences from CIC programs show the importance of cross-sectoral collaboration in collecting data and producing natural capital accounts. Inter-agency collaboration through Steering Committee and Technical Working Groups (TWGs) for NCA facilitated coordination, data sharing and learning. These structures have been kept even after WAVES Plus to sustain inter-agency collaboration (e.g. in Zambia).

Having the national statistical office (NSO) taking the lead on the production of accounts ensures use of standard tools, methods and data sharing protocols. Embedding the production of accounts into the regular plans for the NSO is critical to ensure that the NCAs are not just one-off exercises. Making NCA part of the official data published by the statistical agency is key to ensure quality and that the data is publicly available. Stakeholder validation workshops and reviews by international experts enhanced quality and data ownership. **WAVES Plus has shown that knowledge exchange and cross-country experience has significant value in assisting countries to move forward strategically.** This includes both joint study visits to countries with extensive expertise in NCA, bilateral knowledge sharing and regional communities of practice (CoPs) such as the Africa NCA CoP.

Mainstreaming natural capital into national systems is data and knowledge intensive process and requires long-term engagement and whole-of-government approach with significant resources. Changing the long-established national accounting systems to begin integrating nature is challenging and cannot be achieved through a limited technical assistance or advisory service. The NCA approach should therefore be conceived as a long-term stepwise process for build capacity in mainstreaming sustainability into development policy processes. The experience of WAVES Plus in several of the countries illustrates the importance of complementing initial support with additional resources to consolidate and gradually strengthen national capacity in natural capital accounting and analysis. GPS operates based on these principles and uses different funding instruments (small, medium and large) for incremental learning in the long journey for integrating nature into national decision processes.

Regional results

The regional component was a new feature added to WAVES Plus to support south-south learning and exchange of experiences on NCA. The regional platforms helped to reach a larger number of countries and deepen learning through regional networks. The activities focused on three regions: Latin America and the Caribbean (LAC), East Asia and Pacific (EAP) and Africa, and supported regional events as well as producing knowledge products such as NCA readiness reports. The CoPs in LAC and Africa provided communication platforms for governments and individuals interested in NCA. The webinars and access to virtual trainings enabled learning from international experts as well as from each other.

The experiences from LAC and Africa show that embedding or connecting the platforms with the relevant regional agencies contributes to the success of regional CoPs. In LAC, WAVES built a strong partnership with the Economic Commission for Latin America and the Caribbean (ECLAC), which resulted in a community of practice that continued even after the WAVES support ended. Based on the positive experience from WAVES Plus, GPS has continued to fund the CoP, including a regional Africa NCA Policy Forum in 2023.

Global results

The global activities aimed to promote the uptake of NCA globally. This was achieved through the development of methodologies on ecosystem accounting, flagship analytical knowledge products (e.g., the Changing Wealth of Nations), networking, communications, and collaboration. The targets to deliver knowledge products and policy events were fully achieved or exceeded.

The annual NCA Policy Forum enhanced the dialogue on **how NCA can be used to inform other policy areas, such as climate change, landscape management and green economy.** Five NCA Policy Forum events were held with funding from WAVES Plus. The results were documented in proceedings. Success factors for global forums include strong participation and openness for innovative, timely and focused ideas in organizing events.

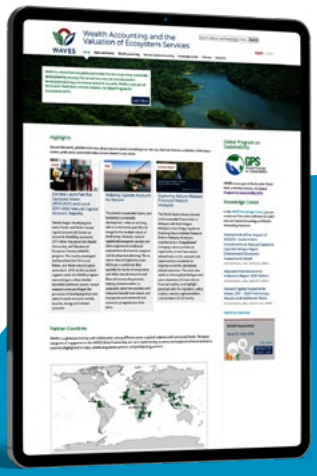
WAVES Plus also supported development of methodologies for NCA and valuation of natural capital and ecosystem services. It supported the international process to develop a standard for ecosystem accounting. It also supported development of the methodology and database of the Changing Wealth of Nations (CWON), as it moved to measuring and valuing human and natural capital. This has further enhanced the global impact of the program.

Crosscutting results and transition to GPS

The WAVES website succeeded in becoming a hub for technical and methodological knowledge products on development and use of NCA. Monitoring data show that by the end of the program there were over 150,000 hits on the WAVES Plus website. This has helped in nurturing a virtual global community of practice around NCA. The WAVES newsletter that was issued regularly since 2013 gathered over 4000 subscribers.

An important contribution of WAVES Plus is its role in bridging the transition to GPS as the new umbrella program on natural capital accounting and economics of sustainability. GPS was able to improve its design and implementation by building on the lessons from the decade-long WAVES support for wealth accounting. Most importantly, the links to policy and investment projects were further strengthened, as well as support to developing methodology, tools and databases to facilitate mainstreaming of natural capital into policy.

GPS also benefited from the experience of WAVES Plus. As the new umbrella program on natural capital accounting and economics of sustainability, GPS was able to improve its design and implementation by building on the lessons from the decade-long WAVES support for wealth accounting. Most importantly, the links to policy and investment projects were further strengthened, as well as support to developing methodology, tools and databases to facilitate mainstreaming natural capital into policy.



1. Introduction

The Wealth Accounting and Valuation of Ecosystem Services Plus (WAVES Plus) program was a 6-year program (2016 – 2022) building on the Global Partnership on Wealth Accounting and the Valuation of Ecosystem Services (WAVES, 2012 – 2019). This was a World Bank–led global partnership designed to incorporate the diverse values of natural capital (market and non-market values) in development decisions and to recognize them more fully in national economic accounts. The total funding available from donors was US$10.3 million, which is lower than the WAVES program (US$23 million). Several lessons from WAVES were taken on board in WAVES Plus, building both on practical experiences of the country programs and on the reviews that were undertaken of the WAVES program in 2015 and 2016[1]. WAVES Plus took on board several suggestions to strengthen the impact of the program, including changing the modality of country engagement and adding a regional component to widen the reach of the program, and to seize opportunities to use Natural Capital Accounting (NCA) in national policymaking and in World Bank operations in partner countries.

The WAVES Plus program started in 2016, the year that its predecessor program, WAVES, was scheduled to close. WAVES was eventually extended to 2019, which meant that the programs ran in parallel for a few years. In 2019 WAVES Plus was integrated into a new umbrella program[2], the Global Program for Sustainability (GPS). GPS built on the experience from WAVES and WAVES Plus as well as related global knowledge activities within the World Bank (most notably the Changing Wealth of Nations and the World Bank Treasury's work on sustainable finance). GPS consists of three pillars: Information, Implementation and Incentives, where the second pillar builds on WAVES Plus. The first and third pillars aims to further strengthen the objective to integrate environmental and other sustainability considerations into public and private decisions through developing a global information base and tools to inform policy and investment decisions (pillar 1) and integrate sustainability considerations in financial markets (pillar 3).

This report aims to summarize the activities and results from the WAVES Plus program and

report on achievements and lessons learned, including how the almost decade-long experience from the WAVES programs were taken on board in the development of GPS.

The intended audience are staff of donor institutions supporting WAVES Plus and GPS; World Bank Group Task Team Leaders (TTLs) and task team members in operations related to NCA; government counterparts, international organizations and other stakeholders. The approach is desk-based, with evidence collected through reviews of progress and closing reports from the activities. Case studies selected from grants with more complete evidence on their progress and achievements from all three components of the program were conducted to illustrate the overall results.

The report is structured as follows: chapter 2 gives an overview of the whole program, its objectives and how it was conceived. Chapters 3, 4 and 5 focus on the three components of the program: country, regional and global activities. For each component, an overview of achievements and lessons learned is given, followed by deep-dive case studies into selected activities from the three components. These include a sample of country programs (Country component), the Africa NCA community of practice (Regional component), and the global NCA Policy Forum and the support to Changing Wealth of Nations (Global component). In the last chapter, conclusions from the assessment are summarized. The chapter also outlines how insights from WAVES Plus have been taken onboard in its successor program, GPS.

The program theory of change, the results framework as of the end of the program, reports listed per country and the financial summary are given in the Annexes.

1 Vardon, M., Lange, GM., and Johansson, S. (2016): Achievements and Lessons from the WAVES First 5 Core Implementing Countries.

2 Although a common reporting approach was agreed by the donors, GPS and WAVES Plus had to maintain separate results frameworks to monitor the outcomes of the two programs.

2. Background and overview

Lessons from the first WAVES program

The WAVES Plus program was built based on the experiences of the first WAVES program. It also had the advantage of starting in a time when NCA was a more widespread approach. When WAVES started in 2012 the framework underlying natural capital accounting, the System of Environmental Economic Accounting (SEEA), had just been adopted as an international standard. The concept of NCA was fairly new, and not many developing countries had started to work on NCA at the time. The methodology and statistical framework for accounting for ecosystems and valuing ecosystem services was still not fully developed.

The main objective of WAVES was, similar to WAVES Plus, *to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts.* The main component of the program was the country work, giving support to a total of eight partner countries, called Core Implementing Countries (CICs). The relative lack of standardization and low general awareness of NCA was reflected in the methodology and communications components of the program. The former included a group of experts[3] to support the program on methodological questions, particularly on valuation of natural capital and ecosystem services. Substantive efforts also went into communication around NCA and WAVES, which contributed to the rapidly growing establishment of NCA during the last decade.

There were several reviews of WAVES to draw lessons from. The Mid-Term Review (MTR), which was done in 2015, was the most important for the design of the WAVES Plus program as it coincided with the inception of WAVES Plus. The detailed recommendations of the MTR are given in Annex 1 of the WAVES Plus Concept Note together with how they were taken on board in the Concept Note. The main recommendations were to:

1. respond to an increasing country demand through a more selective and targeted country engagement based on an NCA readiness assessment;
2. build more on regional and south-south collaboration and learning;
3. integrate NCA into country engagement processes, such as country economic memoranda, Systematic Country Diagnostics (SCDs), and Country Partnership Frameworks (CPFs);
4. mainstream WAVES/NCA in World Bank country lending operations;
5. strengthen collaboration with strategic partners; and
6. demonstrate how NCA can support strategic decision-making on implementing SDGs, including on poverty eradication, climate change, equity and sustainable consumption, and production.

When the first five CICs had finalized their programs in 2016, an assessment was made of achievements and lessons learned (Achievements and Lessons from the WAVES First 5 Core Implementing Countries). The main conclusions drawn from the assessment were four-fold:

1. need for better initial identification of who is making decisions, when are they making decisions and where are decision makers obtaining advice (identification of issues is not enough);
2. set up an ongoing process of engagement with the analytical and policy communities;
3. to have a greater focus on account production as an ongoing process and taking advantage of existing information and data coordination mechanisms; and
4. create stronger links to the National Accounts and their use to guide economic policy.

3 The Policy and Technical Experts Committee (PTEC), which included international experts in environmental economics, environmental-economic accounting and environmental policy and communication.

At the end of the WAVES program in 2019, a comprehensive review of all activities in the program was done (From Accounts to Policy: WAVES closeout report, 2012 - 2019). Ten lessons were drawn, which support and expand on to the conclusions of the earlier assessments (see Box 2).

Box 2. Ten lessons from WAVES identified in the WAVES closeout report.

1. Mandate	Continued high-level support for developing and using natural capital accounts is essential for securing a mandate for NCA and for opening the most strategic entry points.
2. Policy focus	If natural capital accounts are designed to be decision centered, they can be uniquely fit to inform today's tough, interconnected decisions.
3. Flexibility	Country programs have been most successful when they have combined quick analyses to support decisions with longer-term development of NCA.
4. Engagement	NCA takes off when diverse data suppliers and potential data users are well connected: building trust and realizing synergies between their work.
5. Cooperation and coordination	A national steering committee of NCA producers, users, and quality assurers, supported by technical working groups, can smooth the path to developing, using, and embedding NCA. A complementary policy working group can further embed the results in policy making.
6. Communications	A dedicated communication strategy can engage stakeholders, ensure that NCA's role and its results are visible and understood, and deliver the right messages to target audiences.
7. Institutionalization and capacity	Effective NCA is an iterative system, not a one-off project; time needs to be allowed to develop, use, prove, and embed NCA.
8. Transparency	How and by whom data were acquired, analyzed, interpreted, and made accessible is critical for NCA's credibility and trustworthiness, but there is no single solution.
9. Multiple levels	NCA adds value at all levels; although WAVES was mostly focused nationally, some of the toughest decisions that NCA can inform are proving to be intensely local and distributional.
10. Networking	Bringing together a community of practice can accelerate the learning, expand the knowledge base, build the capacity, and increase the confidence necessary to improve NCA.

Objectives and structure of WAVES Plus

The recommendations of the Mid-Term Review (MTR) had a strong influence on the design of WAVES Plus. The main objective of WAVES Plus was very similar to the objective of WAVES: to promote sustainable development by incorporating the physical and monetary values of natural capital in decision-making processes. The lessons from the MTR were however embedded strongly into the specific objectives of WAVES Plus and in the way the CIC programs were set up. The components and objectives of WAVES Plus are shown in Table 1.

Table 1. Program structure and objectives of WAVES Plus

Component	Objective	Summary of key indicators (number)
Component 1: Country Implementation Providing country support through Core Implementing Countries (CIC) and Targeted Technical Assistance (TTA) programs	Build a critical mass of developing countries implementing NCA and using NCA for policy by expanding the number of countries	▪ Countries with at least two Natural Capital Accounts published ▪ Countries with at least two policy analyses related to NCA published ▪ Skilled staff in governments ▪ Key policy documents that reference NCA or the accounts developed
Component 2: Regional Collaboration Strengthening NCA implementation through regional Communities of Practice	Significantly strengthen regional capacity to understand and apply NCA to policy needs to meet the demand of a larger number of countries and sustain their efforts beyond WAVES	▪ Regional knowledge events on NCA organized ▪ Regional knowledge products published
Component 3: Strengthen Global Momentum Advancing ecosystem accounting; Promoting policy use of NCA; supporting global engagement and strategic communications	Promote the global adoption of policy relevant NCA through development of tools and methodologies	▪ Global knowledge events and knowledge products on policy uses of NCA produced ▪ Global knowledge events and knowledge products on developing ecosystem accounts produced ▪ Hits on website and number of document downloads

The regional component was created to respond to the demand for widening the program to a larger number of countries. It included two subcomponents: smaller grants to individual countries for taking steps towards developing NCA,[4] and support to regional knowledge sharing and capacity building activities. The global component, merging the methodology and communications components of WAVES, focused on supporting the ongoing international work to develop the framework for ecosystem accounting into an international standard, as well as methodology development for the Changing Wealth of Nations indicators. Communications remained an important part, including Annual Partnership Meetings (APMs) for WAVES partners, both country counterparts and international organizations working on NCA.

The first Policy Forum on NCA for Better Decision Making was held in 2016, and came to replace the APMs as there was strong demand to make it an annual event. The Forum focused on policy use of NCA, and had a wider audience than the APMs, including not only current and previous WAVES countries but also other developing countries working on NCA. There was also a wide range of international experts and organizations, just as in the APMs. The NCA policy Fora were co-organized with other organizations, most notably UN Statistics Division. Other communications efforts included a newsletter, blogs and comms products from partner countries. The WAVES website increasingly served as a knowledge hub for efforts to develop and use NCA around the world, not just countries supported by WAVES. WAVES Plus continued this work, making the website the go-to place for information on NCA-related activities and reports.

4 For simplicity, the smaller grants implemented at the country level are treated under the country component in this report.

3. Country level work

The backbone of WAVES Plus was, just as in WAVES, country level work. Following recommendations in the MTR, country support was diversified to include both CIC programs and smaller grants, named Targeted Technical Assistance, TTA. WAVES Plus supported four CIC programs and fourteen TTA programs, covering 16+ countries (Table 2).

Table 2. Country programs in WAVES Plus[5]

Program/ window a	Number of countries	List of countries
CIC	4	Egypt, Morocco, Uganda, Zambia
TTA	10	Cambodia, Kyrgyz Republic, Lao PDR, Madagascar, Myanmar, Morocco, Mexico, Nepal, Uzbekistan, Uganda, Vietnam
WACA Regional programb	9	Benin, Cote d'Ivoire, Ghana, Guinea, Mauritania, Nigeria, Sao Tome and Principe, Senegal, Togow

a CIC = Core Implementing Country grants; TTA = Targeted Technical Assistance.

b Regional World Bank program supporting the strengthening of resilience of coastal communities and assets in 17 western African countries.

The CIC programs were typically between 2-3 years with funding ranging between $700,000 to $1 M; smaller than the CIC programs under WAVES, which were 4 year long, with a funding of US$2M each. This was due to the endeavor to support a larger number of countries as well as to the lower level of funding.

TTA programs were 1-2 years long, with funding around $150,000 – 250,000. They provided smaller scale support to countries which could supplement other activities in the country while simultaneously building capacity to develop and use natural capital accounting and related information such as valuation of ecosystem services.

As can be seen in Table 3, all targets for the country component were met or exceeded. Only the CIC countries were expected to develop actual accounts (Outcome indicator A), while the TTA grants would be used for targeted studies informing specific policy decisions or WB investment projects. The Kyrgyz Republic however, which received a slightly larger TTA grant, managed to develop accounts for forests and their ecosystem services, hence the target of four countries was exceeded (Outcome indicator A). The second outcome indicator (B) was expected to be met by some but not all TTAs, but in the end all but one TTA country succeeded in producing the required amount of policy analyses. This was in part due to some countries receiving more than one grant.

Training and capacity building was an important part of CIC programs. This was not the case for TTAs which typically had a much shorter time frame and significantly less funding. CIC programs included both extensive training and on-the-job learning, with experts leading government staff in developing accounts and using new types of tools. "Skilled staff' is here defined as those who have been sufficiently trained and involved in the development and use of NCA to be able to continue the work after the program ended. The number of skilled staff in indicator three are all from the CIC countries, averaging 4.5 per country. Many more persons have been exposed to NCA and its uses through participation in trainings and other events, giving them a general level of understanding of the concepts, what information NCA can provide and how it can be used.

Informing policy and decision making was a key objective of WAVES Plus. The target was to inform at least one key policy document in each CIC. The target was exceeded, but one of the CICs that started late (Egypt) did not succeed to make major progress towards that target. NCA and other natural capital and ecosystem services data and/or analysis is usually important to inform investments or policies. The case of

5 For a detailed list of grants under WAVES Plus and continued support from GPS, see Table A in Appendix 6.

Zambia shows that NCA data and simple analyses can sometimes be sufficient to achieve this in data limited settings. Even though Zambia did not produce any specific policy analyses during the CIC program, the relatively simple analyses included in the NCA reports had quite a large uptake, informing three different policy documents.

The results in Nepal, which received two consecutive TTA grants, also informed one policy document. A total of 13 TTA countries were supported (WACA included analytical studies for both Ghana and Nigeria). The total number of grants (reported in **Table A, appendix 4)** was higher as both Nepal and WACA received two TTA grants.

Table 3. Results indicators for country programs

Indicator	End of program Target	Final score	Countries
Countries supported by the project with at least two environment-related sectors in Natural Capital Accounts in accordance with defined criteria and publicly accessible	4	5	Egypt, Kyrgyz Republic, Morocco, Uganda, Zambia
Countries supported by the project with at least two policy analyses related to Natural Capital Accounting made publicly accessible	10	13	Cambodia, Egypt, Lao PDR, Mexico, Morocco, Myanmar, Nepal, Uganda, Uzbekistan, Vietnam, WACA (Ghana, Nigeria), Zambia
Skilled staff in relevant government institutions participating in Natural Capital accounting and related policy analysis	10	18[a]	Uganda (5), Zambia (5), Morocco (5), and Egypt (3)
Number of key policy documents such as development plans, sectoral policies and strategies, or bills that reference NCA or the accounts	4	7	Morocco, Nepal (2), Uganda, Zambia (3)
Number of countries with targeted technical assistance	13	13	Cambodia, Kyrgyz R, Lao PDR, Madagascar, Mexico, Morocco, Myanmar, Nepal, Uganda, Uzbekistan, Vietnam, WACA regional program (Ghana, Nigeria),

a Conservative estimates

The grant allocation was done through a competitive call for proposals to the regional units of the World Bank. Previously, the selection of countries had been opportunistic, based on demand from countries and World Bank country activities. This was changed due to requests for a more transparent process to enable more countries to access this support. The exception was Zambia and Uganda, whose governments very actively sought support for developing NCA well before the call for proposal. Based on experience and lessons, the scope of accounts to be developed was slightly narrower in WAVES Plus than in WAVES; the recommendation was to focus on land, forest and ecosystem accounts, and energy and minerals accounts were excluded. The scope was kept slightly wide to allow countries to choose and focus on the set of resources that matter most for their development policies.

In WAVES Plus, the country programs, which had previously been stand-alone activities, were linked to larger World Bank projects (see Table A in Appendix 4 for the list of projects). This gave an opportunity to inform the larger projects with results from NCA and related analysis, showcasing how natural capital data and analysis

can be used to improve project design and implementation in the shorter term. Linking to a World Bank-funded investment projects contributed to ensuring country relevance and spreading knowledge about NCA more widely, enhancing collaboration with country offices and TTLs working in the country as well as government counterparts in the larger investment projects. However, it did not always result in concrete use, in part because there is an important element of timing when different types of information can be used. The TTAs, which were explicitly designed to be a more agile form of technical assistance, were more easily adapted to the time and scope of the ASA and investment programs. However, the time frame of the TTAs did not allow for extensive capacity building. In addition, they were not expected to develop capital accounts as that is a longer process, but rather to demonstrate how data on natural capital can be used for evidence-based decision making, either for investment projects or policies and plans.

All grants were Bank Executed Trust Funds (BETFs). Although the Recipient Executed Trust Fund (RETF) modality was considered an option, it was not applied, mainly due to two factors. First, to make it worthwhile to set up an RETF (which typically takes longer time), the programs need to be larger. WAVES Plus had to strike a balance between reaching more countries and giving each country a larger grant. Secondly, the NCA approach under the BETF model relies on one government agency (typically NSO) leading with technical support from the World Bank, while working in close collaboration with a number of ministries and agencies. The RETF model is unlikely to be effective when capacity in the lead agency is limited and/or collaboration and data sharing is weak. When national capacity is not limiting and inter-agency collaboration is possible, the RETF model can be a good alternative. GPS plans to pilot the RETF approach in future in selected countries.

The goals of the WAVES program – development of NCA, capacity building, institutionalization, and integrating NCA into policy – are each in themselves challenging to achieve in a short time. Taken together, it is an even more ambitious agenda. WAVES Plus tried to tackle this challenge in multiple ways. The experience from WAVES showed that the accounts production phase often tended to be quite long, only getting to the policy use of the accounts at the end of the program. Hence the new CIC programs aim for simultaneous development of accounts, analytical tools and policy analysis. There was also an increased effort to relate NCA development directly to ongoing policy and planning processes.

A general identification of current policy issues is not enough to inform investments or policies within the short timeline of a CIC program. There needs to be a clear idea of what decision, when, and what information is needed, whether it is for projects or national policy. Engagement with project developers, policy analysts or decision markers early on in the program is key. The successor program GPS has taken note of this, and the programs are explicitly integrating concrete uses of the proposed accounts, tools and analyses already at the proposal stage. A "reverse causation logic" is used in designing GPS CIC grants, detailing the intended impact on policies, how the impact targets of the program will be achieved, which analysis and data will be needed and when the results will be delivered. This is developed together with the Government counterparts at the inception of the program.

The experience from WAVES Plus shows that it is crucial to have central economywide Ministry (e.g. Finance or Planning) in the lead. This engagement has been crucial in mainstreaming the NCA results and findings into the national strategies, accounting, and budgeting processes. In addition, having high-level champions in key ministries or agencies can help create momentum and ensure sustainability through having dedicated government staff. This is shown clearly in the deep-dive case studies of Uganda and Zambia, which both have had strong champions in the Ministries of Finance and Planning, resulting in uptake of NCA in macroeconomic policies and national planning processes.

Preliminary accounts produced using

global datasets like the Changing Wealth of Nations (CWON) and Penn World Table databases could facilitate learning. This is of course particularly true for data-poor countries, but also countries which are more data-rich could benefit from using new techniques such as remote sensing and the ARIES for SEEA tool[6]. Such data can be used to derive experimental accounts, and as the data are validated, the label "experimental" can be removed. An example is Uganda which made use of the InVest model together with data from a wide range of sources to develop ecosystem accounts[7], and uses proxy data for parts of the adjusted macroeconomic indicators where national data is not available.

The case studies provided at the end of this chapter show the positive contributions made in demonstrating the proof-of-concept for NCA and applications, as well as highlight the challenges that many low-income countries face in closing capacity and data gaps. This includes acquisition of data, creation of NCA and integration of natural capital into national balance sheets and policy processes. The countries that make good progress have often shown interest in NCA for some time and continue to seek support to develop further accounts and tools. Many of the WAVES Plus partner countries have continued their work with support from GPS (see Table A, Appendix 4). The cross-country experience shows that redesigning national accounting systems to integrate nature is a challenging task and cannot be achieved through a limited technical or advisory support over a short period of time. Sustained support, significant resources, collaboration, national commitment, and a whole-of-government approach are vital for success.

6 ARIES for SEEA: Rapid generation of natural capital accounts | System of Environmental Economic Accounting

7 The_Uganda_Ecosystem_Services_&_Asset_Account_1990_-_2015_Brief.pdf (ubos.org)

MEPD | MoFPED (finance.go.ug); UG Adjusted Macro Indicators 2021 Edition FINAL.docx (worldbank.org)

Table 4. Accounts supported by the WAVES Plus program

Country	Ecosystems	Agri-culture	Air emissions	Forest	Fisheries	Land	Water	Waste	Total
Egypt			1					1[c]	2
Morocco		1[b]			1[a, b]				2
Uganda	1[b]			1[a,b]		1			3
Zambia				1[a,b]		1	1[b]		3
Kyrgyz R	1[b]			1[a,b]					2
Total	**1**	**1**	**1**	**3**	**1**	**2**	**1**	**1**	**12**

a Both asset and flow accounts

b Both physical and monetary accounts

c Pilot accounts for two governorates in Egypt (Red Sea and Port Said)

Building natural capital accounts/data

The four CICs as well as the Kyrgyz Republic developed accounts for at least two sectors each. Table 4 shows the accounts produced in each country. Asset and flow accounts within the same sector are counted as one.

To succeed with a full CIC program, including both producing accounts and using data and analysis to inform policies and plans, requires time. In WAVES, CICs had four years to complete their program. As a consequence of having less funding and a shorter time frame, as well as the objective of reaching a critical mass of countries, WAVES Plus had to cut down on both funding and time for the CICs. As noted above, Uganda and Zambia had a longer timeframe than the other two CICs, being early starters.

Zambia and Uganda started off quickly due to proactive requests from their governments. Uganda developed land and forest accounts during the CIC program

and started to develop ecosystem accounts which were expanded and finalized under the TTA program. Uganda also went on to develop models whereby the accounts are being integrated into economic policy analysis. Zambia developed land, forest and water accounts, and started to collect data to develop tourism and energy accounts and aim to do minerals accounts independently. The nature-based tourism accounts are being finalized under a TTA grant from GPS. Both Uganda and Zambia are regularly updating the accounts produced under WAVES Plus on their own, and NCA is explicitly included in their budgets.

Morocco and Egypt faced some special challenges as they had a shorter time frame. They received their grants through the competitive selection process described above. Since the NCA approach was new to both countries, more time was needed for engagement with the relevant government bodies and setting up the program. When Egypt and Morocco started up their programs in earnest, there was only 1.5 years left until WAVES Plus was closing. A no-cost extension was sought for the whole program early on, but the process was prolonged as this overlapped with the corporate trust fund reform initiated at the World Bank at this time. Eventually the extension was granted, though with some delay as efforts to align WAVES Plus with the new GPS umbrella program further impacted the extension process. Morocco developed flow and stock accounts for fisheries and aquaculture, and agriculture flow accounts for crops and livestock. They subsequently applied for an additional grant which enabled them to move further. Egypt developed national air emission accounts and piloted waste accounts for the governorates of Port Said and the Red Sea.

One TTA program, in the Kyrgyz Republic, also managed to develop accounts. They built on work previously done with support from Germany, and developed forest asset and flow accounts, as well as estimates of the value of provisioning and cultural forest ecosystem services, as well as one regulating service (CO_2 sequestration).

The time to develop accounts varied quite a lot between the countries. This was partly due to different degrees of ambition in terms of level of detail, but other aspects such as availability of data and previous experience of NCA also played a role. One of the benefits of producing accounts is that they are published as official data and publicly accessible. For the first iteration of a particular account, the step from draft to final accounts has taken quite some time in all partner countries. Data from different sectoral agencies are often used, requiring consolidation as well as agreement between the agencies on the correct data to use.

Data availability and data sharing are common challenges. Data may not be available, or they are scattered across various institutions (public and non-governmental), creating consistency issues as well as reliability issues. Data sharing between ministries and agencies is a common obstacle, often requiring specific MOUs or other formal agreements to be signed. Development of accounts requires resolving such issues, as data from various agencies and ministries needs to be integrated into one repository, which necessitates sorting out discrepancies and finding ways to merge the data into a consistent whole. Issues with data sharing need to be identified early on, so that measures can be taken to prevent delays in getting access to data, and if possible, establish new data sharing protocols. Having the National Statistical Office (NSO) taking the lead allows integration of natural capital data and accounts into the national statistical system for the long-term. A primary requisite for accounts is also that they are publicly available. Thus, while developing NCA is fairly resource intensive in the beginning, it provides several long-term benefits.

The best practice in producing accounts is that the statistical office should be in the lead, providing quality assurance and being custodians for the accounts. This provides transparency and ensures that accounts data is easy to find and publicly accessible. Having the statistical offices include NCA in their regular production schedule also ensures institutionalization. In order to have NCA at par with the National Accounts, it is ideal that it sits with the National Accounts department.

How this is done in an individual country will however depend very much on the institutional structure of the government and the mandate and capacity of the various agencies.

Informing investments and policies

One of the targets of the WAVES Plus program was to inform relevant investment and policies (including strategies, action plans, regulations). As the program progressed, informing World Bank investment projects in the partner countries became an increasingly important way to use NCA. As shown in Table 3 above, policy uptake exceeded the target. Table 5 summarizes uptake of NCA data and/or analysis in national policy, as well as uses in design or implementation of investment projects. The numbers for the latter were not compiled regularly as this was not part of the results framework but are based on reports from country teams. Table A in Appendix 4 shows the full list of investment projects informed.

Table 5. Summary of results achieved by WAVES on uses of data and/or analysis in national policy and WB-funded investment projects

Result area	
Policy uptake of data and/or analysis[a]	
Nr of countries	4
Nr of products	7
Use of data and/or analysis in project design/ implementation	
Nr of countries	13
Nr of projects	15
Project funding (US$ Billion)	1.4

a Including development plans, sectoral policies and strategies, bills of law, decrees, etc

For the CICs, most of the analytical work was based on data both from the developed accounts and other sources, while TTAs mostly made use of readily available national and/or global data. In Table 6, the type of analytical studies produced are listed. As the table shows, valuation of ecosystem services was the most common type of study. Several country programs focused on land use and management and developed tools and analysis to support ongoing landscape projects. The sectoral analyses focused on forests/forest products (Kyrgyz R, Uganda), mangrove value chains (Myanmar) and tourism (Uganda). Only one country (Uganda) developed adjusted macroeconomic indicators (using national data to refine the global data estimates in the Changing Wealth of Nations), to create stronger links to the National Accounts and their use to guide economic policy. The Ministry of Finance, Planning and Economic Development in Uganda developed adjusted macroeconomic indicators with support from WAVES Plus, and has since been producing this on its own.

Table 6. Policy tools and studies developed[a]

Valuation of ecosystem services	8
Scenario analysis for land use management	4
Sectoral analysis	4
Adjusted macro-economic indicators	1
NCA feasibility study/ roadmap	4
Modeling	4
Other	2
Total	**27**

a To see tools/studies per country, see Table B in Appendix 4

The TTA programs were intended as a first step towards developing NCA and include natural capital in decision making, as well as being a more agile way to respond to country demand. It was thus encouraged to include a feasibility assessment for NCA, or to develop a roadmap for developing NCA. Kyrgyz Republic did a feasibility study for tourism accounts, and the WACA program performed a feasibility assessment for three of the countries

included in the program - Togo, Mauritania, and Benin. Nepal developed a roadmap for NCA, focusing on forests, and subsequently applied for a CIC grant from GPS to continue to support sustainable forest management and forest-related revenue transfers. Uganda updated their existing roadmap and are continuing to implement it. Zambia is updating the land and water accounts under GPS and adding an account on nature-based tourism.

Some countries developed environmentally extended economic models, such as Input-Output (IO) models or Computable General Equilibrium (CGE) models. NCA data are particularly well suited to use in these types of models for forward-looking analyses, as they both use the National Accounts classification for economic activities. IO modeling, while providing less sophisticated analysis, has the advantage of being easier to develop and to use. If there is no experience in the country of using more complex models, this could be a good option. CGE models and econometric macroeconomic models take considerably more time and resources to learn and use, and often require staff dedicated to work specifically with these models. For both tools, it usually takes some time to get from the demonstration stage to being used in policy processes. The economic models developed in the CICs have been used to analyze current policy issues, but more time is needed to see the real impact of having these tools.

Takeaways

- **All CIC countries managed to produce NCA for at least two sectors** and three have expanded the work to additional accounts. Overall, considering the five results indicators for the country components, the end-of-project targets were on average overachieved (142%).
- **All countries have been using NCA data to do policy analysis,** and this has been directly informing investment projects and national development polices/plans. **NCA programs should be designed with concrete needs to inform investments and policies in mind.** Such identification of data and evidence needs to inform decisions is important to produce relevant impacts within the time frame of the program.
- **The process and collaboration needed to build NCA has enhanced awareness of sustainability issues across government.** Use of structures such as Steering Committees and Technical Working Groups from diverse sectors has been instrumental in this.
- **The NCA approach should be conceived as a long-term stepwise process.** Continued engagement is key to help countries deepen their engagement or broaden the coverage of natural capital accounting work. Half of the of WAVES Plus target countries have continued to develop accounts and natural capital assessments under GPS. Countries which have had consecutive WAVES and GPS grants have made great strides, and also been able to secure support from other organizations and donors working in the NCA space.
- **In the country that developed adjusted macroeconomic indicators (e.g., adjusted net savings), they sparked high interest in the Ministry of Finance** and are being produced annually.
- **Preliminary accounts can be used to provide tentative policy insights.** Producing fully validated official accounts take time. It has been found useful to develop them in parallel while using preliminary accounts for policy analysis.
- **To inform policies, it is vital to apply the natural capital accounts in forward-looking analyses.** Simple scenario analysis can be very effective in illuminating certain policy issues, as shown in e.g. Zambia and Uganda. Examples from all four CIC countries also show that developing environmental-economic models is a very powerful tool, but that it takes time to build the necessary technical and institutional capacity and experience to embed this into economic planning and decision-making processes.

- **Synergy with WB projects is beneficial for impact but requires careful alignment of tasks and timelines.** Upfront analysis to generate relevant evidence is key to produce timely evidence to inform investments and policies.
- **For the future, larger RETF programs could be a preferred model in some countries.** RETFs could be piloted and practiced in countries where national capacity and inter-agency collaboration are not limiting. GPS has plans to pilot this approach in selected countries with better capacity to produce natural capital data and analysis and using such evidence to mainstream nature into national decision frameworks.

Deep-dive case studies

The country case studies were selected from grants with more complete evidence of their progress, with a view to providing examples from all regions that WAVES Plus was active in.

The ratings are based on World Bank's internal project performance reviews completed at project closing. The rating scale includes Not satisfactory, Moderately Satisfactory, Satisfactory and Highly Satisfactory. These ratings for Advisory Services and Analytics (ASA) projects are not validated by the Independent Evaluation Group (IEG) of the Bank but provide credible albeit less conservative estimates on the performance of projects.

Core Implementing Countries


Photo:
Arne Hoel
The World Bank

Uganda

Program lead agency:
Ministry of Finance, Planning and Development (MOFPED)

NCA lead agency:
Uganda Bureau of Statistics (UBOS)

Program period: 2018 – 2022 (CIC+TTA)

Funding: $ 850,000 (CIC+TTA)

World Bank Rating: Not available

Building natural capital accounts and related tools

Uganda started off as a CIC with developing land accounts and forest accounts. They were launched in 2019 and 2020 respectively. A preliminary set of ecosystem accounts was developed. Complementing the accounts development were an analysis of the woodfuel market, an issue paper on NCA for the 3rd National Development Plan (NDPIII), and an update of their NCA roadmap. After the CIC program ended, Uganda applied for a TTA grant, which was used to finalize and further develop the ecosystem accounts. Water accounts are now part of the production plan for Uganda Bureau of Statistics (UBOS), and there is an intention to include land and ecosystem accounts as well.

In addition to the accounts, macroeconomic indicators following the Changing Wealth of Nations methodology was developed. The Ministry of Finance and Development

Planning (MOFPED) in Uganda demonstrated high interest and ownership in developing environmental adjusted macroeconomic indicators. They produce the adjusted indicators on an annual basis, and the work is has a dedicated budget line. The third issue was launched in March 2023.

Uganda is integrating the natural capital accounts data into macroeconomic models, with the intention to inform cross-cutting environmental and economic issues. This was done with two different approaches. They developed an Input-Output (IO) model for Rapid Environmental Economic Assessments (REEA), and extended the UGAMOD, a macroeconomic model, with data from NCA for more elaborate analyses. UGAMOD had already been developed to integrate climate change issues with World Bank support, and in this additional step, data from forest and water accounts were integrated into the model.

Informing investments and/or policies

Uganda had already engaged in NCA, and there was strong buy-in from agencies such as the Ministry of Finance and the National Planning Authority. The NCA team was asked to draft an issue paper on NCA for the Third National Development Plan which was under development, to show how NCA could be used to underpin various parts of the plan.

As mentioned above, a budget line has been created for the adjusted macroeconomic indicators which are produced annually. The Macroeconomic Policy Department used the Macroeconomic Indicator Study to present options for potential taxes and subsidies for MoFPED senior management, informing how to meet the target of raising tax levels from 12 percent to 16 percent while also contributing to sustainable development. MOFPED is also planning to set targets for the adjusted macro indicators.

The ecosystem accounts were used to investigate the potential costs and benefits of restoring forest areas in western Uganda to their 1990 levels as per Uganda's Vision 2040, using a biodiversity and ecosystem services-centered approach that focuses on restoring indigenous forest ecosystems rather than replacing deforested areas and degraded forests with plantations. The analysis will inform the WB Uganda investing in forests and protected areas for climate-smart development project. Uganda has continued to develop and use NCA even after the end of WAVES Plus support. The REEA model has been used for an environmental and economic assessment of the 2022/23 Ugandan budget. NCA and adjusted macro-indicators informed policy discussions during the national Annual Growth Forum in August 2023 on fiscal management tools and budget allocations; for example, removal of subsidies to thermal power plants; justifying investments into resilient infrastructure and irrigation, as well as increasing vegetation cover. The macroeconomic unit is now getting requests to look at economic impacts of Uganda's Long-Term Strategy (LTS), Nationally Determined Contribution (NDC) and National Adaptation Plan (NAP) using the developed tools.

Capacity building and institutionalization

ATechnical Working Group (TWG) was set up to lead the practical work on the accounts and analytics, including managers from all involved ministries and agencies, and headed by the Ministry of Finance, Planning and Economic Development (MOFPED) the Uganda Bureau of Statistics (UBOS). UBOS led the work on developing the accounts and is also the institution that publishes the accounts. Land and forest accounts were published as official data publicly accessible, along with the water accounts developed with support from UNSD and published under WAVES. Government staff received formal training on SEEA, Adjusted Macro Economic Indicators, and the Integrated Valuation of Ecosystem Services and Trade-offs (InVEST) model by international experts, plus hands-on training by the national consultant supporting the NCA work. Uganda and Zambia went together on a study tour to the Netherlands, where Statistics Netherlands provided a week-long training on the SEEA, including aspects such as communication and policy use. The participants were able to meet and discuss with experts from many parts of the Statistics Netherlands, as well as the Netherlands Environmental Assessment

Agency. The WAVES network also facilitated exchanges of experience by engaging NCA teams from Rwanda and Zambia.

WAVES Plus followed on from previous accounting efforts in Uganda and was concurrent with other on-going accounting work accounts for biodiversity and tourism, fisheries, and land degradation led by National Environmental Management Authority (NEMA) and supported by UNEP-WCMC. Uganda is currently continuing to integrate NCA into policy and planning, and to develop additional accounts with support from UNEP-WCMC.

Photo:
Ralph Earlandson

Zambia

Program lead agency:
Ministry of National Development Planning (MNDP)

NCA lead agency:
MNDP together with the Ministry of Lands and Natural Resources Planning and the Ministry of Water Development, Sanitation, and Environmental Protection

Program period: 2017 - 2020

Funding: $ 710,000

World Bank Rating: Satisfactory

Building natural capital accounts and related tools

Zambia developed draft accounts for land, forest and water quickly, little more than a year after the first implementation mission. After validation, quality assurance and stakeholder consultation processes, they were publicly launched in 2020. They have since published new iterations of these accounts (plus new accounts for tourism) using new data with support from GPS. In addition, the Ministry of Finance and the Ministry of Development Planning worked with experts to develop a Zambian version of the Integrated Environmental-Economic Model (IEEM), an open access CGE modeling platform developed by the Inter-American Development Bank (IADB). Analyses of current policy issues has been done to demonstrate the type of analyses that the model can provide, but there has been no specific policy use as yet. NCA is included in the 8th National Development Plan as well as in the budget.

Informing investments and/or policies

Zambia had no previous experience in developing NCA, but had strong high-level champions within the government, in particular in the Ministry of National Development Planning. This helped to propel the work forward quickly, both in the production and use of NCA. The accounts influenced three policy documents: the Apiary National Strategy, the National Budget and the Eighth National Development Plan. The forest accounts highlighted forest uses with higher potential. They revealed the market potential of honey and beeswax products and suggested that with appropriate investments Zambia can produce 10 times the yield sustainably and at low cost. The forest account has thus informed a new National Strategy for Honey and Beeswax—realizing the hope of the Minister of Finance and Planning that NCA would help Zambia diversify from copper to products that benefit many ordinary people, such as honey.

The accounts also inspired work on innovation to access promising environmentally discriminating markets: timber tracing of key value chains and certifying sustainable production. A pilot is being designed to track an endangered indigenous tree that yields a highly valuable hardwood, from forest stand to export. The pilot seeks to ensure a viable stock of this species and to manage stocks to secure continued revenue streams on a sustainable basis.

After the WAVES Plus program had ended, Zambia has made extensive use of the accounts in policies and planning, partly with TTA support from GPS. Government has formally launched work towards mainstreaming NCA in all planning processes. For instance, the Technical Reports (Forest, Land and Water) were used to inform the development of strategies and programs of the Eighth National Development Plan, most notable on eater management, climate policies, deforestation and tourism. NCA is now one of the six programs of the 8NDP under Strategy 2: Enhance Natural Resources Management[8]. In addition, the Forest and Tourism Account's Budget submission was incorporated in the 2021 National Budget. The creation of a budget line is a demonstration of the political will towards NCA, and this will ensure the sustainability of the program within the government system. The organizational structure set up under WAVES Plus is still in place, with active Technical Working Groups (TWGs). TWG members are part of the National Biodiversity Committee which is using NCA to update the National Biodiversity Action Plan (NBSAP). The water accounts demonstrated a very high demand for water, which is primarily being met by private boreholes, which is a lost opportunity for more efficient water distribution and more sustainable management of depletable aquifers in certain areas. The forest and tourism accounts has shown alarming findings, with forest cover drastically decreased, which has reduced water supply downstream. Importantly, the accounts were used to develop many of the indicators for the Voluntary National Reporting (VNR) on SDGs, which was reported at the High-level Forum in New York in July 2023.

Capacity building and institutionalization

A high-level Steering Committee was set up, headed by the Ministry of National Development Planning. Working groups were set up for each of the accounts and for the development of the model. Government staff received extensive training on the SEEA in general as well as on land, forest and water accounts. Staff also received on-the-job training through continuous support from experts. The modeling group working on the CGE model received two week-long trainings, one in Washington DC, in addition to on-the-job training. An important feature was that government agencies from the data supply side and the policy side worked together to produce the accounts and apply them to policy. They had regular workshops at which all of the TWGs would meet and work together, deciding on appropriate data sources and methods and presenting work to each other for constructive comment.

Zambia also learned from other countries. Botswana assisted by explaining the processes, data sources, and methods that it had used for producing water accounts, and Rwanda did the same for forest and land accounts. In addition, Zambia and Uganda went together on a study tour to the Netherlands, where Statistics Netherlands provided a week-long training on the SEEA, including aspects such as communication and policy use. Lead agencies for developing the accounts were the Ministry of Lands and Natural Resources Planning for the land and forest accounts, and the Ministry of Water Development, Sanitation, and Environmental Protection for the water accounts. The accounts are published by the respective Ministry.

Zambia is currently developing tourism, energy and minerals accounts. The country is also continuing its engagement through a TTA grant under GPS, with the aim to integrate the results from NCA in sector strategy documents and development plans for sustainable development, and to better assess the interactions between natural assets and economic activities at the national and sub-national level.

8 8NDP (2022-2026) - Ministry of Finance and National Planning (mofnp.gov.zm), p.65.

Photo:
Ray Witlin
The World Bank

Egypt

Program lead agency:
Ministry of Environment

NCA lead agency:
Central Agency for Public Mobilization and Statistics (CAPMAS)

Program period: 2019 - 2020

Funding: $ 470,000

World Bank Rating: Moderately Satisfactory

Building natural capital accounts and related tools

Egypt had a fairly short program, as explained above, with only 1.5 years to complete before the closure of WAVES Plus program. In addition, NCA was quite new to the country. The ambition was to show proof-of-concept and at the same time provide some useful data and analysis for some current policy issues. The support to Egypt included the development of air pollution, pilot waste accounts, an input-output model and capacity building. Air pollution and waste were identified as priority areas for the Government and during an initial scoping workshop amongst stakeholders.

The air emissions accounts drew information from the recently completed air emissions inventory database produced by the EEAA (for local air pollutants), and the Biennial Update Reports (BUR) for GHGs and combined this with economic information from the national accounts from the statistical office (CAPMAS). Emissions were mapped according to type of emission and pollutant to the industry producing the emissions as well as the value added by industry. The accounts offer one of the first efforts to integrate GHG emissions and local air pollutants (NOx, SOx, PM10, CO, VOCs, etc.) under one common database. This will allow policymakers to better understand the potential co-benefits of air pollution management through sector interventions.

Due to the current decentralized nature of solid waste management and information in Egypt, there is a significant need for developing information systems to track waste. Data on waste is, however, scattered. Pilot waste accounts were constructed for the Governorates of Port Said and the Red Sea, which were known to keep information on different waste streams for comparative purposes. The solid waste accounts organize information on the generation of solid waste and management of solid waste flows to recycling facilities, to controlled landfills, or directly to the environment.

Informing investments and/or policies

The waste accounts is intended to become the standardized approach to track waste by the Waste Management Regulatory Authority To understand the impacts of policy reform or investment in specific sectors, information from the accounts was integrated into an input-output model to analyze the impacts of alternative policy options. A demonstration scenario was constructed to assess the impacts to production, employment, waste, and CO2 emissions of increasing economic activity in the recycling sector. A paper was produced summarizing the application of using air and waste data in economic modeling (input-output analysis) – along with alternative policy and/or investment scenarios.

Capacity building and institutionalization

A Steering Committee was set up to provide guidance and advice for the program and to coordinate the cross-sectoral nature of the program and information sharing. The SC comprised high-level representatives from the Ministry of Environment, Ministry of International Cooperation, Central Agency

for Public Mobilization and Statistics (CAPMAS), Ministry of Planning, Ministry of Transport and the Ministry of Health. A core group of technical practitioners and stakeholders also guided the process of identifying and collecting data for the accounts.

Three training workshops were conducted with support from Statistics Netherlands. A high-level stakeholder dissemination workshop was held which included participation by Directors and Advisors from the Ministry of Environment, CAPMAS and other involved ministries. Capacity building on economic modeling was only partially completed due to the time limitations of the WAVES Program.

Targeted Technical Assistance

Photo:
Thomas Depenbusch

Kyrgyz Republic

Program lead agency:
State Agency on Environmental Protection and Forestry

Program period: 2017 - 2020

Funding: $ 335,000

World Bank Rating:
Moderately Satisfactory

Building natural capital accounts and related tools

The main objective of the TTA was to strengthen the capacity of government institutions and communities using NCA data to improve sustainable forest ecosystem management. This was conceived based on the need that forest cover and quality of vegetation including valuable walnut trees, have been steadily declining due to both natural (e.g., aging due to an overabundance of ripe trees) and anthropogenic factors (e.g., grazing and haying pressure). Institutional and policy deficiencies also lead to inappropriate exploitation. To address these challenges and unlock the full potential of the forest economy, the government of Kyrgyzstan wanted to design policies to support its green growth strategy. The project was able to develop the first ever pilot accounts for forest using the SEEA framework that is consistent with system of national accounts (SNA). Following the last implementation support mission, the Bank's final implementation status and results report (ISR) assessed the project's deliverables as moderately satisfactory.

Informing investments and/or policies

The GPS TTA supported a lending operation, the Integrated Forest Ecosystems Management Project (IFEMP), to pilot the implementation of NCA for forest resources. Comparing alternatives and trade-offs between institutional sectors, the NCA revealed the value of non-market forest products and ecosystem services, including how agriculture and nature-based tourism benefit from forest ecosystems.

Capacity building and institutionalization

The project contributed to improving national capacity in NCA. In addition to the work on the pilot forest accounts, the work on tourism accounts reviewed the methodology for estimating the contribution of nature-based tourism to the national economy and identified tourism satellite account tables. Accordingly, a technical report assessed the feasibility of measuring tourism sustainability, by examining the potential to develop Tourism Satellite Accounts (TSA). Through the GPS initiative, NCA has been recognized as one of the useful tools to provide consistent and comparable data to for integrating nature into economic decision making and more particularly show the role of forests to green growth in the Kyrgyz Republic. The NCA also enhanced inter-

ministerial coordination in developing and sharing data on natural capital (especially on forests) and strengthened information management systems in the forest sector. The pilot NCA work also highlighted the need to fill existing data gaps, building institutional capacity and improving the IT infrastructure for expanding the scope and mainstreaming NCA into the system of national accounts. The pilot activities in Kyrgyz Republic have received follow up support from GPS to scale-up or deepen activities initiated through WAVES Plus.


Photo:
The World Bank

LAO PDR

Program lead agency:
Ministry of Planning and Investment

Program period: 2018-2020

Funding: $ 100,000

World Bank Rating: Satisfactory

Data on valuation of natural capital and ecosystem services

The TTA activity supported various efforts for valuing natural capital at national and provincial level using the Lao Expenditure and Consumption Surveys. The project aimed to support the development of the economic value and first natural capital accounting of selected renewable natural capital assets in selected landscapes. The support was provided as part of the Resilient Green Growth Advisory Program) under which the Landscapes Valuation sub-task supported by WAVES Plus was nested. The TTA was defined as part of the dialogue for reinforcing the Green Growth policy and investment with the government of Lao PDR and to lay the foundations for supporting a potential future new sustainable forest landscape operation financed by the World Bank and the on-going REDD+ initiative.

The TTA produced a report on valuation of selected landscapes in the country which was published in a report entitled "Valuing Lao Landscapes: A Province, District, and Household Level Analysis of Natural Capital in Khammouane Province". It is the first pilot effort towards producing an NCA in the country. The assessment focused on selected assets and included an estimate of the economic value of these natural assets. Khammouane Province was selected as a case study for valuing Lao PDR's natural capital due to its diverse natural assets which contribute to the local economy of the province as well as the national economy. These include forest areas with high global biodiversity value, limited but growing nature-based tourism, hydropower, irrigated crops, and potential for increased productive forestry.

Nevertheless, reliable and consistent data for valuation of natural assets continues to be a challenge and delayed the production of the analytical work. Sector-specific data are not stored at central level, and each ministry has its own processes (sometimes lengthy and bureaucratic), to release data. In addition, province and district specific data are often retained at the provincial administration level. The Lao Statistics Bureau has faced similar problems and has expressed interest in continued support to better coordinate and share data from different sectors for further improving planning and decision making.

Informing investments and/or policies

In Lao PDR, the evidence base for making investment decisions at landscape scale is weak which shows an opportunity to deepen the dialogue across more sectors and stakeholders by supporting a shift to better understanding of how to develop, use and deploy natural wealth valuations. This is important given that the Government of Lao PDR has also embarked on an

ambitious multi-sectoral green growth program, anchored by a green growth DPO series and a number of related IPFs and partner supported projects. The TTA activity was the first of its kind in producing data on valuation of landscapes. It complemented the following activities in the program: (i) nature-based tourism potential; (ii) sustainable forest management for green growth; (iii) an environmental challenges report that includes the economic cost of environmental degradation; (iv) biodiversity report; and (vi) country forest note.

Capacity building and institutionalization

The TTA enhanced national awareness about natural capital and facilitated multi-sector consultations and establishment of government-led Natural Capital Working group chaired by the Statistics Bureau and including key experts from various line ministries and academia which has been the real added value of the TTA, which resulted in improved national coordination and written request for continued future engagement. The natural capital working group has been an active forum for shaping the TTA activities and development of the technical report which has facilitated client buy in of methodology and findings of the report. This has also allowed wider awareness of data and analysis on valuation of natural capital in different line ministries. The ASA was rated by the Bank's ISR as satisfactory. The clients praised the achievements including the outputs and methodology and expressed interest in continued collaboration to advance the work on environmental statistics and landscapes valuation for better informed decision making.

Photo:
Mohamad Al-Arief
The World Bank

Madagascar

Program lead agency:
Ministry of Environment

Program period: 2019 - 2020

Funding: $ 250,000

World Bank Rating: Moderately Satisfactory

The WAVES Plus grant was part of the $108 million Sustainable agriculture landscape management project (PADAP), which consists of an integrated approach for managing five landscapes in Madagascar. It was also linked to the $50 million REDD+ Emissions Reduction Program in the North-eastern part of the country. PADAP developed two parallel, related models: a) a regional model (LANDSIM-R) that models the hydrology and sedimentation dynamics of a watershed under different scenarios; b) a national model (LANDSIM-P) that models household dynamics, land degradation and resulting land use change under different scenarios. The TTA delivered two outputs:

- Land degradation baseline: a detailed spatial dataset to estimate the capacity of land to deliver the selected services: food provisioning, carbon storage, and erosion control.
- Prototype land planning decision support tool. This tool can be used to assess how selected indicators measuring strategic policy objectives are likely to change over time in response to exogenous drivers, endogenous responses of socio-economic actors, and policy decisions. The tool is a

prototype, focused initially on just a few objective variables of strategic interest.

Informing investments and/or policies

The data was used in the LANDSIM models, and the decision support tool was used in conjunction with the models. The regional model is currently used to inform the development landscape management plans by simulating impacts of different land management practices (terracing, reforestation, agroforestry, reduced tillage) across a given watershed. The national model provides decision makers tangible examples of likely impacts of decisions taken and implemented in the Ministry of Environment and the Ministry of Agriculture. Key outcomes of intervention scenarios include erosion, water availability, crop production, expansion of agricultural land, etc. for the agriculture sector, and deforestation rates, emissions for the forest sector.

Capacity building and institutionalization

Initial functionalities set in the Concept Note for the program did not address specific policy questions and was focusing on the technical side. This caused the discussions to be primarily technical, without high-level engagement. In the cases where needs were identified, results were delivered too late to contribute to the policy process.

Photo:
Curt Carnemark
The World Bank

Mexico

Program lead agency:
National Institute of Ecology and Climate Change (INECC)

Program period: 2021 - 2022

Funding: $ 110,000

World Bank Rating: Satisfactory

Data on valuation of natural capital and ecosystem services

The objective of this grant was to inform the design of the Mexico "Connecting Watershed Health with Sustainable Livestock and Agroforestry Production" (CONECTA) project. It also informed the Green Climate Fund project "River Restoration for Climate Change Adaptation" (RÍOS). The purpose of the CONECTA project is to promote integrated landscape management with economic valuation of ecosystem services to boost sustainable, inclusive rural livelihoods across the selected priority watersheds, to identify and develop innovative finance sources and schemes, conduct knowledge management for replication and scale-up.

The WAVES Plus grant funded valuation studies that estimated physical and monetary valuation of prioritized ecosystem services, building upon data collected by the National Institute of Ecology and Climate Change. Three watersheds (Ameca-Mascota, del Carmen and Jamapa) were prioritized for the valuation. For all three watersheds, habitat connectivity (a proxy for habitat quality) and carbon storage/sequestration

was included. Additional ecosystem services were included depending on the characteristics of each watershed: regulation of floods (Ameca-Mascota); surface water supply, including seasonal and annual water yield (del Carmen); and pollination, recreation and regulation of floods (Jamapa). Economic and physical valuation helped to estimate differences between business as usual and CONECTA project scenarios. The technical report was presented in GPS seminar series. The final report and all articles produced will be publicly accessible at INECC's website and networks, and at least two scientific articles along with articles for the general public will be disclosed.

Informing investments and/or policies

Results supported CONECTA activities and targets, i.e., mitigating deforestation providing important co-benefits at the local and subnational level and favoring the recovery of key ecosystem services such as habitat provision and carbon storage. Results also help to prioritize specific areas for implementation of CONECTA actions within each of the three basins.

The activity is continuing with a grant from GPS. The GPS grant will inform the Integrated Watershed Action Plan (IWAP) in the watershed of La Antigua as well as an updated methodological guide to prepare IWAPs. Further IWAPs will also integrate VES elements, but they won't be completed until the end of June 2023 when the GPS grant will have its extended closing date. Additionally, CONECTA has incorporated an additional activity, a legally binding "Participatory Local Ecological Planning Program (POELP) for one of the three prioritized VES study watersheds. The valuation study is referred in the terms of reference for the Phase I of the POELP preparation, and the WAVES Plus/GPS experts will collaborate with the firm that is being contracted to secure opportune integration of the relevant aspects in the Puerto Vallarta POELP.

Capacity building and institutionalization

The small grant did not allow for including both technical support and capacity building. Mexico received additional funding from GPS, which includes capacity building.

Photo:
Dominic Chavez
The World Bank

West Africa Coastal Areas High-Level Platform (WACA)

Program lead agency: N/A

Program period: 2017 - 2020

Funding: $ 300,000

World Bank Rating: Satisfactory

Data on valuation of natural capital and ecosystem services

The World Bank's West Africa coastal management (WACA) program is supporting 17 western African countries to improve the management of their shared coastal resources and reduce the natural and man-made risks affecting coastal communities. WACA received two TTA grants from WAVES Plus.

The first TTA aimed to carry out a scoping study to determine the feasibility of developing coastal Natural Capital Accounts for the West Africa region and identify project design options to integrate Natural Capital Accounting in the regional World Bank WACA program. The scoping study focused on three countries – Mauritania, Togo and Benin - in order to gain an initial understanding of the interest in Coastal

Natural Capital Accounts and the challenges facing countries in the development of such accounts. It was considered likely that the challenges facing the three scoping study countries were reflective of those facing the region. The study concluded that considerable capacity building would be required, as well as enhanced data and data management systems. The recommendation was that it would be best to focus on a couple of countries initially, alternatively to agree on one or two ecosystems services/priority accounts that a range of a countries could develop and benefit from joint training and lesson sharing.

The second TTA focused on the integration of nature-based solutions for improved management of coastal ecosystems in targeted countries. A first step was to contribute to the knowledge pillar of the WACA Platform, through supporting the integration of ecosystem services in Multi-Sector Investment Plans (MSIPs) for two key services: mitigation of erosion and flooding. It improved existing methodologies to build enhanced damage functions for coastal erosion and flooding. The enhanced methodologies were used to value externalities and ecosystem services in three targeted countries: Nigeria, Guinea and Ghana.

Informing investments and/or policies

In Nigeria, the work focused on valuation of externalities related to inland and coastal water pollution and coastal deforestation. Costs of erosion and flooding was estimated and fed into the Nigerian Cost of Coastal and Environmental Degradation assessment. In Ghana and Guinea, analysis on valuation of ecosystem services, especially on the role of mangroves in reducing the risk of coastal flooding, was conducted. The work supports the WACA scale-up platform, which aims to facilitate access to knowledge and accelerate access to finance for coastal resilience. The results of the studies are informing Bank operations, including the Guinea Natural Resources, Mining and Environment Project and the West Africa Coastal Areas Resilience Investment Project II.

Capacity building and institutionalization

Nigeria applied for support on capacity building on NCA from the Africa NCA Community of Practice and held a one-week workshop giving an overview of NCA with support from the World Bank. Nigeria and Ghana subsequently proceeded to apply for CIC grants under GPS. Ghana initiated their program in March 2022 and Nigeria is expected to start early 2023.

Main takeaways

These selected case studies from the CIC and TTA countries demonstrate that the WAVES Plus country programs have contributed to enhancing the analytical and knowledge base in client countries.

- The country support has contributed to building capacity in valuation of natural capital and ecosystem services, including ecosystems, land, forests, water, fish as well as managing negative externalities such as pollution, solid and plastic waste through better policies, strategies and priority investments.
- The experience of WAVES Plus in several of the countries illustrates the importance of complementing initial support with additional resources from GPS to consolidate and gradually strengthen national capacity in valuation of natural capital and ecosystem services.
- Additional GPS support has ensured continuity of strategic initiatives introduced through seed resources from WAVES Plus for building a critical mass of expertise for mainstreaming sustainability into the development process, especially in terms of data and analysis on renewable natural capital to inform policy and investment decisions.

4. Regional activities

The regional component was a new feature of WAVES Plus compared to the first WAVES program. It aimed to support south-south learning and exchange of experiences through regional platforms. The regional programs envisioned to create an active network of government focal points to enable closer cooperation and support between countries; deepen countries' knowledge and capacity on NCA; and strengthen regional capacity to understand and apply NCA to policy needs. The two outcome indicators for the regional activities were fully achieved by the end of the program, indicating substantial progress in achieving the program's objectives (Table 7).

Table 7. Results indicators for regional activities

Indicator		End of program Target	Final score	Main results
1	Regional knowledge events on NCA supported by the project	3	4	Knowledge events in LAC, EAP and AFR (2)
2	Regional knowledge products supported by the project made publicly accessible	3	4	NCA readiness reports for all three regions report from Africa NCA CoP

The objective of the regional component of WAVES Plus was to "Significantly strengthen regional capacity to understand and apply NCA to policy needs as a means to meet the demand of a larger number of countries and sustain their efforts beyond the WAVES partnership."

The main activities envisaged was to support regional communities of practice on NCA a few regions, connecting countries already developing NCA with countries that had not started but wanted to learn and get to know about the experiences of other countries. WAVES Plus supported south-south cooperation for knowledge sharing activities in Africa (AFR), East Asia and the Pacific (EAP) and Latin America and The Caribbean (LAC).[9]

For all three regions, NCA readiness reports were prepared, to assess the status of NCA implementation in the regions. Activities included organization of workshops, sponsoring participation in regional events and bilateral knowledge sharing trips. For instance, WAVES hosted a South-South knowledge exchange together with the Ministry of

Finance of Indonesia focusing on mineral accounts and how to use them in national reporting. This was initiated on request from the participating countries. Sixty participants from Indonesia, Australia, Botswana, and the Philippines participated. In Africa a parallel session during the World Water Network event was co-organized with partners from the region in 2016. This connected regional experts on integrated water resource management and provided a platform for open dialogue on the usefulness of water accounts.

In LAC, WAVES built a strong partnership with ECLAC that allowed sharing costs and activities in a more systematic way. Training activities on SEEA were held in Paraguay in 2016, which resulted in a community of practice that continued even after the WAVES support ended. This did not materialize in

9 Key partners included the United Nations Regional Commissions (ESCAP, ECLAC, ECA), networks such as the Environment for Development (EfD) initiative, the Gaborone Declaration for Sustainability in Africa (GDSA) and global organizations like Conservation International (CI) and UN Statistics Division (UNSD).

the other regions, partly because of LAC countries being more advanced in the NCA space, partly because ECLAC was very engaged and provided a solid base for the CoP. The different activities developed in the region resulted in an increased repository of Spanish publications in the WAVES knowledge center and more materials translated to Spanish. The community has continued to exchange experiences and knowledge, mainly through social media platforms.

For both Africa and EAP, the readiness reports, done in 2016, showed that just a few countries had developed NCA, but that there was a strong interest in many countries. However, with no targeted funding and no regional organization able to take up the work, no lasting communities of practice were formed.

Africa Community of Practice for NCA

In 2019, when WAVES Plus started the Africa Community of Practice (CoP) for NCA, the momentum had grown in Africa and many countries had started NCA programs. There were now several countries able to not only benefit from but contribute to knowledge sharing events and other activities. A total of 18 countries participated in the inaugural meeting in Kampala, Uganda in 2019. The outcomes of the meeting were summarized in a synthesis report: "Towards a Regional Community of Practice in Africa: Accelerating the mainstreaming of Natural Capital".

Several organizations joined the community, and sponsored part of the activities during the coming years, though the bulk of the funding came from WAVES Plus. The organizations who joined were regional and global organizations active in Africa. [10] WAVES Plus funded a secretariat of three people working part time to coordinate and organize activities. Support from other organizations was mostly in kind through technical support to workshops, contribution to webinars and funding participants for some regional events. The activities supported by WAVES Plus are not captured in the Results Framework, but a summary of achievements is provided in Table 8 below.

10 African Development Bank, African Union, Capitals Coalition, Conservation International, the Gaborone Declaration for Sustainability in Africa (GDSA), the Green Growth Knowledge Partnership (GGKP), World Bank, WWF, UNECA, UNEP and UNSD

Table 8. Africa NCA CoP achievements

Individual members	515
Countries with individual members	48[a]
African governments with appointed focal points	18
Supporting organizations	11
Webinars	14
Number of participants	770
Support to individual countries	3[b]
Training on valuation of ecosystem services	62 participants from 11 countries[c]
Providing access to trainings	4[d]
Whatsapp group for communication and knowledge sharing	260+ members[e]

a Of which 12 are outside Africa

b Trainings for country representatives in Madagascar and Nigeria, and a south-south learning event between experts from Brazil and Mozambique

c Botswana, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe

d Two SIAP trainings on NCA/SEEA. Training sessions on watershed and landscape-scale approaches and ecosystem service modeling were provided by the World Bank programs GPS and PROGREEN. Scholarships for three participants to attend the online course "Economics & Finance for Environmental Leadership" were provided by Conservation Strategy Fund.

e The limit for a Whatsapp group was 260 at the time, but many more asked to join the group

Membership in the CoP was primarily done on an individual basis. Importantly, 18 governments appointed focal points through which the NCA CoP could communicate with governments directly. A Steering Committee was set up with representatives from these governments and the partner organizations. The CoP became a hub for networking and creating learning opportunities, in particular through the Whatsapp group, which served as the main means of communication and quickly reached the group member limit. It was used for information sharing both from members and the secretariat. A webpage with interactive features was set up courtesy of UNECA, but this was not as much used as was envisaged. A quarterly newsletter was issued where CoP activities were reported, and members could share news on NCA activities. The activities sparked a lot of interest in Africa and beyond, resulting in people interested in NCA from across the globe signing up as members.

Table 9. Webinars/short trainings organized by the Africa NCA CoP

	Title	Date
1	Linking natural capital accounting to policy in Africa	May 2020
2	Revision of the SEEA EEA statistical standard	June 2020
3	Ocean Accounting – Novel approaches to Ocean Governance	July 2020
4	Combining Forces on Natural Capital: Working with the Private Sector	Sep 2020
5	The Use of Natural Capital Accounts in Policy Scenario Analysis	Oct 2020
6	Uganda: Building a Comprehensive Landscape for NCA and Policy Application	Nov 2020
7	The Shifting Nature of South Africa's Landscape: A 24 Year Snapshot of Land and Ecosystem Change	Dec 2020
8	Towards a National Plan for Advancing Environmental -Economic Accounting – CI	Jan 2021
9	Botswana - Using NCA data to inform sectoral policies/strategies and monitor SDGs	Feb 2021
10	Leveraging Earth Observations for Ecosystem Accounting: A NASA - CI effort to pilot ecosystem mapping in Liberia	Mar 2021
11	The FAO GEF Riverine Forest Restoration, Biodiversity Conservation and Livelihood Improvement in Sudan	April 2021
12	Living in Harmony with Nature: Lesson from Ethiopia's Experience on Nature-Based Solution and Green Legacy Initiative	July 2021
13	Protecting East Africa's Natural Capital: The Cost of Inaction	Sep 2021
14	ARIES for SEEA for rapid natural capital accounts generation: Towards fast, transparent and standardized yet customizable ecosystem accounts	May 2022
15	Using the System of Environmental Economic Accounting (SEEA): The Kenyan Story	Aug 2022

An important feature was the Africa CoP webinar series, offering a mix of training and sharing events for mainstreaming NCA and its use in policy (see Table 9). Training topics ranged between SEEA central framework accounts, ecosystem accounting, using biophysical modeling to derive ecosystem accounts and how to develop a NCA roadmap. Many of the more advanced African countries shared their experience. The webinars, fifteen of them up to the end of WAVES Plus, gathered a large audience across Africa as well as outside the continent. The first year the webinars were held monthly, but it was subsequently changed to bimonthly due to a 'webinar-fatigue' shown through declining number of participants.

The training "Valuation of Ecosystem Services in the Context of Natural Capital Accounting" was offered by the World Bank to participants from 11 countries nominated by their governments. The course was a mix of live virtual training sessions and self-paced learning. It aimed at familiarizing government professionals with valuation of ecosystem services and how it can be used for policy analysis.

Members were also offered access to online trainings and seminars that they would otherwise not have had access to or known about, such as virtual courses on the SEEA by the UN Statistical Institute for Asia and the Pacific (SIAP) and a training on watershed and landscape-scale approaches and ecosystem service modeling by the World Bank. The easy access to experts in member organizations also sparked a number of activities, with focal points from member countries reaching out to the secretariat to request expert support for planned events.

The experience shows that to make a Community of Practice work and be sustainable, there needs to be a coordinator or a core group that has dedicated time to make connections, initiate and organize activities, and serve as a secretariat to the Steering Committee, which is an important group anchoring the CoP in governments. GPS is providing funding during FY23 for a part-time coordinator and the first physical annual meeting of the CoP.

Takeaways

- **There needs to be an existing basis in the region in terms of countries with active NCA interest and experience.** The CoP should be demand-driven, with country engagement to guide the activities. Without a basis of existing NCA programs in the region, countries with documented interest in NCA and experienced countries who can share their knowledge, it will be supply-driven and not likely to make an impact.
- **Having a dedicated coordinator and a core group to guide the CoP is key for sustainability.** Coordination and promotion of activities within the COP cannot be done on a voluntary basis, but needs to have a lead person with dedicated time and funding. The coordinator in turn needs support from interested governments and regional organizations to guide and develop the CoP.
- **There is high demand for trainings and knowledge platforms.** Surveys to the Africa CoP members and discussions during the Africa NCA Policy Forum showed that training and knowledge sharing is on top of the list for member countries.

5. Global activities

The objective of the Global component was to promote the global adoption of policy relevant NCA by contributing to the development of methodology, particularly for ecosystem accounting, networking, communications, and collaboration between the WBG and outside partners in the public, business, and financial sectors. This was promoted through several work streams, including (i) building knowledge about policy uses of NCA; (ii) advancing natural capital and ecosystem accounting for development; and (iii) global engagement and strategic communications. The four performance indicators for global activities related to delivery of diverse knowledge products and policy events were fully achieved (Table 10). This indicates that WAVES Plus has made significant progress in achieving its objectives for the global components in informing global dialogues for wider acceptance and use of NCA for mainstreaming natural capital and sustainability into development policies and programs.

Table 10. Results indicators for global knowledge activities

Indicator	End of program Target	Final score	Main results
Global knowledge events on policy uses of NCA supported by the project	5	5	Five NCA Policy Forum organized
Global knowledge products on policy uses of NCA made publicly accessible	5	5	Five reports with proceedings from the NCA Policy Forum published
Global knowledge events on developing ecosystem accounts supported by the project	7	9	Annual Ecosystem Expert Forum and London Group on Environmental-Economic Accounting
Global knowledge products on developing ecosystem accounts made publicly accessible	7	8	Contributions to SEEA-EEA revisions; CWON reports and technical notes

Building knowledge about policy uses of NCA

The development objective of this activity was to promote natural capital management as key to national wealth creation, jobs and livelihoods, in particular how Natural Capital Accounting (NCA) and Valuation of Ecosystem Services (VES) can support this agenda.

The first WAVES program had already created a global community of practice through the Annual Partnership Meetings (APMs), where representatives from all WAVES partner countries could meet and learn from each other as well as experts from all over the world. The Policy Forum on NCA for Better Decision Making – NCA Policy Forum for short – replaced the WAVES program's Annual Partnership Meetings (APMs). The APMs were naturally focused on providing a platform for WAVES partner countries to disseminate their work and discuss common issues. The first NCA Policy Forum was organized in order to focus on the policy applications of NCA and to open up to more countries to come together and share experiences. The success of the first Forum resulted in making it an annual event. At first, the Fora and the APMs were organized back-to-back but eventually it was that thelarge overlap made the APMs redundant. The first two Forum events were supported by the Government of the Netherlands, and they have been organized together with a

number of international organizations, most notably the UN Statistics Division (UNSD).[11] WAVES Plus funded the first five together with either WAVES or GPS.[12] Participants included a wide range of countries working on NCA as well as experts and organizations. The intention was to build bridges between different actors across disciplines, countries and organizations; supporting knowledge development and efforts to mainstream NCA into policy. The organization of the Fora was highly inclusive, using surveys to guide the choice of topic as well as getting feedback after the events. Participants were encouraged to submit papers to the Fora, and organizers have actively contacted presenters to create a good mix, illuminating the chosen topic from different standpoints.

The first Forum was organized in 2016 together with the Dutch Ministry of Foreign Affairs, who hosted the event in the Hague. Moving forward, several organizations were part of the organizing committee: UN Statistics Division (UNSD), Natural Capital Coalition, Gaborone Declaration for Sustainability in Africa (GDSA) and UN Environment. UNSD has been a co-organizer every year since 2017.

11 (https://www.wavespartnership.org/en/policy-forum-natural-capital-accounting-better-decision-making)

12 The sixth Policy Forum on Sustainable Finance in 2022 was funded solely by GPS

After the first Forum, **each meeting focused on a specific theme.** The themes have been broad enough to be relevant for all partner countries, but still allowing to dig deeper into a specific topic. To each of the Fora, a background paper was prepared by PBL Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving, PBL). Specialists in the respective fields were invited, making the Policy Forum a learning platform not only for NCA practitioners but also for the experts from other fields. In all first three events, special sessions linking with natural capital approaches in the private sector were organized by the Capitals Coalition, the Government Dialogue funded by the Government of Netherlands and IFC.

The events were deliberately kept fairly small, around 100 participants (except for the virtual event in 2020) to enable active participation and provide good opportunities for learning and creating new contacts. After each event, a report on proceedings was published, including a summary of the event, the background paper and some years also papers contributed from the participants. The target to organize annual events and related publications was thus met (see Table 11).

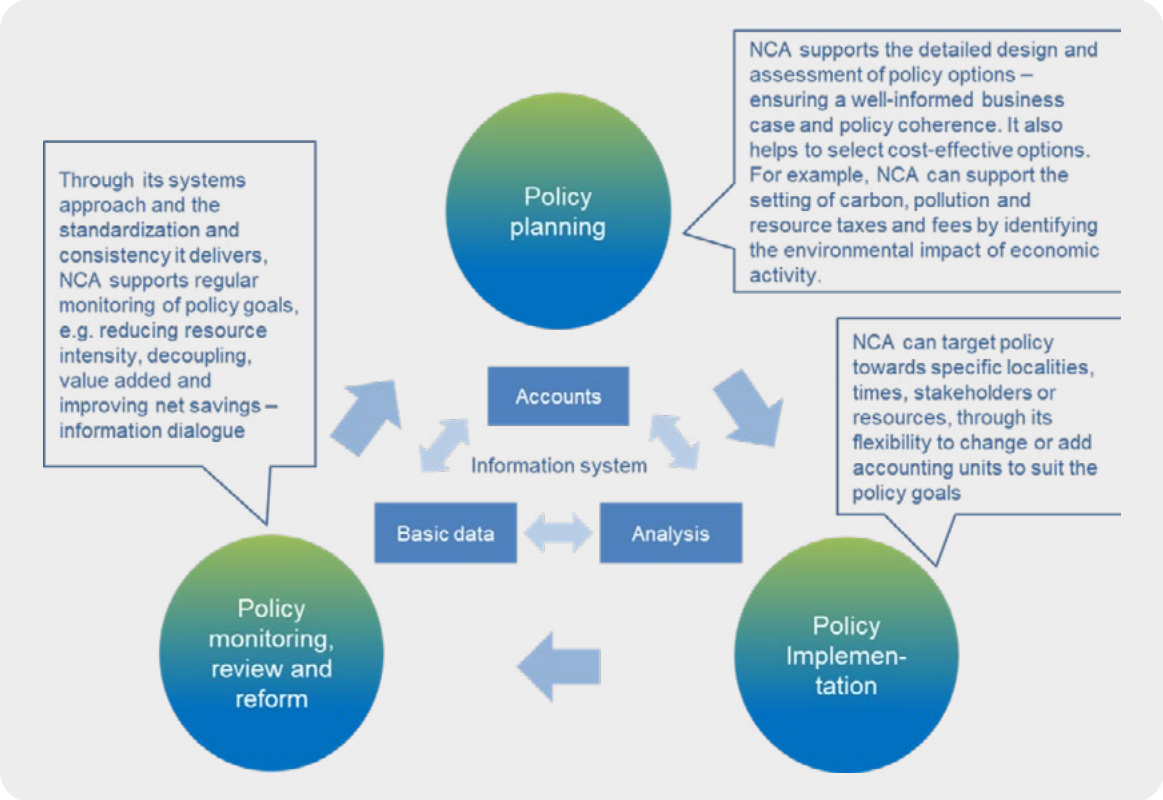
Table 11. List of NCA Policy Forums supported by WAVES Plus

Year	Venue	Forum Themes	Report
2016	The Hague, Netherlands	Improving the understanding of the links between NCA and policy	Forum on Natural Capital Accounting for Better Policy Decisions: Taking Stock and Moving Forward
2017	The Hague, Netherlands	Using NCA to achieve the Sustainable Development Goals	2nd Policy Forum on Natural Capital Accounting for Better Decision Making: Applications for Sustainable Development. Part 1: Takeaways Part 2: Case Studies
2018	Paris, France	NCA contributing to the Climate Change and Biodiversity agendas	Natural Capital Accounting for Better Policy Decisions: Climate change and biodiversity
2019	Kampala, Uganda	Measuring and valuing natural capital for improved landscape management	Natural Capital Accounting for Better Policy Decisions: Measuring and Valuing Natural Capital to Improve Landscape Management and Governance
2021	Online event	Greening the recovery with natural capital accounting	The Fifth Policy Forum Natural Capital Accounting for Better Decision Making: Greening the Recovery

In terms of the outcomes, **the NCA Policy Fora were important venues for government representatives to meet with peers and experts, showcase their work, and share experiences.** Sharing such experience allowed others to learn from tested and practical examples that can be adapted to their own needs in advancing natural capital and ecosystem accounting for sustainable development. Several countries have testified that the exposure to the global NCA community has been very useful for them, both for technical staff and for high-level management to engage on NCA and natural capital assessments with peers both from developing and developed countries. The events also managed to bring together various international organizations working in the NCA space, as well as bringing together experts on NCA with experts in fields such as landscape management, green economy and nature-based solutions to cope with climate change and protecting biodiversity.

The **first Forum** was a response to the need for gathering evidence and knowledge about how NCA can be integrated into policy and planning, and to the increasing demand from partner countries to get guidance on this. All current and former WAVES partner countries were invited, along with experts from both the production and use side of NCA. It was concluded that NCA needs a new emphasis if it is to inform policy decisions. To actually use the accounts, insights from NCA, indicators, analyses, and so forth, NCA has to get inside the institutional machinery of decision making. The outcomes of the meeting were summarized in the publication "Forum on Natural Capital Accounting for Better Policy Decisions: Taking Stock and Moving Forward". The publication also included contributions from participants providing examples of uses of NCA from all over the globe. It was concluded that NCA can be used in all stages of the policy cycle, as depicted in Figure 1. The cycle includes five stages: 1) Issue or problem identification, 2) Policy response, 3) Implementation, 4) Monitoring and 5) Review. At the concluding session, discussions showed that the Forum filled an important gap and that there was high demand for a continuation.

Figure 1. NCA and the policy cycle



The **second Forum** was again hosted by the Dutch Ministry of Foreign Affairs. In particular, the 2nd Policy Forum discussed how NCA as an integrated measurement framework can support the 2030 Agenda for Sustainable Development and its accompanying Sustainable Development Goals. and focused around how NCA can contribute to forwarding the SDG agenda, not only by contributing to the SDG indicators, but also to implementation of the SDGs, through applying NCA in various policy tools. The Forum resulted in a two-volume publication: "2nd Policy Forum on Natural Capital Accounting for Better Policy Decisions: Applications for Sustainable Development", Part 1: Take-aways, and Part 2: Case studies. The publication highlighted the many uses of NCA drawing from the experience of many countries, including those with well-established NCA programs, as well as those that had recently started work on NCA.

The **third Forum,** which focused on Climate Change and Biodiversity, was part of a "Natural Capital Week" in Paris, with several Natural Capital events being held, including by the Capitals Coalition and the Business and Biodiversity (BBOP). It was organized together with the 'Government Dialogue on Natural Capital"3 and the "Combining Forces Initiative"4 and thus gathered a slightly larger audience, around 140 participants. The presentations and discussions highlighted a variety of ways that natural capital approaches, and accounts in particular, can be used to inform the decision-making processes of governments, business and the community more generally. The Government Dialogue presented a compilation of policy uses of accounts by government and private actors. IFC and the Capitals Coalition presented case studies in the WAVES partner countries Rwanda and Indonesia, where they used NCA data. These and other examples highlighted how NCA can inform policies in the biodiversity and climate change agenda, which was reported in the publication "Natural Capital Accounting for Better Policy Decisions: Climate change and biodiversity".

The **fourth NCA Policy Forum,** hosted by the Government of Uganda, brought together people from the NCA community and landscape management community to share experiences and explored practical ways in which NCA can be used in landscape management. The participants discussed how combining NCA and Integrated Landscape Management (ILM) could improve national and landscape-level decision making. The Forum provided a link between two communities that do not necessarily work together, enabling each community to become familiar with the activities and methodology of the other. The Forum heard from experts on innovative modelling, planning and accounting methodologies involved in land use, and how of these many approaches can reinforce each other and influence the machinery of government, improving 'vertical' links between national and local levels as well as 'horizontal' links between the factors that shape landscapes, and between the stakeholders involved. A conclusion from the Forum was that the standardized NCA system and the relatively adaptive ILM approach are highly complementary and that bringing together the two can be mutually beneficial. The meeting discussed how NCA measurement efforts might be designed to be most useful to landscape projects, highlighting the importance of undertaking NCA at an appropriate level of spatial disaggregation, and of making available the data and models used to construct the accounts. Back-to-back with the Forum, the kick-off meeting for the Africa Community of Practice was held (see previous section).

The **fifth Forum** took place during the pandemic in 2020 and focused on using NCA for Greening the Recovery. It was held virtually and engaged over 330 participants from the NCA community and those working on green recovery policies to discuss the data needs for green recovery policies and how NCA can meet those needs to guide green recovery efforts and institutional reforms. A background paper was published before the Forum, and proceedings were posted online. The Forum created momentum in discussion leading up to the Conference of the Parties (COP26) to the Climate Change Convention in Glasgow in October/November 2021 and the Convention on Biodiversity in Montreal in 2022. It was the first Policy Forum

held in a virtual format, and the team learned a great deal in its preparation and implementation process. One advantage of the online Forum was that it was possible to invite a lot more participants than under the face-to-face format. A larger audience was important for the Fifth Forum as it invited participants from two communities that are not necessarily overlapping (NCA and Green Recovery). While it was challenging to keep the Forum interactive in the virtual format, the team managed to engage all participants throughout the program by utilizing various online tools, including an ice-breaking session at the beginning of each day in randomly assigned breakout rooms, real-time online surveys, and airing videos.

Takeaways

- All Policy Fora successfully achieved the anticipated results, including (i) Established or strengthened networks, (ii) Facilitated learning and skill building, and (iii) Produced knowledge products tailored to the needs of participating countries.
- The NCA Policy Forum has provided an important meeting space for countries and experts working on NCA for learning and sharing experiences.
- The NCA Policy Forum also facilitated a process of constant learning and development, moving from general themes to more specific topics in analysis and use of data and evidence on natural capital in development policy and planning.
- Practical examples and contributions to learning and exchanges on natural capital have increasingly come from developing countries, testifying to the fact that more and more client countries are adopting NCA to inform decision making.

Advancing natural capital and ecosystem accounting for development

Supporting development of a standard for ecosystem accounting

The World Bank has been involved in the development of the SEEA since the early 1990's and continued this engagement under WAVES and WAVES Plus. The first international standard for natural capital accounting, the System of Environmental economic Accounting Central Framework (SEEA-CF), was adopted in 2012. At the time, ecosystem accounting was still in development and was thus published separately as Experimental Ecosystem Accounting (SEEA-EEA). The UN Commission of Environmental Economic Accounting, the UNCEEA, led the development of the experimental framework into an international standard, with contributions from statistical offices all over the world, as well as research institutes and international organizations.. A key group in this field has been the London Group on Environmental Economic Accounting, which held its first meeting in 1994. WAVES Plus continued the engagement with this group and has been an active member, including being a member of the Bureau for the group.

WAVES Plus supported the development of the SEEA-Ecosystem Accounting (SEEA-EA) into an internationally adopted statistical standard. The development of the SEEA-EA was accomplished through an international process, led by the UNSD and supported by national statistical offices and international organizations. Several technical papers were produced by participating experts and put through thorough review processes, and international meetings were held to identify and discuss arising issues. WAVES Plus supported this process both through funding, of e.g. the editor of the SEEA-EA and global events, and through contributions to methodological work, such as a paper on valuation from both the accounting and the environmental economics perspective which was an important contribution to

the valuation section.[13] WAVES Plus also provided practical examples and experiences from the partner countries working on ecosystem accounting and valuation of ecosystem services.

The events that WAVES Plus supported included the annual meeting of UNCEEA and the annual Forum of Experts on Ecosystem Accounting, both organized by UNSD. The Forum of Experts was the main forum for discussions on the issues that were identified during the process of drafting the SEEA-EA. WAVES Plus was also member of the Bureau of the UNCEEA.

WAVES Plus contributions to the SEEA-EA included commissioning of technical papers on how valuation of ecosystem services in environmental economics relates to that in environmental-economic accounting. This also included measuring and valuing coastal protection of mangroves and coral reefs. The advances in the Changing Wealth of Nations activities in wealth accounting methodologies, data collection and country coverage also contributed to enhancing thought leadership at the global level (see section below).

Supporting methodologies on natural capital for the Changing Wealth of Nations

WAVES Plus supported various activities in the process of compiling and analyzing data, developing methodologies and preparing background reports for CWON 2018 and CWON 2021. The World Bank has published the Changing Wealth of Nations (CWON) intermittently since 2005. With the 2018 edition of the CWON, it was decided to make it a regular publication, aiming for biannual editions. WAVES and WAVES Plus, together with other ENB trust funds and Bank funding, has supported methodological development on measuring and valuing natural capital. These contributions to CWON were formally acknowledged in both reports.

13 Atkinson, G. and Obst, C. (2018): Prices for ecosystem accounting. World Bank, Washington D.C.

CWON 2018 introduced human capital accounts calculated with country-specific data. It was measured as the expected value of future lifetime earnings, using data from the World Bank's international Income Distribution Database with household survey data from 141 countries over more than 20 years. It showed that the accumulation of human capital has been a key factor in economic growth, sustainable development, and poverty reduction.

CWON 2021 made significant progress to improve the estimates on natural capital by including renewable natural resource assets that were previously omitted. In addition, existing estimates, primarily on non-renewables, were improved through better data, e.g. mine-level data for minerals. . It provided a comprehensive and an improved database of wealth across a broad portfolio of assets (natural, human and produced capital) calculated for 146 countries for the years 1995 to 2018 in market exchange rates, in accordance with rigorous international standards (System of National Accounts (SNA) and the SEEA). It also shows how wealth accounting can be applied to complex policy analysis to make more informed decisions while charting the development pathway for a country in uncertain times. The book and several background papers have already informed the dialogues with countries through the report preparation process.

WAVES Plus supported work to expand the wealth accounts for the most urgent gaps in the natural capital component. These accounts included water, fisheries, land degradation, deforestation and forest degradation, and other ecosystem services such as coastal protection services of natural systems and carbon storage. Land accounts were expanded to include agriculture, forests, and protected areas. The new work on agricultural land and forests uses spatially explicit modeling. The estimates of cropland value are provided based on three regional and country factors that affect yields: technological improvements, climate change, and land degradation. Forest ecosystem services, based on the SEEA Experimental Ecosystem Accounts, was estimated from spatially disaggregated

data for three ecosystem services: water services, recreation services, and non-wood forest products. This made it possible to analyze how the provision of each of these services has changed over time with changes in the extent and condition of forest land. CWON 2021 also made important strides toward rigorous valuation of blue natural capital, including fisheries and mangroves. Mangroves are valued for their coastal protection service. The fisheries accounts built on work introduced in CWON 2018, examining the influence of subsidies on fisheries' asset value and the potential impacts of climate change on asset value under alternative scenarios.

To enhance access to data developed under CWON, a Global Data Platform has been developed, intended to be a one-stop shop for data produced with GPS support. The platform will make various datasets produced under GPS more accessible to policy makers and a broader audience, including the CWON database and underlying spatial data, Adjusted Net Savings, the Little Green Data Book, among others. The World Bank team is coordinating with partners such as the United Nations Statistical Division (UNSD) and the Basque Center for Climate Change (BC3), especially on the production of global data on selected types of ecosystem services, which would strengthen wealth accounting in the future.

WAVES Plus also supported policy analysis and diagnostics using wealth accounting at country and sector levels. Several activities were supported, including:

- Using NCA data to assess the potential impact of policy reforms on the economic value of natural capital such as water or forests
- Developing a strategy for a comprehensive assessment of Wealth and Climate Change that covers issues like treatment of GHG emissions and carbon storage; 'stranded assets', the impact on carbon intensive economies of alternative climate change policies, scenario analysis of potential impacts of climate change on critical assets
-
- Applying data from wealth accounts to inform macroeconomic indicators and analytics such as Total Factor Productivity including natural resources

For the next edition (CWON 2023), WAVES Plus and GPS have supported work to develop global carbon storage accounts for mangroves and global carbon storage accounts for terrestrial forests.

Through its support to these three editions of CWON, WAVES Plus contributed to the full achievement of its Result Indicator on Global knowledge products on developing ecosystem accounts made publicly accessible (Table 10).

Takeaways

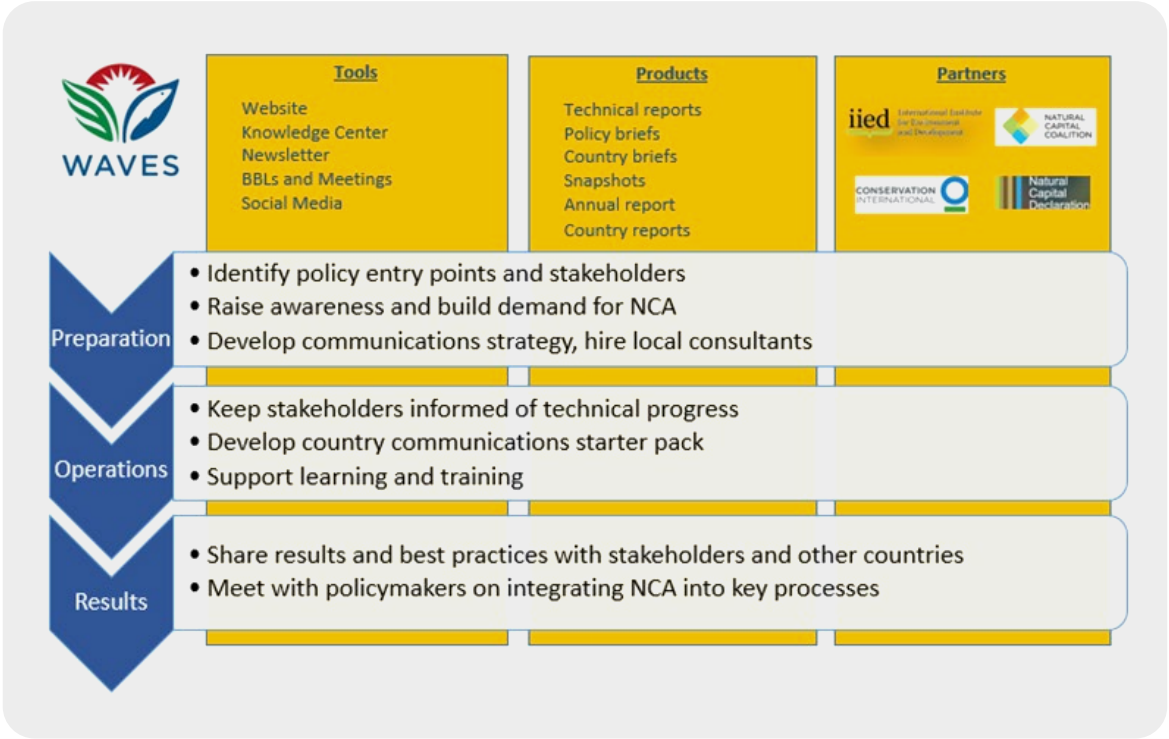
- WAVES Plus supported the international process to develop robust methods and standards for ecosystem accounting. This was facilitated by providing strategic funding, including technical papers and methodological studies, events and experts to work on the standards.
- Experiences from CWON have informed methodology development for ecosystem accounts. This includes valuation of renewable natural capital.
- Collaboration between CWON and the ecosystem accounting community is now fully established. This spans methodology issues and developing global databases, ensuring alignment of the approaches as well as fully exploiting synergies.

Global engagement and strategic communications

Communication underpinned all WAVES Plus activities. This was done by making accounts accessible to non-specialists; building relationships with key stakeholders; standardizing products;

and facilitating NCA knowledge exchanges. The goal of the communication strategy was to help WAVES Plus engage with stakeholders and improve global understanding of and commitment to NCA. The main activities and products are described in Figure 2.

Figure 2. WAVES Plus Communication strategy



Globally, the WAVES Knowledge Center has served as the "clearinghouse" for knowledge on NCA. It collates hundreds of technical and policy resources on NCA and loads them onto a free online database searchable by country, theme, and date. It also showcases technical information for implementing accounts, including information from WAVES and government statistical agencies from low-, middle-, and high-income countries. In addition, a monthly newsletter was issued that reported progress on NCA to key stakeholders, subsequently changed to bi-monthly.

In addition, the WAVES Plus communications team provided support to partner countries. This had provided support in developing their communication strategy, and hire and train communication experts. This proved to be very valuable for the promoting the NCA approach nationally as well as connecting with other countries working on NCA.

Use of the WAVES Knowledge Center has grown continuously. In 2018, there were 2,600 newsletter subscribers, 6,154 publication downloads, and 140,000 website hits. At the end of WAVES Plus in December 2022, the newsletter had more than 4000 subscribers and the website had 152,000 hits, despite the fact that the traffic was more and more directed to the GPS webpage (Table 12).

Table 12. Results indicators for global engagement and strategic communications

Indicator	End of program Target	Final score	Comment
Hits on WAVES websit (global and country pages)	150,000	152,000	
Subscribers for newsletter	4,000	4,049	The GPS newsletter has now replaced the WAVES newsletter

Takeaways

- **The emphasis on the communication component in WAVES and WANES Plus contributed significantly to put NCA on the map globally and create demand from countries to develop NCA.** The WAVES Plus communication was based on the approach established under WAVES and **made the website a hub for all things NCA,** not only for the program itself, but also creating a go-to hub for technical and methodological knowledge products on NCA in developing countries.
- **Strategic communication as an integral part of CIC programs has been vital to promote NCA in partner countries.** Having standard communication products and channels, such as always accompanying technical report with policy briefs and flyers, publishing on WAVES website and promoting the work though blogs was of great importance for the success of the country programs.
- **The communication component has helped build capacity in partner countries.** This was possible through support from the WAVES Plus communication team to recruit and train communication experts in-country.

6. Contribution story, lessons, and insights

WAVES Plus has generally been successful in putting countries on a path toward properly valuing and integrating natural capital and environmental sustainability into development planning. It has contributed to enhancing the analytical and knowledge base needed to build capacity in client countries on valuation of natural capital and ecosystem services and apply it to inform policies, strategies and priority investments. Building such capacity requires significant resources and time to enable countries to sustainably strengthen their technical and institutional capacity in NCA and related analytics.

The experience of several of the countries that received support from WAVES Plus illustrates the importance of complementing initial support with additional resources to consolidate, deepen and progressively build national capacity. Additional GPS support has ensured continuity of strategic initiatives introduced through seed resources from WAVES Plus for building a critical mass of expertise for mainstreaming sustainability into the development process, especially in terms of data and analysis on renewable natural capital to inform policy and investment decisions.

WAVES Plus was able to achieve all performance targets set for all components of the program: country, regional and global. The country component covered 16 countries through different types of grants; four CICs, eleven TTA programs and one regional TTA with direct support for two countries. Many of the countries have received support from GPS, ensuring continuity and maturity to produce desired impacts. In terms of developing natural capital accounts, all CICs produced accounts for at least two sectors. All the CICs were able to use the accounts data in analysis to address specific issues in relation to development policies or investments.

Country programs

In total, WAVES Plus issued 18 grants, which supported the development of 12 accounts[14] and 27 analytical studies. This ranged from valuation of ecosystem services to adjusted macroeconomic indicators of sustainability and wellbeing. Seven of the studies informed national polices/plans in four countries and fifteen informed investment projects in thirteen countries. align the WAVES Plus support for NCA or data and analysis on natural capital and ecosystem services with a plan to inform specific investments or concrete policies. The country programs were closely linked to WB-funded investment projects. The following lessons and insights emerge from the experience of WAVES Plus through the country programs.

- **For CICs, focus on analysis upfront is needed to produce timely evidence to inform investments and policies.** Since developing natural capital accounts take time and resources, it is a good strategy to make use of preliminary accounts which can be made available before full validation and disclosure as official accounts.
- **Mainstreaming of NCA into decision-making will depend on the ownership from central economywide ministries like Planning and Finance.** This is shown clearly in the cases of Uganda and Zambia. Both have had strong champions in the Ministries of Finance and Planning. This resulted in uptake of NCA in macroeconomic policies and national planning processes.
- **Integration into economic models and development of macro indicators are key for uptake into economic policy.** Simple models like input-output models are useful for rapid assessments and can be appropriate if modeling capacity is low. More advanced tools for environment or economic modeling can be beneficial in countries where capacity and relevant data exists to adapt/use such tools.
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14 If flow/stock and monetary/physical accounts are counted separately, the number of accounts developed would be about thirty.

- **The NCA approach should be conceived as a long-term stepwise process.** GPS operates based on these principles and efforts are being made to make this point clear to donors and stakeholders. The use of different funding increments (small, medium and large) is based on the idea that a stepwise approach is needed to support countries on the long journey for mainstreaming nature into national account and decision-making processes.
- **Small Just-In Time (JIT) grants can be effective to respond quickly and create timely awareness and learning about NCA.** They can help countries explore and define their national needs for larger technical support. Based on the experience of WAVES Plus with smaller TTAs, GPS has introduced JIT grants with smaller funding and timelines.
- **Influence of investment projects or policies is more likely to succeed when the vision is properly articulated in the grant's theory of change.** Both CIC and TTA programs are now linked to a WB funded investment project, and this has been articulated using the reverse causation logic to outline the use of NCA and other data/tools for the investment project and determining up front how NCA would contribute to the various components and phases of the projects. Stronger collaboration between the teams working on the investment project and WAVES Plus teams also strengthens the uptake of NCA.
- **Collaboration needed to build NCA creates awareness of broader sustainability issues outside the mandates of individual agencies.** The organizational structure with Steering Committees and Technical Working Groups helped with this. In GPS, the NCA governance structure often builds on that for the investment project, which enhances efficiency and embedding of NCA into a wider group. It has been acknowledged by country counterparts that the close collaboration between Government staff, local consultants, international experts and the WB team has made a real difference from similar programs, generating sustainability and buy-in from governments, and this experience is taken forward in GPS.
- **Data sharing is an issue in many countries and should be addressed upfront.** This includes taking measures to prevent delays in getting access to data, and if possible establish new data sharing protocols. Having the statistical office taking the lead is preferred to make these changes sustainable.
- **WAVES Plus has shown that knowledge exchange and cross-country experience is very valuable in assisting countries to move forward strategically.** This includes both joint study visits to countries with extensive expertise in NCA, as well as bilateral knowledge sharing. Regional communities of practice like the Africa NCA CoP have shown to be helpful both for beginners and more advanced countries.
- **NCA data facilitates integrated economic and environmental modeling to analyze the economic and environmental linkages.** With the availability of NCA data, integrating natural capital into macroeconomic models has become feasible and less challenging. WAVES Plus supported the development of such models in several countries, and this is continued under GPS. Pillar 1 of GPS is also working on developing global datasets and models to integrate nature into economic models.
- **Several success factors for improving the likelihood of effectiveness of WAVES Plus country programs have been identified.** These include government buy-in at high level; availability of dedicated government staff; local experts to work on the ground with government staff; official publication of accounts and studies; and setting a goal for production and use of accounts as part of the regular work of the statistical office and implementing agencies.

Regional programs

The regional NCA Communities of Practice (CoP) were successful in facilitating learning and sharing of experiences on NCA and policy applications. The Africa NCA CoP has been very active and enabled countries and individuals interested in NCA to learn about NCA and valuation of ecosystem services with relatively small funding. Member countries were active in seeking support for NCA-related activities, both in-kind expert support and small funding for workshops. The workshops allowed individual experts and governments to get in touch with counterparts with similar interests and to learn from each other on both technical and organizational aspects of NCA. In Latin America and the Caribbean (LAC), WAVES built a strong partnership with ECLAC, which resulted in a community of practice that continued even after the WAVES support ended. The different activities developed in the region resulted in an increased repository of publications in Spanish, including new materials translated into Spanish. The webinar series allowed the CoPs to learn from and share experiences with international experts and those from other countries. The following factors have contributed to success:

- **Regional CoPs require sufficient funding and a dedicated coordinator to champion knowledge sharing.** The long-term viability of the CoPs would depend on their ability to raise resources. GPS is continuing to fund the Africa CoP, enabling it to organize a conference in 2023.
- **The sustainability of the LAC CoP has shown the importance of having a regional organization championing the learning and exchange of experiences.** Regional agencies could bring additional technical expertise or provide organizational and political support for NCA.
- **Regional learning is enhanced when there are several countries that have already started to develop NCA that can share their experience.** The presence of a critical mass of countries starting to or experienced in developing NCA is vital for creating a network and pool of experts to share knowledge and foster wider use of NCA in policy processes across countries. For example, earlier WAVES support to countries like Botswana and Rwanda have inspired NCA activities in Zambia and Uganda.

Global results

The global activities were designed to promote the broad use of NCA and analytics on the economics of sustainability. This was done through development of methodologies, flagship knowledge products, networking and outreach platforms and events. The key performance indicators related to delivery of knowledge products and policy events were fully achieved. The annual Policy Forum served as a global community of practice, providing an important space for countries and experts working on NCA for learning and sharing experiences on the policy uses of NCA and valuation of natural capital. WAVES Plus held five NCA Policy Forum events bringing together a large number of participants, experts, policy analysists, advisors and practitioners, including those outside the WAVES partnership countries. WAVES Plus also supported development of widely used methodologies for NCA and valuation of natural capital and ecosystem services and global analytics such as the Changing Wealth of Nations (CWON) which has contributed to growing thought leadership around the global dialogue on measuring sustainability of economic growth and human wellbeing.

- The participatory process embedded in the NCA Policy Forum events has facilitated open dialogue and exchange of ideas based on experiential learning and evidence. A strong and encouraging part of the forum events has been the strong presence and contributions coming from developing countries. The Forum also contributed to better understanding of

how NCA and related analytics could be used to inform other policy areas, such as climate change, landscape management and green economy.

- Background papers published and shared online before the Forum followed by proceedings posted online enhanced the dialogue and global reach of the events. The focused background papers helped raise awareness to the key challenges and perspectives around the selected themes related to NCA and mainstreaming sustainability.
- The focused communication strategy with webinars and a global repository of knowledge and tools on NCA and policy briefs based on country experiences made WAVES a well-known brand and strengthened the NCA agenda globally. The user-friendly website with timely knowledge products and tools helped make the concept of NCA more real and relevant and helped make the link between NCA and policy better understood by developing county governments and other stakeholders. This made the website a go-to place for NCA and related knowledge products, creating a global community of practice around NCA. The evidence-based policy briefs and newsletters were also widely distributed.
- An important contribution of WAVES Plus is its role in bridging the transition to GPS as the new umbrella program on natural capital accounting and economics of sustainability. Building from and taking stock of the lessons from WAVES and WAVES Plus support, GPS was able to improve its design and implementation modalities in several directions. This included strengthening links to investment projects and policies; stronger collaboration with specialized external partners such as UNSD to boost capacity building on NCA in client countries; and new approaches to enhance impacts of intervention using the 'reverse causation logic'. The latter helped teams in defining a priori and anticipating the policy uses of NCA and identify the required actions and results at different stages to achieve the policy needs.

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Appendix 1. WAVES Plus Theory of Change

INPUT (COMPONENTS)	OUTPUT	OUTCOME	IMPACT (OBJECTIVE)
1. Expanded support to countries for using NCA A. Supporting NCA use in 5-8 new CICs B. Continued support to the 3 CICs—Indonesia, Rwanda and Guatemala C. Consolidating for increased policy impact for 3-4 original CICs **2. Advancing NCA though regional cooperation** A. Knowledge dissemination B. Regional synergies, training and sharing C. Targeted TA **3. Strengthening Global Momentum on NCA** A. Advancing ecosystem accounting for development B. Policy uses of NCA C. Global engagement and strategic communications	1. Institutionalization of NCA in 5-8 new countries 2. Two to four regional collaboration programs strongly functioning by 2020 with increasing exchange of regional expertise, experiences and lessons 3. WAVES maintains a leading role and provides an important platform for scaling up NCA globally, including advancing experimental ecosystem accounting, by leveraging WBG operations 4. Cross cutting output: Identify necessary measures for using NCA for policy: ▪ What other work is required after accounts are set up ▪ Where in the policy cycle the accounts should be used ▪ Which institutions will be responsible for using accounts	Countries have in place: ▪ Capacity and experience to do SEEA Central Framework accounts ▪ Exposure to work with experimental ecosystem accounts ▪ Experience on how use NCA for the broader macro-economic framework (policy use)	Countries take into account the value of ecosystem services in economic policies; natural resources are mainstreamed in development planning, national economic accounts and decision-making.

Appendix 2. Results framework 2022

Achievement of targets in the results framework by the end of the program in December 2022

Indicator	Program component	End of program Target	Final score	Countries
Countries supported by the project with at least two environment-related sectors in Natural Capital Accounts in accordance with defined criteria and publicly accessible	Country	4	5	Egypt, Kyrgyz R, Morocco, Uganda, Zambia
Countries supported by the project with at least two policy analyses related to Natural Capital Accounting made publicly accessible	Country	10	13	Cambodia, Egypt, Lao PDR, Mexico, Morocco, Myanmar, Nepal, Uganda, Uzbekistan, Vietnam, WACA (Ghana, Nigeria), Zambia
Skilled staff in relevant government institutions participating in Natural Capital accounting and related policy analysis	Country	10	18	Zambia, Uganda, Morocco, Egypt, Kyrgyz R
Number of key policy documents such as development plans, sectoral policies and strategies, or bills that reference NCA or the accounts	Country	4	7	Morocco, Nepal (2), Uganda, Zambia (3)
Number of countries with targeted technical assistance	Country		13	Cambodia, Kyrgyz R, Lao PDR, Madagascar, Mexico, Morocco, Myanmar, Nepal, Uganda, Uzbekistan, Vietnam, WACA regional program (Ghana, Nigeria)
Regional knowledge events on NCA supported by the project	Regional	3	4	Events in Latin America&Caribbean (LAC), East Asia&Pacific (EAP) and Africa (2)
Regional knowledge products supported by the project made publicly accessible	Regional	3	4	Readiness reports for LAC, EAP and Africa; report for Africa NCA CoP
Global knowledge events on policy uses of NCA supported by the project	Global	5	5	Five NCA Policy Forum organized
Global knowledge products on policy uses of NCA made publicly accessible	Global	5	5	Five reports with proceedings from the NCA Policy Forum published
Global knowledge events on developing ecosystem accounts supported by the project	Global	7	9	Annual Ecosystem Expert Forum and London Group on Environmental-Economic Accounting
Global knowledge products on developing ecosystem accounts made publicly accessible	Global	7	8	Contributions to SEEA-EEA revisions; CWON reports and technical notes
Hits on WAVES website	Crosscutting	150,000	152,000	
Subscribers for newsletter	Crosscutting	4,000	4,049	The GPS newsletter has now replaced the WAVES newsletter

Interim indicators in the Results Framework omitted.

Appendix 4. Detailed tables on country programs and analytics supported by WAVES Plus

Table A. Complete list of country programs and investment projects informed

	CIC	TTA (number of grants)	Total grant (US$)	World Bank project informed/influenced	Continued work under GPS[a]
Cambodia		1	0	Cambodia Sustainable Landscape and Ecotourism Project	-
Egypt	1		469,509	Greater Cairo Air Pollution and Climate Change Project	-
Kyrgyz Rep		1	334,423	Third Phase of the Central Asia Regional Links Program (CARs-3)	JIT
Lao PDR		1	99,532	Lao Landscapes and Livelihoods project	MSG
Madagascar		1	242,267	Sustainable agriculture landscape management project (PADAP)	-
Mexico		1	108,780	Connecting Watershed Health with Sustainable Livestock and Agroforestry Production (CONECTA)	MSG
Morocco	1	1	832,243	North Africa Blue Economy and Coastal Management	-
Myanmar		1	169,985	Myanmar Coastal and Delta Resilience Program; Myanmar Forest Restoration, Development and Investment Project	-
Nepal		2	68,837 249,350	Nepal Environment Sector Diagnostic: Path to Sustainable Growth Under Federalism	CIC
Uganda	1	1	599,624	Uganda Natural Capital, Environment and Climate Change Advisory Support Program; Additional Financing to the Uganda Investing in Forests and Protected Areas for Climate-Smart Development Project	MSG
Uzbekistan		1	249,988	North Aral Sea project (CAMP4ASB); Uzbekistan Resilient Landscapes Restoration project	JIT
Vietnam		1	174,868	Forest Sector Modernization and Coastal Resilience Enhancement project	-
West Africa Coastal Areas Management Program (WACA)[b]		2	59,799 288,631	West Africa Coastal Areas Resilience Investment Project II	Ghana: JIT and CIC Nigeria: JIT and CIC
Zambia	1		712,653	Transforming Landscapes for Resilience and Development in Zambia (TRALARD)	MSG
Sum	4	14	4,660,489	15	9

a JIT = Just In Time grants, funding no larger than $75,000, to be finalized within 6 months.

MSG = Medium Size Grants, funding no larger than US250,000, to be finalized within 18 months

CIC = Core Implementing Country grant, funding 0.8 - 1.2 M US$, to be finalized within 2-3 years.

b Regional World Bank program supporting the strengthening of resilience of coastal communities and assets in 17 western African countries

Table B. Analytics supported by the WAVES Plus program

Country	Valuation of ecosystem services	Scenario analysis for land use management	Sectoral analysis	Adjusted macro-economic indicators	NCA feasibility study/ roadmap	Modeling	Other	Total
Cambodia	1							1
Egypt						1		1
Kyrgyz R			1		1			2
Lao	1							1
Madagascar		1						1
Morocco	1					1		2
Mexico	1							1
Myanmar			1		1		1	3
Uganda	1	1	2	1	1	1		7
Uzbekistan	1	1						2
Vietnam	1							1
WACA program	1[a]				1[b]		1[c]	3
Zambia		1				1		2
Total	**8**	**4**	**4**	**1**	**4**	**4**	**2**	**27**

aGhana

b West Africa region

c Nigeria, Cost of Environmental Degradation study

Appendix 5. Financial summary

World Bank 12-month fiscal year (July-June)									
WAVES Plus	**FY23**	**FY22**	**FY21**	**FY20**	**FY19**	**FY18**	**FY17**	**Total**	**%**
Staff Costs	605,943	137,622	1,393,394	1,311,583	839,815	312,336	307,500	**4,908,192**	48%
Consultant Fees	416,965	330,546	1,491,401	1,164,702	383,729	124,746	107,369	**4,019,458**	39%
Travel expenses	24,840	18,673	3,028	189,414	260,757	133,994	150,255	**780,962**	8%
Media Workshop	42,625	9,787	13,937	87,491	88,805	17,827	62,407	**322,878**	3%
Contractual Services	2,050	7,234	5,939	30,369	16,077	3,600	335	**65,604**	1%
Other[b]	11,434	7,817	38,415	102,641	2,300	4,041	1,455	**88,543**	1%
Disbursements to Grantee			-452.06	80,000				**79,548**	1%
Subtotal WAVES Plus	**1,103,857**	**511,679**	**2,946,115**	**2,886,199**	**1,591,483**	**596,544**	**629,321**	**10,265,187**	**100%**

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