



WAVES
Annual Report
Nov. 2018



ANNUAL REPORT 2018

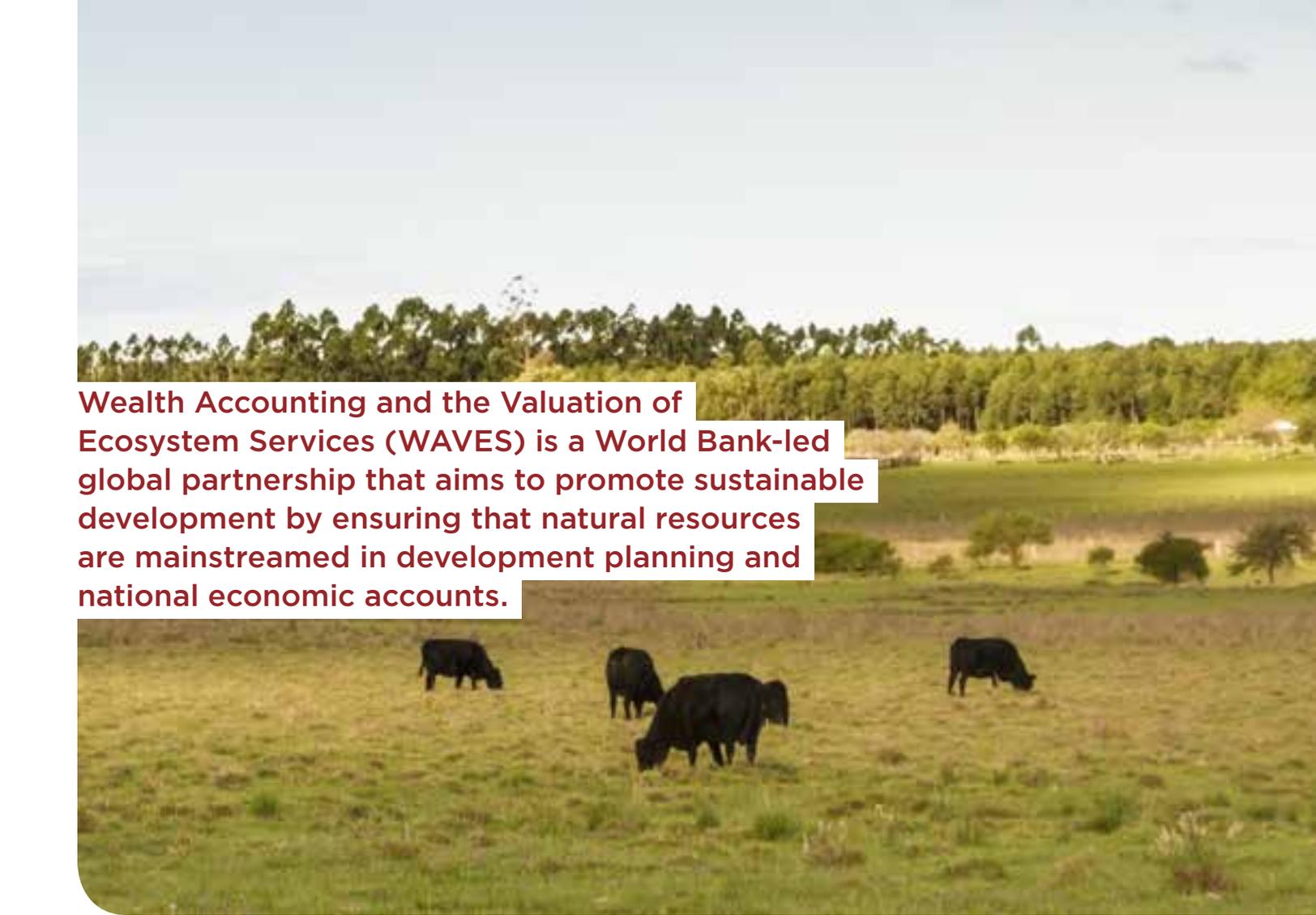


WAVES

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WORLD BANK GROUP



Wealth Accounting and the Valuation of Ecosystem Services (WAVES) is a World Bank-led global partnership that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts.

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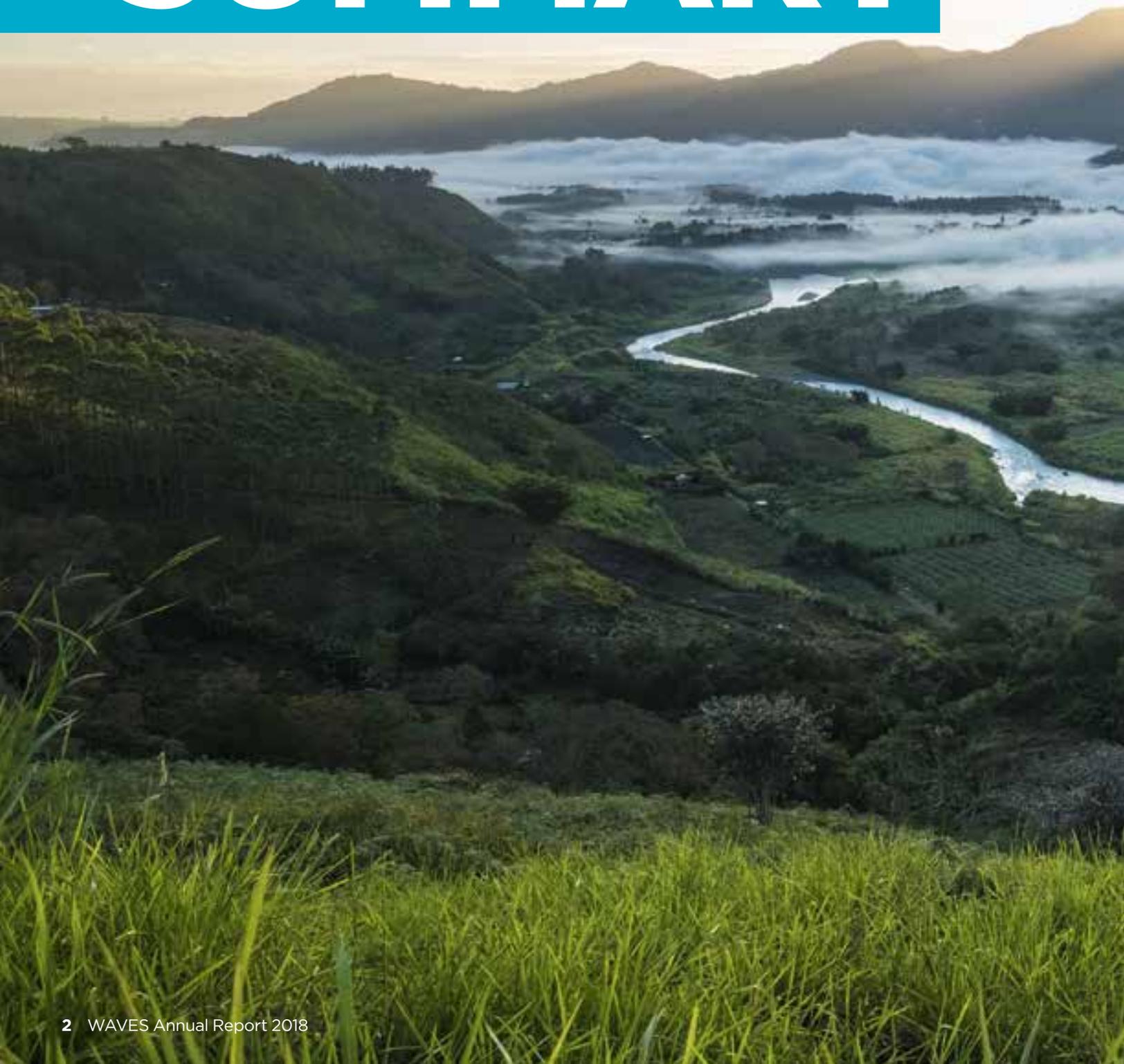
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EXECUTIVE SUMMARY





This year saw significant progress on four fronts.

First, countries still being supported under the original WAVES program (Indonesia, Rwanda, Guatemala) have made important strides toward developing Natural Capital Accounts (NCA) and using them for decision making. Combining these advances with the accomplishments of the earlier generation of WAVES countries, the program is well positioned to achieve its targets in 2019 (the final year of implementation).

Second, WAVES Plus has gained considerable momentum in terms of progress made in activities already started (e.g., Core Implementing Country [CIC] support to Zambia); engagement with new countries (Uganda as a new CIC); four countries in East Asia—Myanmar, Lao PDR, Cambodia, and Vietnam being supported through Targeted Technical Assistance (TTA); and mobilization of new resources, with the government of the Netherlands providing \$4.7 million euros and the European Commission committing to 2.7 million euros.

Third, WAVES/WAVES Plus has consolidated its engagement on the national capital agenda at the global scale through production of original analytical work (the 2018 edition of *The Changing Wealth of Nations*) and continued efforts of knowledge sharing and outreach in collaboration with several partners.

Fourth, the experience gained through WAVES and WAVES Plus has helped finalize the design of the Global Program of Sustainability, a new initiative that will succeed WAVES, putting greater emphasis on policy uses and applications of NCA, including for the financial sector.

TOWARD A SUCCESSFUL COMPLETION OF WAVES

Past investment in the original WAVES countries—Botswana, Colombia, Costa Rica, and the Philippines—is now paying off. These countries have institutionalized accounts, are acting as mentors to other countries in the region, and are showing the way on using accounts for monitoring SDGs or their national plans. For example, Botswana, the Philippines, and Costa Rica have dedicated units set up to update and develop new accounts, such as the unit in Botswana’s Ministry of Finance and Development. Also, Costa Rica has formalized an inter-ministerial group headed by the Environment Minister via a decree to carry on the work of the WAVES’ Steering Committee.

Indonesia, Rwanda, and Guatemala are well positioned to join the ranks of the WAVES trailblazers (who have now graduated from the program) through progress made on the development of their own accounts and in the institutionalization of their use.

Rwanda's land accounts are informing its national land management system, allowing policy makers to study trends in land use and changes over time. In Indonesia, the ecosystem accounts on peatlands have several policy implications: for example, they can identify areas that can be considered a priority for rehabilitation or can support the National Action Plan to Reduce Greenhouse Gas (GHG) emissions. After a period of slowdown due to political transitions, work in Guatemala has now resumed and is producing interesting results. Analysis using ecosystem accounts and evaluating them against two climate change scenarios has important findings relevant for policy makers.

NCA is being used in the monitoring of national plans or SDGs in all countries. The Rwanda WAVES team was asked to contribute to the National Strategy for Transformation. In Indonesia, the information from the accounts, especially land, water, and ecosystems will feed into the system dynamics model being used by the Planning Ministry (BAPPENAS) to calculate the carrying capacity of natural systems in order

to balance economic, social, and environmental goals. This model has been developed to inform the country's mid-term plans and the long-term plan Indonesia 2045. Among the more senior WAVES countries, Botswana has produced its fourth edition of the water accounts and has been called upon to present the use of its water accounts to the UN Commission identifying monitoring mechanisms for SDGs. With several accounts in place, Costa Rica's new national plan has a strategic goal on environment sustainability with the expectation that accounts will help monitor the progress.

WAVES PLUS IS PICKING UP STEAM

The performance of Zambia, which has joined the program fairly recently, has been impressive. The Zambia WAVES team has produced draft accounts of water, forests, and land within a year. The process of developing accounts includes nearly 20 government staff in three technical working groups guided by international experts. Learning from past experience, Zambia has also instituted a working group on environmental-economic modeling that will be used to simulate key policy questions related to trade-offs in land use. The model used by the Inter-American Development Bank (IDB), has been specially calibrated for Zambia, and two trial scenarios have been run to test





the model. Several stakeholder meetings and presentations at the Parliament and to the Cabinet have helped to get WAVES high up on the agenda of the government.

Five new countries have joined the program this year. Uganda will be a new CIC, with a work program focusing on forests and wetland asset accounts, and on the development of experimental ecosystem services (e.g., water provision, soil erosion/sedimentation control, cultural services/nature tourism). In addition, the program will give project-level support (TTA) to four countries in East Asia (Myanmar, Lao PDR, Cambodia, and Vietnam). The East Asia TTAs are focusing on ecosystem accounts (including forests, water, wildlife) and related valuation (Lao PDR and Cambodia), and on coastal ecosystem accounts and scenario analysis (Myanmar and Vietnam).

TTAs are attracting the interest of governments and World Bank country teams since they are designed to generate first insights on the importance of natural assets and ecosystem services for specific projects or policies. They accomplish this by largely using available information complemented by modeling where appropriate. This is expected to encourage governments to embark into the longer term commitment of the CIC work, which could be supported through follow-on support by the program.

FIVE NEW COUNTRIES HAVE JOINED THE PROGRAM

Uganda, Myanmar,
Lao PDR, Cambodia, and
Vietnam

SUPPORTING THE NATURAL CAPITAL AGENDA AT THE GLOBAL LEVEL

This year marked the launch of *The Changing Wealth of Nations 2018* which provided impetus to the discussion on the importance of going beyond indicators like GDP to assess the economic prosperity of countries. The report makes a case for a 'portfolio' approach that looks holistically at produced, human, and natural capital, as the underpinning of the countries' ability to generate income and well-being over the longer term. Noticeable findings of the report include the fact that in low-income countries natural capital accounts for over 40 percent of total wealth, and that in several developing countries natural capital



“Countries prosper when they use their natural capital wisely to invest in the well-being of their people.”

Kristalina Georgieva, Chief Executive Officer at the World Bank, speaking at Brookings in Washington, D.C. on February 5, 2018.

has been depleted over the last 20 years with no offsetting increase in total wealth. Such findings underscore the importance of promoting careful stewardship of natural capital as a key foundation of long-term growth and sustainability. The release of the report saw widespread media attention, with more than 40 mainstream media outlets reporting on the findings, including *The Financial Times*, *The Guardian* and *El Pais*. The team was also asked to make presentations to the EU Parliament and a flagship event organized in Berlin, Germany, by the BMZ.

In addition to producing original analytical work, WAVES has been keeping up its national and global outreach efforts. Broad stakeholder meetings were held in Zambia and Indonesia to explain accounts and come up with new targeted communications strategies. Rwanda had a high-profile launch of their land accounts in an event chaired by the Minister of Environment. The WAVES website and knowledge center have been seeing increasing traffic; 6,154 publications were downloaded from the knowledge center. WAVES produced nine new briefs on policy use of accounts in countries. The World Bank's environment department has been keeping up the conversation on wealth and natural capital. There were 2,500 retweets related to wealth and going beyond GDP following the release of *The Changing Wealth of Nations 2018*.

WAVES has also seen continued collaboration with partners: The Memorandum of Understanding (MOU) with the Netherlands Ministry of Foreign Affairs, involving in-kind support from Statistics Netherlands and its Environmental Assessment Agency (PBL), has been extended up to 2020. This has allowed WAVES to offer top experts in accounting to work in countries like Rwanda, Zambia, and Indonesia.

WAVES continues its role as a convening force for sharing and contributing to the knowledge and experience on NCA, with a strong focus on policy making in countries. WAVES Policy Forum has emerged as the most prominent vehicle on the global stage. This year, the Forum welcomed more partners in the organizing committee. In addition to WAVES and the host country (the Netherlands), new members of the committee

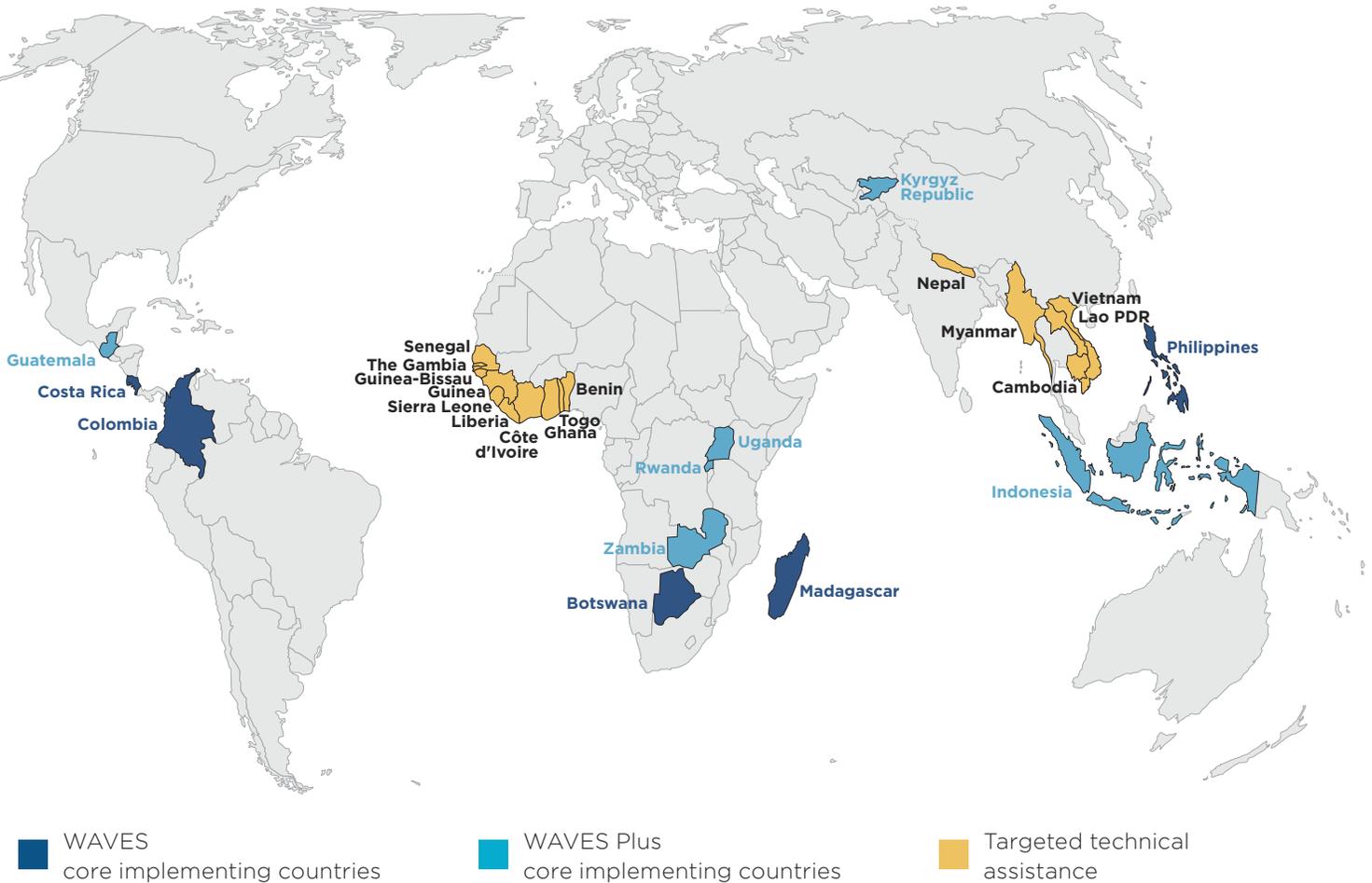
included the United Nations Statistics Division (UNSD), German Corporation for International Cooperation (GIZ), PBL of the Netherlands, the Department for Environment, Food and Rural Affairs (DEFRA) of the United Kingdom, and the Natural Capital Coalition. The Ministry of Foreign Affairs of the Netherlands, Department for International Development, UK (DFID), and the European Commission also provided valuable support. This allowed 20 countries to share their experiences and participate in the conference. All the material prepared for the conference is compiled in a publication featuring several case studies. This proved to be the most downloaded publication on the WAVES Knowledge Center.

LOOKING FORWARD: THE GLOBAL PROGRAM FOR SUSTAINABILITY

Several years of WAVES experience suggest that natural capital accounting can provide important insights for governments' decision-making processes. At the same time, they point to the importance of scaling up efforts in a number of directions.

Looking ahead, the World Bank has started a new initiative, the Global Program on Sustainability (GPS), which expands the work initiated by WAVES to apply a 'sustainability' lens to a wide range of decision-making processes by the public and the private sector alike in developing countries. This program is structured around three interconnected pillars of engagement (information, implementation, and incentives), thereby providing a mechanism to continue fostering sustainable development and finance. The design of the program is based on several rounds of inputs from the WAVES Steering Committee members as well as bilateral discussions with the donor community. The program will start implementation in 2019 with seed funding to be provided by the government of Germany.

FIGURE 0.1: WAVES ENGAGEMENT



| ACCOUNTS COMPLETED | |
|--------------------|--|
| BOTSWANA | Water, Minerals, Energy, Tourism, Macroeconomic Indicators |
| COLOMBIA | Water, Forest, Land, Energy, Mineral, Ecosystem Accounts: Chinchina river and Orinoquia basin |
| COSTA RICA | Water, Forest, Energy |
| GUATEMALA | Water, Forest, Land and Ecosystem, Energy and Emissions, Fisheries and Aquaculture, Solid waste, Minerals, Agriculture |
| INDONESIA | Land, Water, Peatlands, Citarum water basin |
| PHILIPPINES | Macroeconomic Indicators, Minerals, Mangroves Ecosystems: Palawan and Laguna Lake |
| RWANDA | Land, Minerals, Water |
| ZAMBIA | Water, Forest, Land |

WAVES ON THE GLOBAL STAGE





WAVES contributed to major natural capital events on the global stage.

This year, WAVES was represented at the World Forum on Natural Capital, sharing experiences from WAVES countries and discussing collaboration between private and public sectors. WAVES leadership attended the Natural Capital Symposium at Stanford University, United States, and contributed to the Expert Meeting on Ecosystem Valuation organized by the German Federal Agency for Nature Conservation. Together with a number of actors working with National Capital Accounting (NCA) for the private and public sector, WAVES co-organized a side event at the Sixth GEF Assembly in Vietnam, June 2018, on “Natural Capital Assessment and Accounting Improving Policy and Investment Decisions for Enhanced Global Environmental Benefits.” This event was co-organized by Conservation International, the Natural Capital Project, Natural Capital Coalition, UN Statistical Division (UNSD), United Nations Development Programme (UNDP), UN Environment, and World Wide Fund for Nature (WWF). WAVES also participated in discussions at the Advisory Group Meeting of the Business and Biodiversity Offset Program (BBOP), around methods to better integrate a biodiversity metric into corporate natural capital accounting frameworks and relating this to NCA in the public sector.

WAVES continues to support methodological development of ecosystem accounts into a statistical standard. With partners like the UNSD, UN Environment, and the EU, WAVES co-organized the 2018 Forum of Experts in SEEA Experimental Ecosystem Accounting (EEA), which brought together experts from all over the world to discuss ecosystem accounts. In addition, WAVES is contributing to technical groups like the SEEA-EEA Technical Committee and the London Group on Environmental Accounting, and toward the development of an e-learning course on ecosystem accounting by the UNSD.

WAVES has been a convening force for sharing and contributing to the knowledge and experience on NCA with a strong focus on policy making in countries. The WAVES Policy Forum has emerged as the most prominent gathering on the global stage. The Forum had many partners joining the organizing committee, spurring integration and synergies within the NCA community.

The Changing Wealth of Nations 2018 (CWON) reiterated the importance of working on natural capital with countries that depend on careful stewardship for their long-term growth and sustainability. Its 2018 release saw widespread media attention, and more than 40 mainstream media outlets reported on the findings, including *The Financial Times*, Bloomberg, *The Guardian*, and *El Pais*. The World Bank was invited to present the findings of the CWON at a high-level event hosted by the Bulgarian presidency of the EU and the German Minister for Cooperation and Development; the event also included industry leaders.

NCA, and ultimately provide insights on how to use accounts, and more broadly natural capital approaches, to inform development policy.

The second forum brought together 60 participants from 20 countries to exchange ideas about using NCA to achieve the Sustainable Development Goals (SDGs), particularly those relating to poverty, land, water, and green growth. There was also a special session on the application of NCA to the private sector, organized by the Natural Capital Coalition and the World Business Council on Sustainable Development.

In 2018, the United Nations Statistics Division (UNSD) joined the forum as a partner, in addition to the hosts, the Dutch Ministry of Foreign Affairs (MFA). The organizing committee also included the German Corporation for International Cooperation (GIZ); the Environmental Assessment Agency (PBL) of the Netherlands; the Department for Environment, Food and Rural Affairs (DEFRA); the Department for International Development (DFID) of the United Kingdom; the European Commission; and

THE SECOND FORUM ON NATURAL CAPITAL ACCOUNTING FOR BETTER POLICY MAKING: FOCUS ON SDGS

The overall aim of the Forum was to share, explore, and combine the experiences of countries that have been producing and using

For the second year in a row, NCA experts met in The Hague to discuss using NCA for better policy making.





the Natural Capital Coalition. The extended partnership made the participation of additional developing countries possible.

A presentation from PBL Netherlands showed how NCA helps the whole ‘policy cycle,’ and not just at the monitoring stage. The program included case studies of where accounts are beginning to inform decision making, such as the revised water masterplan in Botswana; the forest policy in the U.K.; land use planning in Rwanda; and, in the private sector, the coffee business in Indonesia.

The Natural Capital Coalition presented ways that NCA and assessments could provide tools for the private sector to assess its performance and influence on SDG indicators, in particular, SDG 12: Responsible consumption and production. Accounts could help them track their contribution to reducing emissions, improving air quality, and impacting environmental health.

The forum proceedings were published in a volume that included background material, the country case studies, and other presentations, as well as a summary of the discussions and conclusions of the meeting.

SEVENTH ANNUAL PARTNERSHIP MEETING (APM)

Around 70 representatives of eight WAVES member countries, donor countries, United



Nations agencies, academics, and experts from think tanks and nongovernmental organizations attended the two-day APM meeting held in Kigali, Rwanda, June 6–7, 2018. The government of Rwanda’s Ministry of Environment and Natural Resources and the World Bank co-hosted the meeting. It was the first WAVES annual meeting held in Africa. “There is a need to strike a balance between development ambitions and effective management of natural resources,” said the Rwanda Minister of Natural Resources, Dr. Vincent Biruta, who opened the meeting. “This is especially the case in the African continent, where natural resources continue to be the largest source of revenue for our economies,” he concluded.

Three thematic sessions were held, with discussions focusing on land and ecosystem accounts, policy use of NCA, and institutionalization of NCA at the country level. A field trip took place to illustrate policy use of accounts in the context of ecosystem services.

Around 70 representatives of eight WAVES member countries, donor countries, United Nations agencies, academics, and experts from think tanks and nongovernmental organizations attended the APM meeting.

LAUNCH OF *THE CHANGING WEALTH OF NATIONS 2018*

In February, the World Bank released the third edition of its wealth accounting assessment, *The Changing Wealth of Nations 2018* (CWON), covering a broad set of assets that constitutes the wealth of countries. The book was a landmark in showing that long-term development is about managing a portfolio of produced, natural, and human capital assets.

The book tracks the wealth of 141 countries between 1995 and 2014, estimating natural capital (such as forests and minerals); human capital (earnings over a person's lifetime); produced capital (buildings, infrastructure, etc.); and net foreign assets. Human capital was measured using country-specific data for the first time, and there were improved estimates for natural capital which included forests, agricultural land, and selected forest-related ecosystem services, as well as fossil fuels and minerals.

The findings revealed that overall wealth is growing. Middle-income countries are closing the gap with high-income countries and now have a greater share of wealth. More than two dozen low-income countries, where natural capital dominates the composition of wealth, have moved to middle-income status, in part by investing prudently in natural resources, infrastructure, and education. However, areas of concern include a decrease in the value of productive forests and declining or stagnating per capita wealth in more than two dozen countries.

The report makes a case for natural capital, which is critical to WAVES work, by showing how low- and lower-middle-income countries depend on natural capital for their economic growth. That growth will be short term, however, if based on depleting natural capital. While investments in human as well as produced capital are essential, getting rich is not about liquidating natural capital to build other assets, the report notes. Natural capital per person in the Organisation for Economic Co-operation and Development (OECD) countries was found to be three times higher than in low-income countries, even though the share of natural capital in total wealth is just 3 percent in OECD countries.





2018 started off on a high note with the much anticipated launch of the World Bank's *The Changing Wealth of Nations 2018: Building a Sustainable Future*. The publication brought together 20 years of wealth accounting data for 141 countries and was released at a panel discussion hosted by Brookings in Washington, D.C.

ARGENTINA USES WEALTH DATA TO ASSESS SUSTAINABILITY OF GROWTH

The Systematic Country Diagnostic (SCD) provides the main analytical underpinning to the World Bank Group's engagement in each of its partner countries. In the case of Argentina, the wealth accounting framework was adopted at the report's concept note stage, with both natural and human capital identified as core assets. Natural capital was used in the analysis of future growth and long-term sustainability prospects, and was incorporated in the pathways toward removing poverty and boosting shared prosperity—the World Bank's corporate goals. CWON data were used to analyze the accumulation of wealth per capita, both in relation to GDP trends and performance in peer countries. In particular, the wealth accounting framework was used to assess, across comparator countries, natural resource endowments and conversion of forestland to agriculture.

The World Bank was invited to present the findings of the CWON at a high-level event hosted by the German Minister for Cooperation and Development, which also included industry leaders.

USING WEALTH DATABASE FOR ANALYSIS IN THE WORLD BANK

The wealth data underlying CWON 2018 report was published online at the World Bank data website on January 30, 2018, along with the media release of the report. Multiple data resources were made available to the external audience, including a country Excel tool, DataBank query tool, application program interfaces (APIs), bulk download options, and the technical documentation. The wealth data catalog received over 3,000 user visits, and the data have been featured externally in news articles and think tank blogs over 2018.

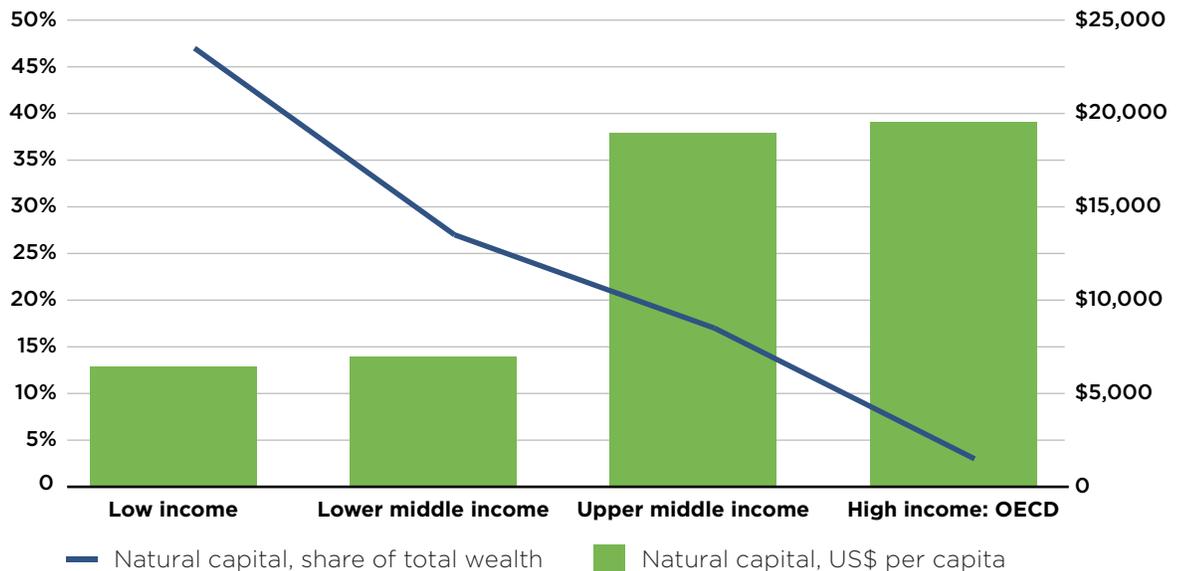
Though the World Bank has been producing wealth accounting data for almost 20 years, the launch and high visibility of CWON 2018 have spurred increased interest and usage

of wealth data in the Bank's analytical work. Wealth data are also being used in Country Environmental Analysis (CEAs), the World Bank analytical product of choice on the environment, in countries such as Malawi, Kenya, and Nepal. For example, a recent Malaysia Economic Monitor featured a section on wealth. The wealth accounting framework and role of natural capital underpinned the economic framework of the Systematic Country Diagnostics (SCD) in Argentina, Mongolia, Paraguay, Angola, and Somalia; many other SCDs have included some aspects of wealth data or natural capital valuation.

The CWON database, including its vast set of underlying indicators (e.g., rent, production), has been used in a recent World Bank Advisory Services and Analytics (ASA) on Total Factor Productivity, extended to include natural resources. A new ASA report is planned for this fiscal year with the Macroeconomics, Trade, and Investment Global Practice, and will use wealth accounting to analyze Russia's economy and prospects for growth.

FIGURE 1.1: NATURAL CAPITAL

Share vs Per Capita Value (US\$) in 2014



Natural capital remains the largest share of wealth for low-income countries. In 10 of the 24 low-income countries, natural capital accounts for more than 50 percent of their wealth, mostly because of agricultural land and forests. The fact that the share of natural capital in total wealth decreases in higher income groups means that countries do not have to liquidate natural assets to grow.

BUILDING BUZZ AROUND CWON



The report has been downloaded 70,000 times



To date, at least 45 media outlets covered the CWON report. These include traditional media, radio stations, online media, blogs, and think tank publications, notable among them being *The Financial Times*, Quartz, Haartz, Bloomberg, *Le Figaro*, *Handelsblatt*, and *El Pais*



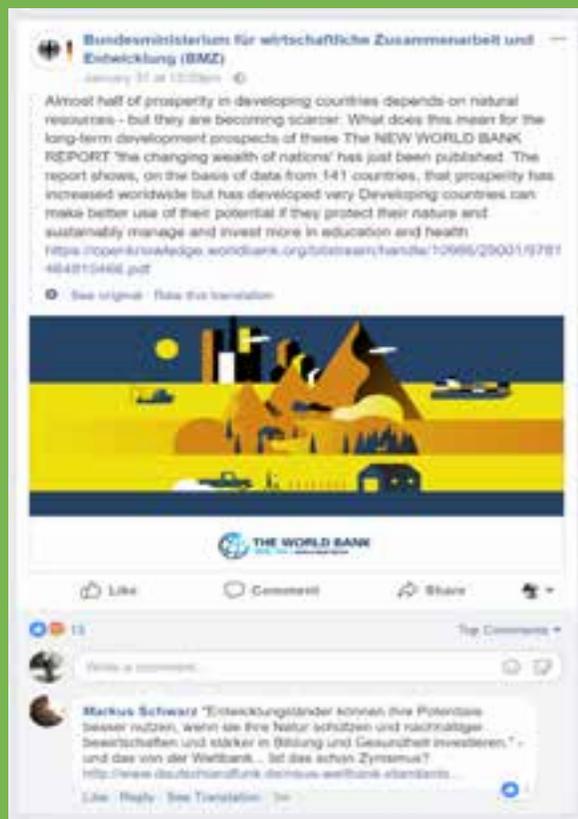
All report-related webpages generated more than 30,000 views the first 15 days after the launch. The feature story alone was viewed more than 8,000 times during the reporting period



The launch and the event generated more than 2,300 tweets and retweets, with the hashtag #BeyondGDP



The report attracted tweets from influencers in environment and development



MOVING AHEAD ON ECOSYSTEM ACCOUNTING



AD EM



WAVES continues to support methodological development of ecosystem accounts into a statistical standard through participation in technical groups like the SEEA-EEA Technical Committee and the London Group on Environmental Accounting, and through contributions to the development of an e-learning course on ecosystem accounting by the UN Statistical Division (UNSD). The WAVES team actively contributed to several international meetings of the Natural Capital communities of practice. Examples include:

- In March 2018, the team provided technical inputs to the Natural Capital Symposium at Stanford University, United States, at a major gathering of practitioners in the field.
- In April 2018, the team contributed to the Expert Meeting on Ecosystem Valuation in the context of Natural Capital Accounting, organized by the German Federal Agency for Nature Conservation.
- Finally, in June 2018, together with UNSD, UN Environment, and the EU, WAVES co-organized the 2018 Forum of Experts in SEEA Experimental Ecosystem Accounting. This brought together experts from all over the world, discussing methodological issues and sharing practical experiences in developing ecosystem accounts. Among them were former and current WAVES Core Implementing Countries, the Philippines, Costa Rica, and Indonesia. The WAVES report on valuation of ecosystem services (published online) was one of the background papers feeding into the work of the subgroup on valuation.

RWANDA

In Rwanda, the WAVES-supported work has spurred a significant amount of interest and demand to develop ecosystem accounts, expanding on the solid analysis carried out on the land, water, and minerals accounts, as well as the work of the Science for Nature and People Partnership (SNAPP) working group in 2015–17. The Steering Committee decided to advance ecosystem accounts focusing on water yield, sedimentation, and carbon sequestration. The accounts will be integrated into the work of the Ministry of Environment, the Rwanda Environment Management Agency, and the Ministry of Finance and Economic Planning, informing the revision of the Land Use Master Plan and the State of Environment Report.

The ecosystem accounts will be supplemented with two to three in-depth case studies that integrate information from the land and water accounts and utilize the Land Use Trade Off Tool (LUTOT) developed under Rwanda-WAVES in 2016–17. Two specific LUTOT applications are proposed: (a) a case study of impacts and options (scenarios) for understanding/managing hydropower development and reservoir sedimentation costs in a specific watershed, and (b) a case study of upper watershed land use change and its effect on downstream users and environmental service outcomes (focusing on runoff, sedimentation, and nutrient pollution). This would build on the work done on the mineral accounts.

The Philippines' Department of Environment and Natural Resources hosted a forum to discuss "Mainstreaming Environment and Natural Resources Accounting (in Programs and Projects)" in Quezon City in April.

ZAMBIA

While still finalizing their land, forest, and water accounts, Zambia is now looking to develop both ecotourism and ecosystem accounts, tentatively including biodiversity, carbon sequestration, and sedimentation. The intention is to support the government's plans to develop nature-based tourism in protected areas, and to measure and value the ecosystem services from these areas.

THE PHILIPPINES

In the Philippines, the Department of Environment and Natural Resources (DENR) has been designated as the core agency for production of ecosystem accounts, as well as the primary user of site-specific ecosystem accounts. Measurement and valuation of ecosystem services using the SEEA framework has continued through a PROFOR-funded project at the Forest Management Bureau at the DENR. The project resulted in recommendations to incorporate ecosystem service modeling and valuation, as well as forest use analysis and scenarios, in the forest land use planning (FLUP) process.

REGIONAL WORK

In August 2017, WAVES co-organized a webinar on forest accounts and forest ecosystem services in Latin America, together with the Economic Commission for Latin America and the Caribbean (ECLAC) and the Institute of Agriculture, Natural Resources and the Environment (IARNA) at the University of Rafael Landívar in Guatemala. The collective objective was to showcase tools for sustainable management of forests.





INDONESIA'S PEATLANDS: USING ACCOUNTS TO BETTER MANAGE FRAGILE ECOSYSTEMS

Peatlands form when dead plants partially decay in soils soaked with tannin-rich water, and the resulting organic matter gradually accumulates over hundreds or even thousands of years. Indonesia is home to 36 percent of the world's tropical peatlands, storing around 30–700 tonnes of carbon per meter of peat soil. They are one of the most valuable ecosystems on the planet and critical for biodiversity, flood prevention, and clean drinking water. However, when degraded, peatlands can be a major source of greenhouse emissions.

Peatlands cover approximately 8 percent of Indonesia's land surface, and that percentage is shrinking as millions of hectares of peatlands have been converted to cultivate timber and oil palm, power the national economy, and provide livelihoods. This comes at a huge environmental cost—peatlands today face subsidence, flooding, and fire hazards, and are emitting CO₂ that had been locked away for generations.

The government of Indonesia has issued a decree establishing a moratorium on further commercial development of peatlands and has set up a specialized agency to restore 2 million hectares of peatlands within five years.



BETWEEN 1990 AND 2015,

52 PERCENT
of peat forests
in Kalimantan
and Sumatra was
converted to other
land uses

In order to better track changes in this fragile ecosystem and the impact of economic activity around it, WAVES has completed a preliminary set of ecosystem accounts for the islands of Sumatra and Kalimantan.¹ Using the SEEA-EEA framework and the maps from the government of Indonesia, the accounts cover land use and ecosystem supply services, including crops and forestry products, as well as regulating and cultural services, both in physical and monetary terms.

SOME PRELIMINARY RESULTS SHOW THE FOLLOWING:

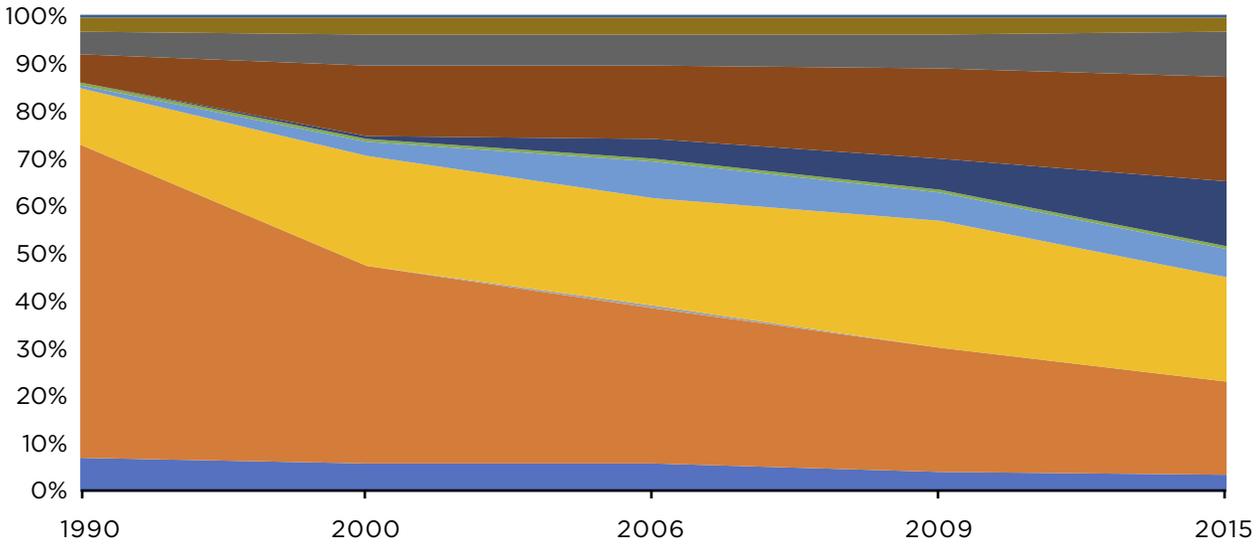
- Between 1990 and 2015, 52 percent of peat forests in Kalimantan and Sumatra were converted to other land uses. Plantation areas and agricultural lands expanded drastically during this period (see figure 2.1).
- By 2015 Indonesia lost 31 percent of aboveground carbon stocks because of land use changes in peatlands when compared to 1990 figures.
- Thirty-two percent of CO₂ emissions from peatland in Sumatra are from degraded land and drained forest edges close to plantations. This land could potentially be a priority for rehabilitation, since it would make a significant contribution to reducing global CO₂ emissions without affecting crop production and forestry activities.
- Oil palm plantations expanded significantly and generated the highest monetary value in 2015. Biomass for pulp also increased in production and monetary value. Meanwhile, as a result of peatland conversion, peatland services such as timber production, CO₂ sequestration, and protected land area decreased over time.

There are several applications for these accounts. For example, they can identify areas that can be considered a priority for rehabilitation. The accounts can support related policies and development plans that have the potential to impact the environment through a strategic environmental assessment. The results of the carbon account can support the National Action Plan to Reduce Greenhouse Gas (GHG) Emissions. More generally, a comprehensive assessment of the value of the ecosystem services provided by peatland can contribute to better inform private and public decisions on their allocation to alternative uses. Such an assessment would fill gaps in key areas not yet included in the accounts currently available, such as drainage and production, and impacts of fires and smog on people's health.

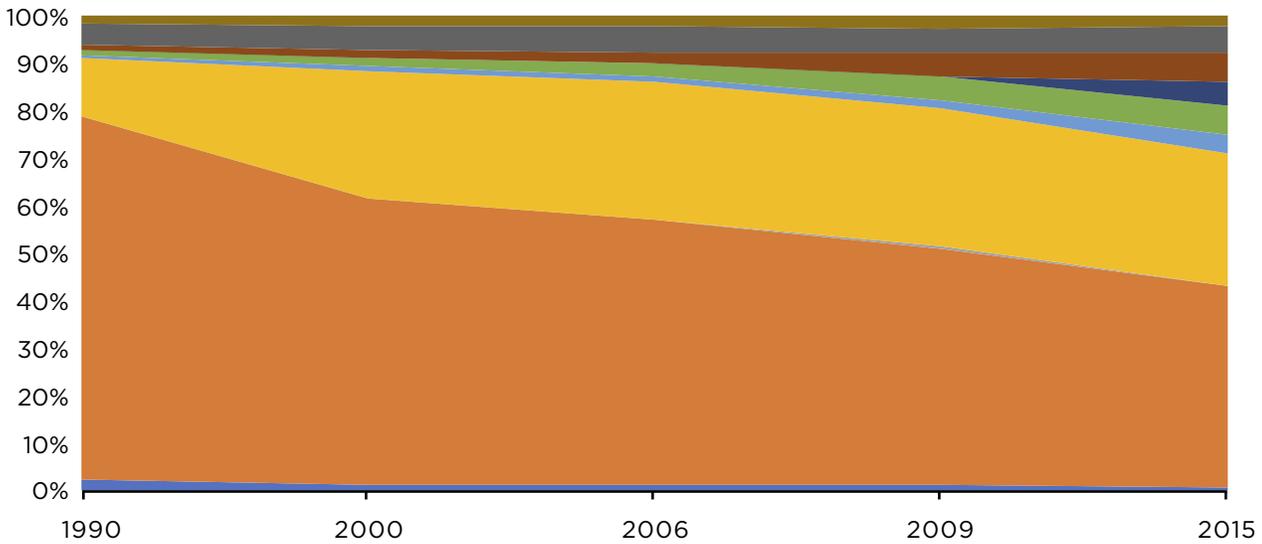
¹ These are preliminary results and are being reviewed by the Government of Indonesia

FIGURE 2.1: LAND USE VARIATION—1990–2015

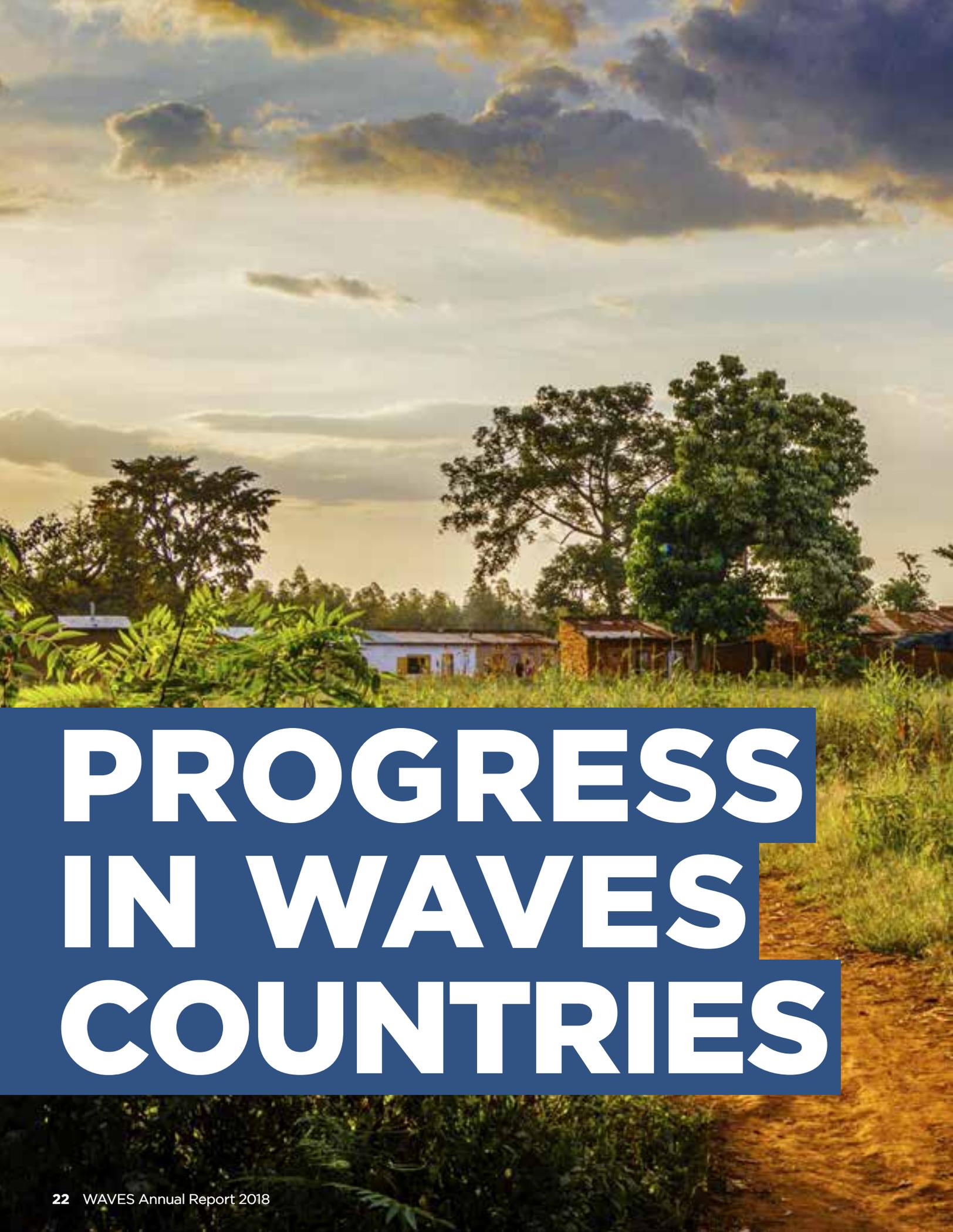
EXTENT ACCOUNT OF PEATLAND IN SUMATRA



EXTENT ACCOUNT OF PEATLAND IN KALIMANTAN



- Undisturbed forest
- Disturbed forest
- Water
- Degraded peatland
- Bare ground
- Urban
- Forest plantation
- Perennial crops
- Dry agricultural land
- Paddy field
- Others



PROGRESS IN WAVES COUNTRIES





INDONESIA

The government of Indonesia published an updated System for Integrated Environmental and Economic Accounting (known as SISNERLING) in December 2017, which included initial results of the land accounts compiled with WAVES support. WAVES has made progress on several other accounts—national land accounts (both cover and extent), water accounts for the Citarum River Basin, and peatland accounts for Sumatra and Kalimantan. The Citarum Basin is the source of water for Jakarta city and has more than 30 million people depending on it for drinking and agriculture.

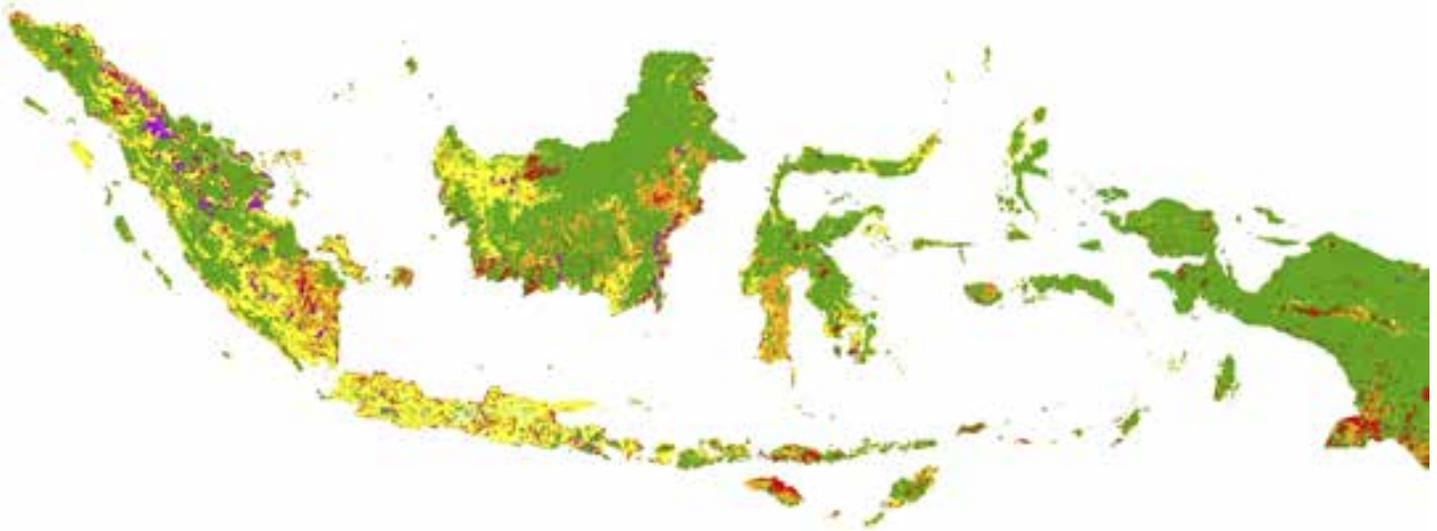
The accounts and analysis have undergone several rounds of review, including internal World Bank quality enhancement, peer reviews by international experts, and discussion by a multiagency group within the government. In September 2018 all the major stakeholders and key ministries

came together in a workshop to review and improve the accounts. The Statistical Agency (BPS) prepared a roadmap in a bid to continue working on the accounts and align them with their Sustainable Development Goal (SDG) and Green Growth reporting requirements. In a significant development, the information from the accounts, especially land, water, and ecosystem accounts, will be incorporated in the systemic dynamic model being used by the Planning Ministry (BAPPENAS) to calculate the carrying capacity of natural systems to inform the country's midterm plans and the Indonesia 2045 vision. The model will help put emission reduction targets at the core of development planning by appraising interdependencies among the economy, society, and the environment. The WAVES team is participating in this ongoing work.

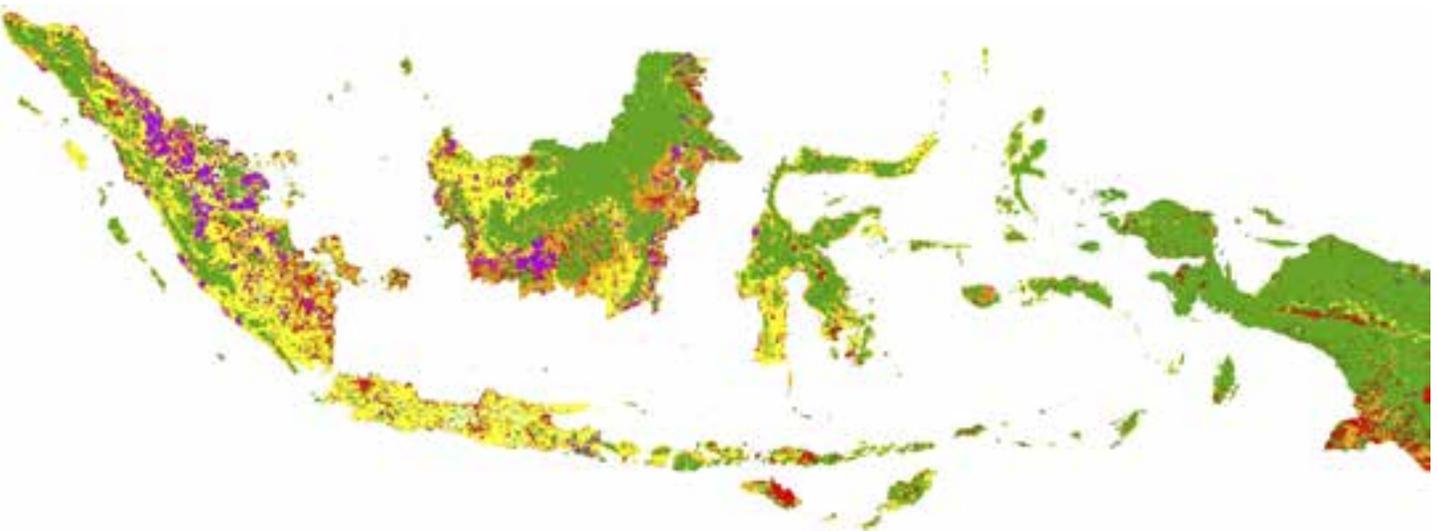


FIGURE 3.1: LAND COVER 1990-2014

LAND COVER MAP OF INDONESIA 1990



LAND COVER MAP OF INDONESIA 2014



0 250 500 1000
Kilometers

- | | |
|--|---|
|  Natural forests |  Agriculture |
|  Plantation forests |  Shrubs |
|  Perennial crops |  Others |

LAND ACCOUNTS INFORMING THE NATIONAL DEVELOPMENT PLAN

Indonesia completed its preliminary national land accounts displaying the changes over time, using land covers such as paddy, perennial crops, plantation forestry, natural forests, urban areas, and open water. This information will help in understanding how land cover has changed in Indonesia since 1990, and is essential for spatial planning at both national and provincial levels. It also provides basic information for other System of Environmental-Economic Accounting (SEEA) accounts, such as the ecosystem extent account, the ecosystem services supply and use account, and the carbon and biodiversity thematic accounts.

Peatland accounts complement the work done under land accounts (see page 20 for details), and by quantifying the environmental services, will make a case for stronger government action on peat restoration. The accounts could potentially be used for identifying pilots and shaping monitoring systems for carbon finance programs and payment for ecosystem services systems.

Using data from the Ministry of Environment and Forestry (KLHK), the land accounts include 22 classifications of land cover, showing changes between 1990–2015. Maps and tables are included at the national scale, as well as for seven (groups of) islands: Sumatera, Kalimantan, Sulawesi, Papua, Java, Bali and Nusa Tenggara, and Maluku.

SOME HIGHLIGHTS INCLUDE:

High rate of change in forest cover—Indonesia lost about 22 million hectares (ha) of its natural forests from 1990 to 2014 (figure 3.1), at an average annual rate of 1.5 million ha. The highest rate of change in forest cover took place from 1996 to 2000, in which 9 million ha of natural forests were converted to other land covers (an average rate of 2.2 million ha/year). The rate of change in forest cover significantly decreased after 2010. Compared to other natural forest types, dryland forest suffered the most significant land cover change, and was responsible for 58 percent of all conversion.

Rapid growth of perennial crop areas in Indonesia—Perennial crops, currently dominated by oil palm plantations, expanded rapidly from 1990 to 2014, with an additional area of 6 million ha. The expansion of perennial crops can be linked to the high rate of forest conversion. In 1990 about 60 percent of the additional perennial crop areas were forested.

Variation of land cover change in different island groups—For example, in Sumatra there has been a major transformation from forestland to plantation forestry (such as acacia) and perennial crops (such as oil palm), starting in the 1990s. The largest conversion of Indonesian forests between 1990 and 2014 took place in Sumatra (about 8.9 million ha). In Kalimantan, about 8.3 million ha of forests were converted to other land cover types in the same period, and the change is still ongoing.

A preliminary land extent account has also been completed and is pending government review. It disaggregates forest types such as natural versus plantation and provides more insight into the forest and agriculture land trade-offs. Remote sensing and other innovative technologies have been used to ascertain a more comprehensive picture.

The land account results will be fed into the system dynamics model being used by BAPPENAS to inform the national plan. The model has been set up with feedback representation for demographics and labor, welfare (poverty), the macro-economy, climate and carbon emissions, energy systems and other components for carrying capacity, including water resources, oceans and fisheries, forests land use (including peat lands), and biodiversity.



POLICY

BAPPENAS will be using the wealth accounts as inputs for their macroeconomic modeling to calculate the carrying capacity and limits of growth, and to project green economy scenarios. These scenarios are biophysically consistent across four sectors—energy, water, land, and population/employment—toward an Indonesia 2045 vision. This modeling exercise will contribute to Indonesia’s next five-year national plan from 2019 to 2024.

CAPACITY BUILDING

- Training on “Macroeconomic Indicator and Wealth Accounts” was conducted in March 2018, cohosted with the Ministry of Finance, and attended by representatives of other ministries.
- A technical review was done by an interagency group to verify, review, and disseminate all WAVES accounts.



ACCOUNTS COMPLETED*



**National
land cover**

updated
through 2015

- Land extent—Sumatra



**Ecosystem account for
peatlands in Sumatra and
Kalimantan**



**Water accounts
for the Citarum watershed** 2014–2016

*These are being reviewed by the Government of Indonesia.

INSTITUTIONALIZATION

- BAPPENAS issued a decree setting up a new coordinating team designed to ensure greater focus, participation, and collaboration between planning, statistics, and finance ministries. The coordinating team will ensure that the national system (SISNERLING) is fully streamlined with SEEA.
- BPS organized a session on developing a roadmap for the implementation of NCA accounts in an effort to synchronize accounts with SDGs and Green Growth indicators.



RWANDA

The launch of land accounts in 2018 was marked with a high-profile event attended by the Minister of Environment and the head of the National Institute of Statistics, Rwanda. In addition, water accounts were completed and updated and are now being reviewed by the government. In a significant development, land accounts are influencing Rwanda's sophisticated Land Administration Information System (LAIS), both in terms of its structure and the way land valuation data are captured.

The government is using forest cover and agriculture data in its review of the

National Land Use Development Master Plan, with a focus on areas where land use and land cover are changing rapidly. The government is also investing in setting up an institutional structure to carry this work forward—a state minister for planning has been appointed as the focal point for NCA. The National Institute of Statistics, Rwanda (NISR) and the University of Rwanda are building NCA into, respectively, their work and curriculum. The University of Rwanda has been very proactive, building an environmental economics and NCA program to train the next generation of economists and planners.



LAND ACCOUNTS INFLUENCING THE NATIONAL LAND MANAGEMENT SYSTEM

After years of dedicated data collection and analysis, the Rwanda government officially launched the country's first land accounts on March 6, 2018. These accounts were well received as a contribution to Rwanda's understanding of its land assets and their changes over time. The land accounts combined data on land use, land cover, and land value in a consistent format, allowing trend analysis. Currently, 70 percent of Rwanda's land is used for agriculture or forestry. A land cover analysis shows that this results from a substantial shift from forest cover to cropland since 1990. The most notable period of change was from 1990 to 2000 during which Rwanda experienced war and major movements of people. This trend was especially noticeable in the Northern and Eastern Provinces. Additionally, between 2010 and 2015 land cover accounts show that forests decreased by 12 percent and cropland increased by 8 percent (some at the expense of woodlands). See figure 3.2 on opposite page.

Land use accounts show that land classified as residential or industrial has risen quickly. The land accounts also demonstrated the value of the LAIS database as a tool for analyzing conditions and trends, not just for tracking ownership data. For example, an analysis of the data confirms that most land parcels are quite small, less than one-tenth of one hectare, and also allows analysis of the distribution and size of parcels across regions and districts. Only 3.0 percent of land is in parcels greater than one hectare, and only 0.6 percent of land is in parcels greater than two hectares. The land accounts provide decision makers with a tool for understanding how parcel sizes are changing over time and by location.

While the results emerging from the land accounts are interesting, the process of developing accounts has also helped Rwanda's key institutions in developing capacity, building interagency collaboration, and establishing systems for sharing data across institutions.

The process of preparing the accounts has influenced officials' plans to improve the LAIS's structure and the way land valuation data are captured. In the current round of improvements, the definitions used for classifying economic and commercial land uses are being refined by ground-level practitioners. New fields are also being added to allow for more precise capture of land value data, plus the nature of development on the land. The government is using the land cover results in its review of the National Land Use Development Master Plan (NLUMP). The land accounts help target locations where land uses and values are changing rapidly.

One example of where land accounts are particularly informative is the National Strategy for Transformation (NST1), which identifies effective land management as a critical part of rural development. Land accounts can shed light on how cost effectively or intensively land is used by different sectors, make projections about future land use trends, and clarify how changes in land use may affect its value.



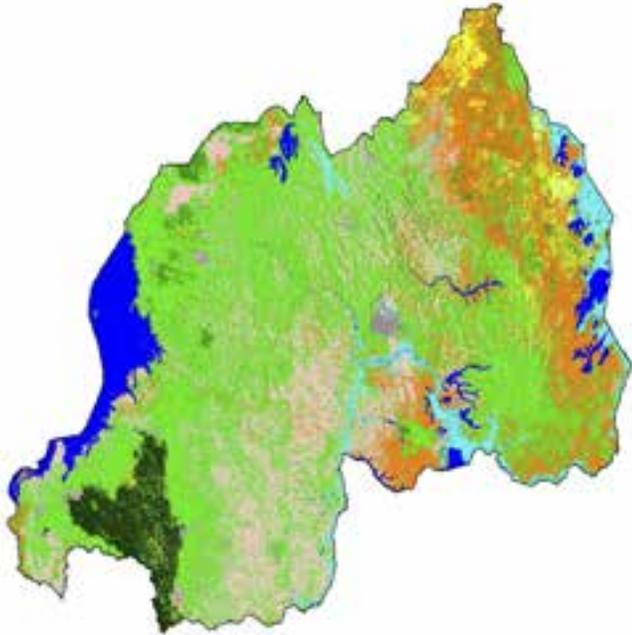
BETWEEN 2010 AND 2015,

forests decreased
by 12 percent and
cropland increased
by 8 percent

FIGURE 3.2: LAND COVER IN RWANDA—1990–2015

1990

2000



2010

2015

0 20 40 80 Kilometers

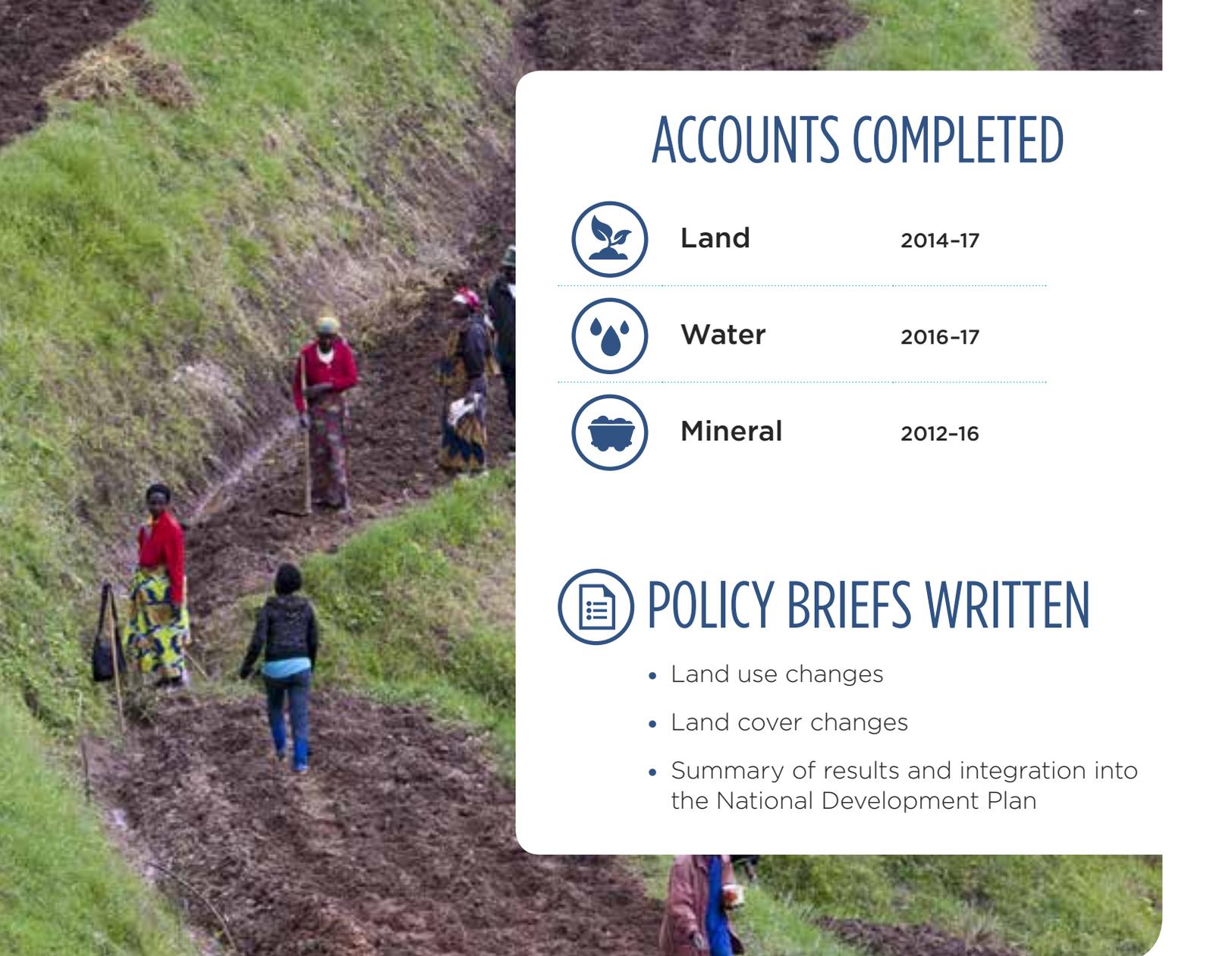
SERVIR Land Cover Categories

- | | | | | |
|-----------------|------------------|------------------|--------------------|------------------|
| Dense forest | Woodland | Closed shrubland | Perennial cropland | Water body |
| Moderate forest | Closed grassland | Open shrubland | Annual cropland | Urban settlement |
| Sparse forest | Open grassland | | Wetland | |



IMPACT ON POLICY

- Analysis of water use efficiency shows that Rwanda is increasing efficiency of use in the main economic sectors, though agricultural efficiency is increasing more slowly than manufacturing and services. This analysis directly supports reporting on SDG 6.4, which aims to increase water use efficiency across all sectors and ensure a sustainable supply of fresh water.
- Accounts have influenced the government's LAIS structure and the way data are captured on land valuation. Land use definitions and classifications are being revised to reflect better ground-level understanding of conditions.
- The current review of the NLUMP will utilize land use and land cover change data from the accounts to target areas for special emphasis in the planning process.
- Water accounts have provided inputs to the NSTI on water availability, water stress, erosion potential, and water use efficiency.
- The National Institute of Statistics (NIS) questionnaires and business enterprise surveys have been improved to allow better recording of water and land use information by industrial sectors that will improve natural capital accounting efforts going forward.



ACCOUNTS COMPLETED



Land

2014-17



Water

2016-17



Mineral

2012-16

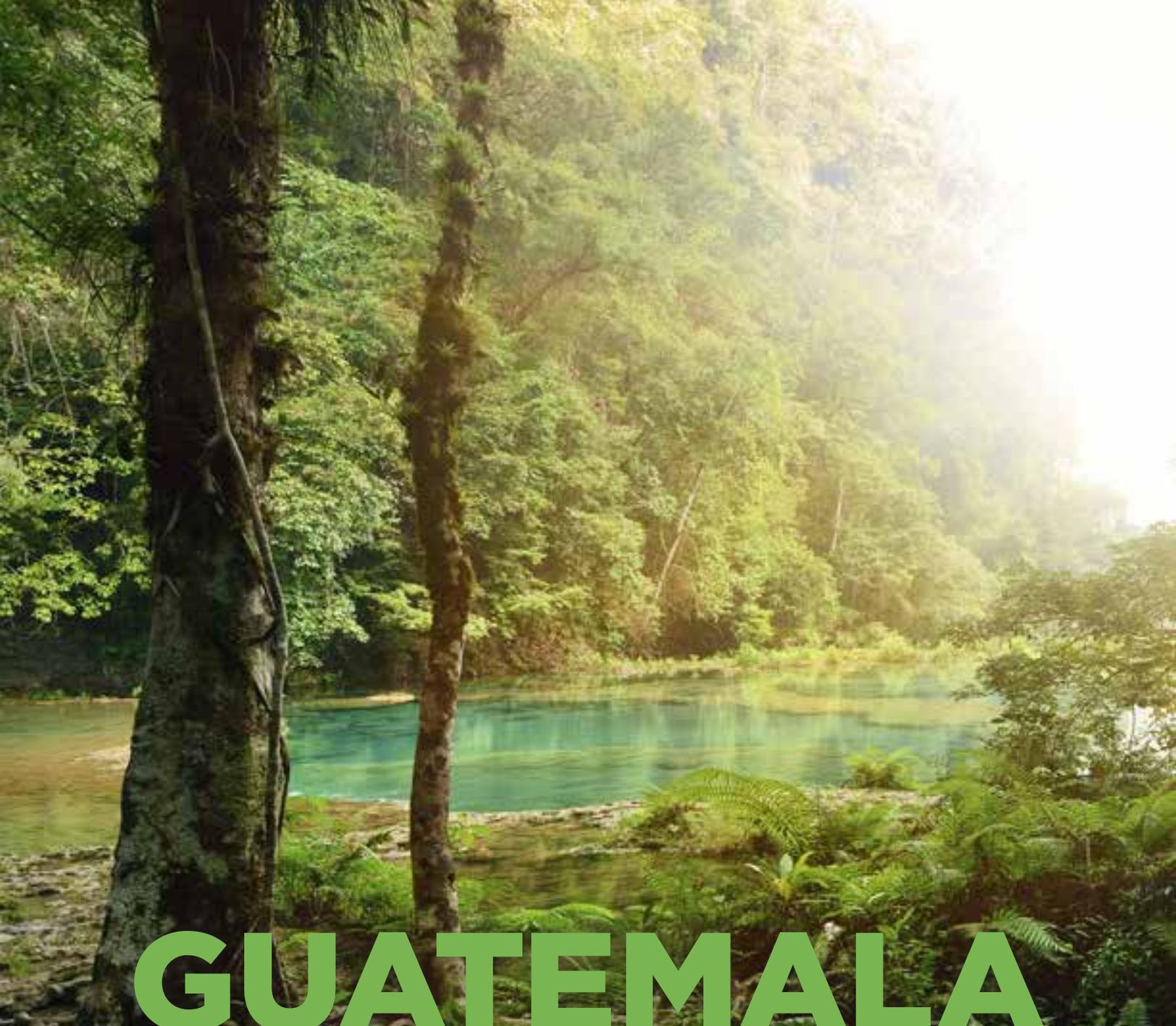


POLICY BRIEFS WRITTEN

- Land use changes
- Land cover changes
- Summary of results and integration into the National Development Plan

INSTITUTIONALIZATION

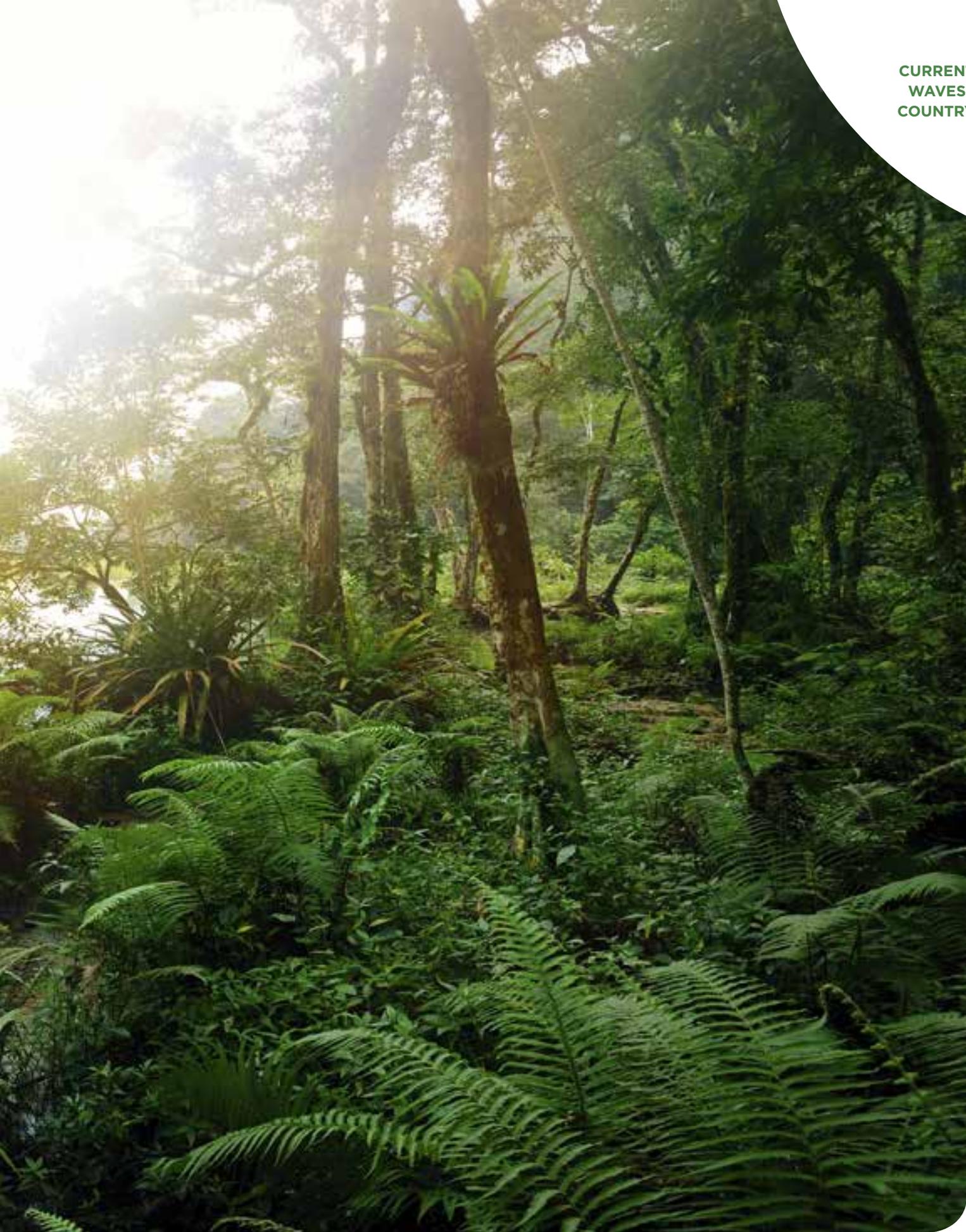
- Rwanda appointed the State Minister for Economic Planning as a focal point for NCA, recognizing that the accounts can inform the NST1.
- A new partnership has been forged with the University of Rwanda to establish an environmental economics and natural capital accounting program, as well as provide expertise for NCA to the government.
- The Ministry of Environment has an institutional alliance with the NIS for joint publication of NCA.
- Initially the Ministry of Environment hosted NCA, but now the government has shifted the coordination role to the Ministry of Finance and Economic Planning. This was done to ensure that all appropriate institutions provide input and to ensure that the results are taken up in the national economic development planning process.



GUATEMALA

Guatemala has seen mixed progress because of political volatility and frequent changes in key government stakeholders. WAVES has a contract with Rafael Landívar University to update accounts, and significant progress has been made to update forest land assets and timber asset accounts. The National Forestry Institute (NFI) is

actively involved and is working with the university to refine the results of the accounts. Progress on energy and emission accounts, as well as ecosystem accounts, has been slower than expected due to the change in counterparts in institutions that originally began work on these accounts.



LAND AND ECOSYSTEM ACCOUNTS SHOWING CLIMATE CHANGE EFFECTS ON FORESTS

Guatemala is high on the climate risk index and hence needs information on the impact of climate change on their ecosystems and large protected areas. Using the SEEA Experimental Ecosystem Accounting (EEA) framework, aligned with the Holdridge life zones system, two scenarios of climate change and their implications were assessed. The scenarios were evaluated to predict the change in the extent and conditions of ecosystems.

The first step was to compile the land and ecosystem accounts to ascertain the state and trends of forest ecosystems from 1991 to 2003. The main purpose was to assess the ecological integrity of the country’s eco-regions and whether they could sustain larger mammals, and to study forest density of covered patches and proximity of forest fragments.

SOME HIGHLIGHTS INCLUDE:

Humid ecosystems convert to dry ecosystems—Currently, around 30 percent of Guatemala’s forests are dry to very dry. The rest are humid. Both climate change scenarios show a similar trend—by 2080, 60 percent to 70 percent of humid ecosystems will convert to dry ecosystems. One of the scenarios predicts that by 2080, only around 20 percent of humid ecosystems will survive.

Dry ecosystems grow in distribution; new ecosystems appear in Guatemala—These predicted scenarios, and changes in precipitation, will lead to a decrease of water availability. This stress will change the biodiversity composition, and certain species, especially those living on the high mountain regions, will migrate or disappear. The results also show that nine of the country’s 12 eco-regions do not have minimum connectivity and fragment size conditions to guarantee their ecological integrity or ensure the full development of their ecological functions. The present and future provisions of ecosystem goods and services are at risk. (see figure 3.3)

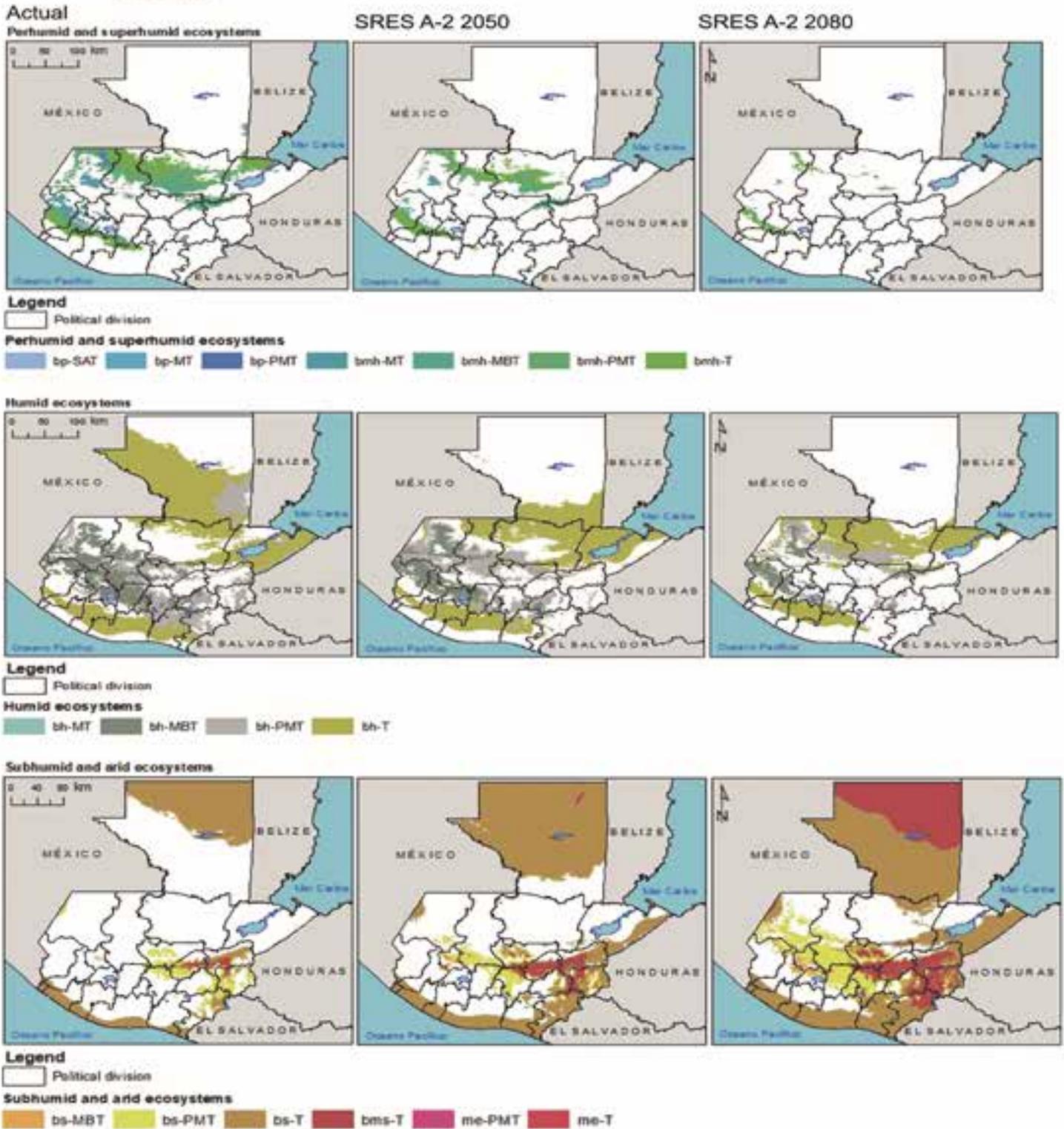


CLIMATE CHANGE SCENARIOS SHOW THAT BY 2080

60–70 PERCENT
of humid
ecosystems may
convert to dry
ecosystems

This analysis can help policy makers plan and map different and future ecosystems. It sends a strong message to the policy makers on the need to conserve forest fragments that still have minimum conditions for ecological integrity. It also promotes ecological restoration actions in the rest of the eco-regions, particularly on the Pacific slope. It is important to assess if the new ecosystems can deliver the same services as the ones that are predicted to disappear. In addition, the results suggest ensuring the provision of strategic environmental services in the long term. Additionally, it may be necessary to reconfigure and remap protected areas and forestry incentive programs.

FIGURE 3.3: LIFE ZONES OF GUATEMALA





INSTITUTIONALIZATION

- The Planning Secretariat (Segeplan) has formed a committee to lead the development of experimental ecosystem accounting. The committee includes the Ministry of Environment, the NFI, and the National Council of Protected Areas.
- The NFI formally established a technical committee to coordinate the work and data capture for forest accounts.
- The WAVES team is coordinating work with Segeplan in identifying current and potential indicators emerging from NCA to feed into the National Development Plan and the SDGs.

ACCOUNTS COMPLETED



Forest

up to 2015

update of asset account,
timber resource accounts



Fisheries

2017



**Energy and
emissions**

2017



**Subsoil
resource flow**

2017

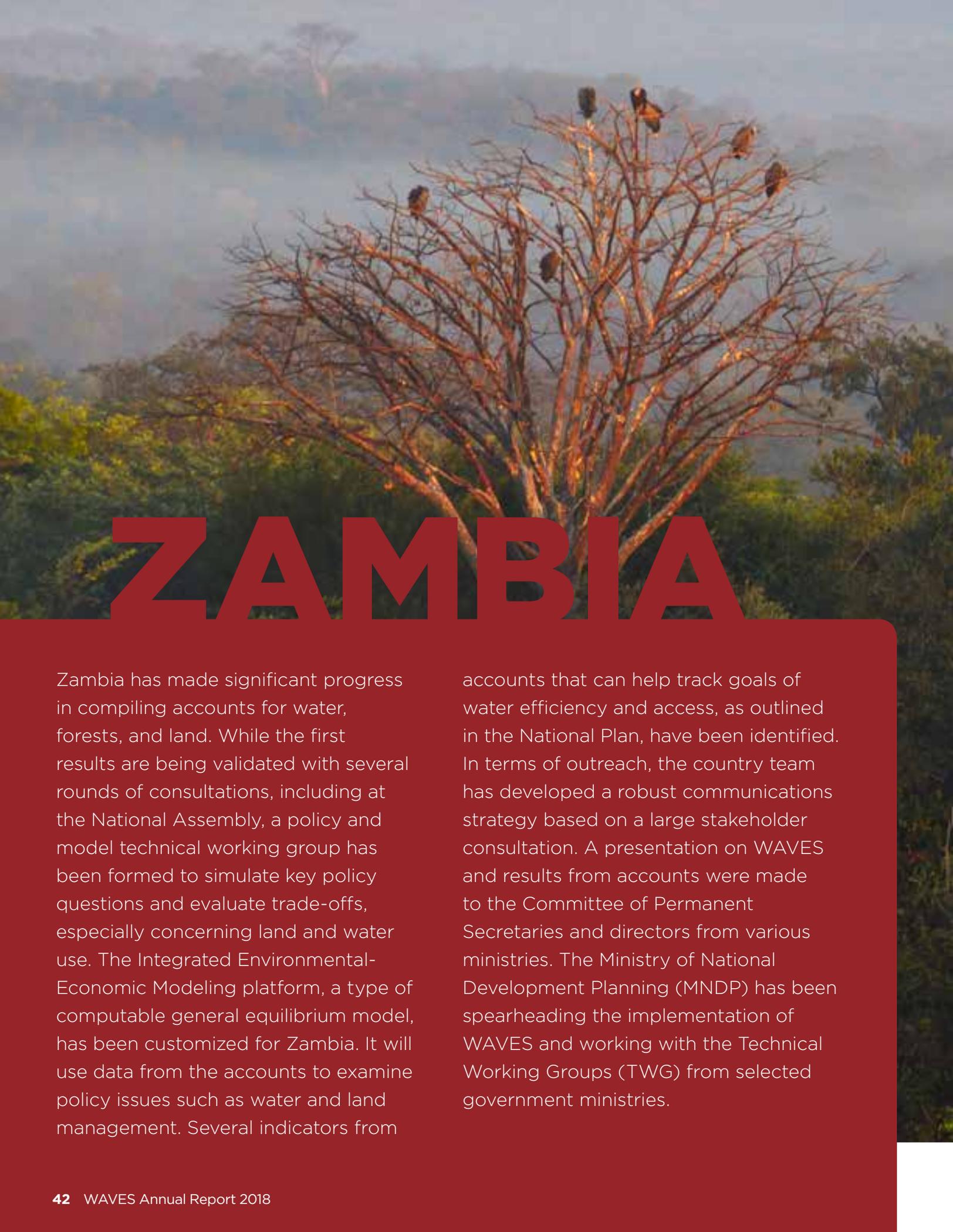


Agriculture

2017

CAPACITY BUILDING

- A technical review progress is currently ongoing to verify, review, and disseminate all WAVES accounts.
- A capacity building plan will be implemented as of February 2019.



ZAMBIA

Zambia has made significant progress in compiling accounts for water, forests, and land. While the first results are being validated with several rounds of consultations, including at the National Assembly, a policy and model technical working group has been formed to simulate key policy questions and evaluate trade-offs, especially concerning land and water use. The Integrated Environmental-Economic Modeling platform, a type of computable general equilibrium model, has been customized for Zambia. It will use data from the accounts to examine policy issues such as water and land management. Several indicators from

accounts that can help track goals of water efficiency and access, as outlined in the National Plan, have been identified. In terms of outreach, the country team has developed a robust communications strategy based on a large stakeholder consultation. A presentation on WAVES and results from accounts were made to the Committee of Permanent Secretaries and directors from various ministries. The Ministry of National Development Planning (MNDP) has been spearheading the implementation of WAVES and working with the Technical Working Groups (TWG) from selected government ministries.

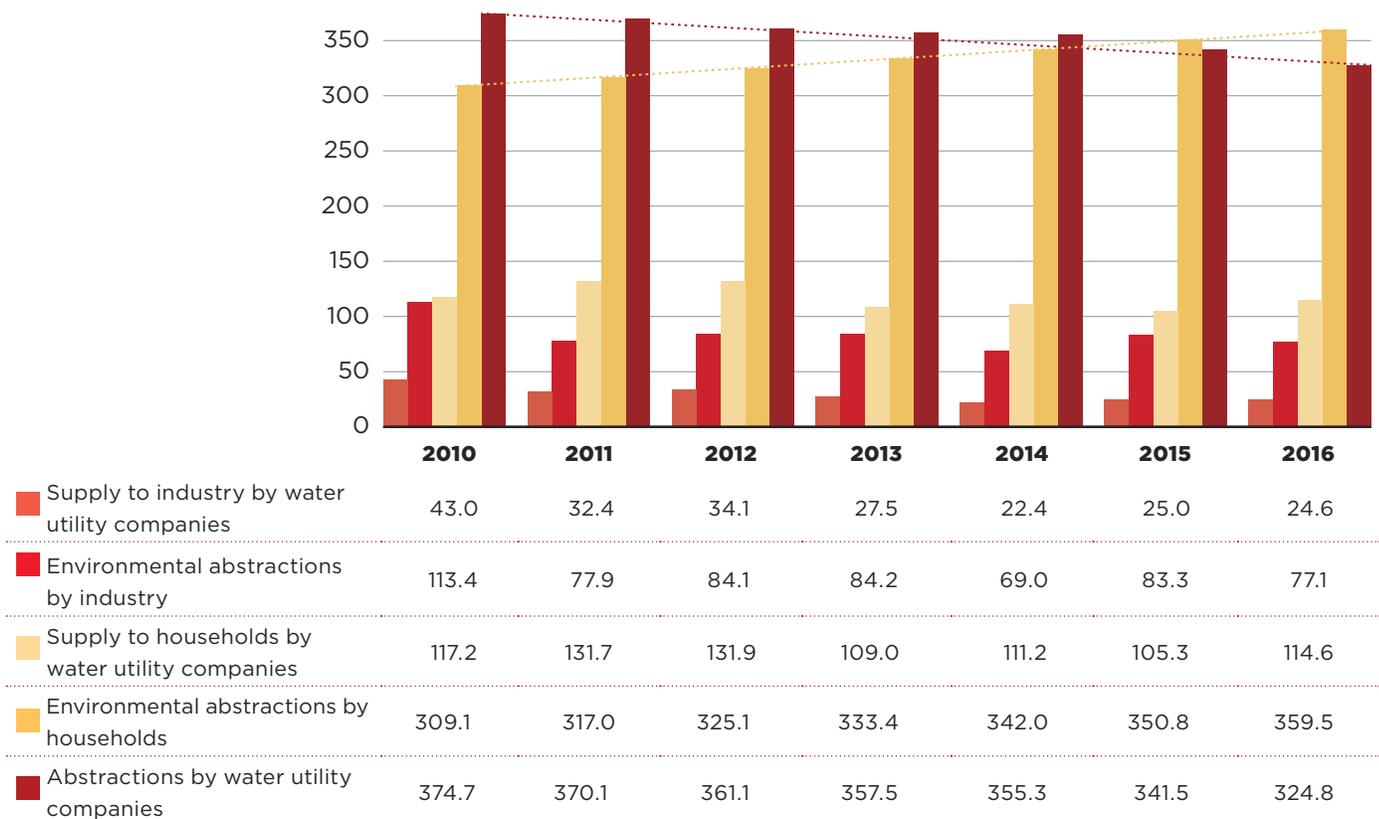


WATER ACCOUNTS PROVIDING INSIGHTS ON WATER USE IN ZAMBIA

In Zambia, water is an enabler of economic development, especially for energy from hydropower, tourism, aquaculture, and agricultural development. The country has prioritized the protection of water resources as a way to achieve sustainable development. The System of Environmental-Economic Accounting (SEEA) water accounts framework helps to organize hydrological and economic information in a coherent and consistent manner. Additionally, it helps assess trade-offs between different water resource allocations for environment impact and various social and economic benefits. The water accounts are expected to support the implementation and development of the government's Integrated Water Resource Management Information System (IWRMIS) and have recently been presented to members of Parliament.

Following are key findings from the water accounts that draw on a range of information sources:

FIGURE 3.4: HOUSEHOLD AND INDUSTRY WATER USE (in million m³)



Electricity generated from hydropower

In 2016, just under 90 percent of electricity was generated from hydropower. Additional hydropower resources could reduce the need for new fossil fuel-fired plants. However, changes in the amount and pattern of rainfall pose a risk to the hydropower sector.

Significant amount of water unaccounted for

Given the amount of water that was withdrawn from rivers and aquifers by water utility companies (WUC) a significant amount of water is unaccounted for. Much of this water is lost in distribution (e.g., from leaky pipes), while some is withdrawn without authorization by users. The large volume of unaccounted for water (about 60 percent in 2016) is an issue that has plagued the water supply industry, and the accounts will help monitor progress toward addressing this issue. In addition, investment in the water distribution network could reduce these losses.

Sources of water for households

Between 2010 and 2016, around three-fourths of the water used by households came from their own sources, such as boreholes and shallow wells, with the remainder supplied by the utility companies. The amount of water households used from their own wells and boreholes increased by over 50 million m³ (or 16 percent) between 2010 to 2016, while the supply of water to households by water utility companies was almost unchanged (See figure 3.4).

More water revenue from industry than from households

While the volume of water supplied by water utilities to households was greater than for industry, the revenue received was greater from industry than from households. The water accounts allow both a review of the current prices and, with the aid of modeling, an investigation of the likely impacts of price changes on consumer behavior. This insight highlights the loss of potential revenues incurred by the WUC.

The water accounts will help determine indicators in the Seventh National Development Plan, for example, the level of water extraction and how this affects industries such as agriculture, mining, manufacturing, aquaculture, land, tourism, forestry, and energy (hydropower). Additionally, it will aid in developing an indicator on the re-use and recycling of treated effluent and maintaining adequate water quality, for further improving socioeconomic development and livelihoods, as outlined in the plan.

The drafting of the first water accounts for Zambia has been made possible by different agencies working together to create an integrated information source. These agencies include the Department of Water Resources Development within the Ministry of Water Development, Sanitation and Environmental Protection, and the Central Statistical Office.



BETWEEN 2010 AND 2016,

**AROUND
THREE-FOURTHS**
of the water used
by households
came from their
own sources, such
as boreholes and
shallow wells



POLICY USE

NCA is assisting in the implementation of the Seventh National Development Plan

- Water accounts will support effective management of water resources and the implementation and development of the Integrated Water Resource Management Information System (IWRMIS).
- Forest accounts are generating information on deforestation and carbon sequestration, and are useful for monitoring climate mitigation targets in the National Development Plan. Preliminary information from the accounts is currently underpinning the World Bank's programmatic forest landscape investment, a combination of the Zambia Integrated Forest Landscape and

Transforming Landscape for Resilience and Development projects. These two projects cover the entire northern part of the country and are geared toward achievement of its Reducing Emissions from Deforestation and Degradation (REDD) goals.

- The Integrated Environmental-Economic Modeling will help decision makers evaluate different policy options for allocation and management of water and forest resources.
- From the preliminary findings of the land account, the government wants to use the information for policies toward enhancing land productivity and sustainable use of land, rural and urban land planning, and better statistical forecasts on agricultural expansion.



ACCOUNTS COMPLETED



Water



Forest



Land

INSTITUTIONALIZATION AND CAPACITY BUILDING

- The Ministry of National Development Planning (MNDP) has been spearheading the implementation of WAVES with technical staff from different ministries.
- MNDP is working toward setting up a dedicated budget to ensure that Integrated Environmental-Economic Modeling is supported in their current program for NCA.
- Several international experts and WAVES have held several workshops with the technical working groups on the development and use of accounts.

DISSEMINATION

- Stakeholder analysis was done to identify key allies, main policy levers, and all stakeholders of influence and importance. A communications strategy was developed.
- Draft accounts were released for expert review by national and international experts.

ORIGINAL WAVES COUNTRIES



The WAVES global partnership was set up to mainstream natural capital in policy, development planning, and economic decision making. Four of the five first countries¹ (Botswana, Colombia, Costa Rica, Philippines) signed on to put in place systems that generate comprehensive, consistent, and policy-relevant information on natural capital in the economy (See table 3.1).

WAVES engagement with these countries ended in June 2016. These countries are now part of the broader NCA community, and WAVES continues to track their progress. Botswana and Costa Rica have fully institutionalized the accounts — there is full government ownership of the process of updating and producing accounts, with dedicated units set up, such as Botswana’s Ministry of Finance and Development. Costa Rica has formalized an interministerial group headed by the environment minister via a decree to carry on the work of the WAVES’ Steering Committee. The group met for the first time in August 2018.

Following the experience with the WAVES Steering Committee that enabled multiagency collaboration, Colombia and the Philippines set up mechanisms to coordinate with relevant ministries and departments to produce accounts. For example, in Colombia a decree was issued that mandates the unit in the Statistics

Departments to coordinate with other departments that hold primary data on use and stock of natural resources. In the Philippines, the Department of Environment has been asked to convene regional and other subnational agencies like the Laguna Lake Development Authority to develop ecosystem accounts.

Most countries are using accounts to report on the performance of their national development plans, as well as to monitor progress against SDGs, especially those related to water and land. Colombia is using NCA as a way to measure its Green Growth policy based on a wide spectrum of indicators, ranging from water productivity, GHG emissions to recycling and solid waste. Botswana’s water accounts are being used to measure SDG indicators on water use and efficiency, and Botswana has been asked to contribute its experience to the High-Level Political Forum on the SDGs at the UN. And for the first time, Costa Rica has a stated environmental objective in its National Development Plan, and the Central Bank will be providing data to measure progress, particularly regarding decarbonization of the economy. This development in Costa Rica is linked directly to the fact that accounts allow measurement and tracking of progress toward stated objectives linked to the environment.

¹ Madagascar has also been part of the group of pilot WAVES countries; progress however has been limited, due to the political situation, limited capacity in relevant government agencies, and the overall weakness of the statistical system. (Madagascar has not had a general census of the population for over 20 years.)

TABLE 3.1: MAINSTREAMING NATURAL CAPITAL ACCOUNTS

| | BOTSWANA | COLOMBIA |
|--|--|--|
| ACCOUNTS UPDATED IN 2017-2018 | <ul style="list-style-type: none">  Water flows 2015/16  Energy 2015/16  Macroeconomic indicators of sustainable development  Mineral accounts | <ul style="list-style-type: none">  Wood and land resources, 2011, 2012  Mineral and energy resources, 2014-17 <p>Flow Accounts, 2014-16</p> <ul style="list-style-type: none">  Energy  Forest products  Water  Solid waste |
| MINISTRY LEADING NCA | Ministry of Finance and Economic Development | National Administrative Department of Statistics (DANE) |
| SET UP DEDICATED UNITS OR STAFF TO UPDATE ACCOUNTS | 13 Government staff | Working groups established with agencies like the Institute of Hydrology, Meteorology, and Environmental Studies (IDEAM) |
| SPECIFIC MANDATE ON NCA IN NATIONAL PLANS | National Development Plan (NDP) 11 | Government decree in 2017 requires DANE cooperates with all sectors to produce accounts |
| USING ACCOUNTS TO REPORT AGAINST SDGS OR NATIONAL PLAN INDICATORS | <p>Water accounts providing information on NDP 11 performance (percent of water at treatment plants that is reused, water use efficiency, water abstraction, water use by different economic sectors, and economic value added)</p> <p>The water accounts provided the basis for reporting on Botswana's progress toward SDG indicators, SDG 6.4.1 and 6.4.2</p> | <p>Tracking Green Growth Policy monitoring indicators:</p> <ol style="list-style-type: none"> 1. Generation of economic opportunities through sustainable use of natural capital 2. Strengthen mechanisms to optimize use of natural resources and energy in production and consumption |

IN WAVES COUNTRIES

| COSTA RICA | PHILIPPINES | |
|--|--|---|
| <ul style="list-style-type: none">  Water, 2012–2016  Forest, 2017  Energy, 2011–2015  Material flow accounts (forthcoming)  Ecosystem accounts for carbon sequestration and pineapple crops (forthcoming) | <ul style="list-style-type: none">  Valuation of ecosystem services in community-based forest management (ongoing)  Using ecosystem accounts to develop Laguna Lake Development Agency scorecard | <p>ACCOUNTS UPDATED IN 2017–2018</p> |
| The Central Bank (BCCR) | Department of Environment and Natural Resources (DENR) | <p>MINISTRY LEADING NCA</p> |
| 4 Government staff members | Staff in DENR (exact number not available) | <p>SET UP DEDICATED UNITS OR STAFF TO UPDATE ACCOUNTS</p> |
| National Council for Environmental Accounts set up via a decree headed by Minister of Environment | | <p>SPECIFIC MANDATE ON NCA IN NATIONAL PLANS</p> |
| <p>The accounts inform the methodology for tracking Costa Rica’s progress toward the SDGs. The National Statistics Office held a workshop this year to standardize 8 SDG indicators.</p> <p>Finalizing indicators for National Development Plan (2018) with stated objective on improving environment, related to “Decarbonization of economy”</p> | <ul style="list-style-type: none"> • Inputs to a technical bulletin on Carbon Accounting, Verification and Certification System • Incorporation of ecosystem approaches in the Forest Land Use Planning (FLUP) process • Use of Land Accounting in Land Cover Change Analysis • Implementation of Laguna de Bay Watershed Greening Program | <p>USING ACCOUNTS TO REPORT AGAINST SDGS OR NATIONAL PLAN INDICATORS</p> |

LOOKING FORWARD





The additional funding support from the government of the Netherlands and a new funding pledge from the European Union helped WAVES Plus to take off and gain momentum. Work had already started in Zambia, Nepal, and Kyrgyzstan last year. An NCA scoping report for three countries in the West Africa Coastal Assessment program, focusing on three of the countries (Mauritania, Togo and Benin), was prepared. Following the availability of additional funding, a call for proposal was sent out internally to the regional teams in the World Bank. After scrutiny against a list of selection criteria, WAVES Plus welcomed five new countries. Uganda will be a new Core Implementing Country (CIC), with a work program focusing on forests and wetland asset accounts; and on the development of experimental ecosystem services (e.g., water provision, soil erosion/ sedimentation control, cultural services/ nature tourism).

In addition, the program will support with Targeted Technical Assistance (TTA), four countries in East Asia (Myanmar, Lao PDR, Cambodia, and Vietnam). These TTAs are focusing on ecosystem accounts (including forests, water, wildlife) and related valuation (Lao PDR and Cambodia); and on coastal ecosystem accounts and scenario analysis (Myanmar and Vietnam).

TTAs are attracting the interest of governments and World Bank country teams, since they are designed to generate first insights on the importance of natural assets and ecosystem services.

The analysis will be carried out using available information in countries, or complemented by modeling where appropriate. This can then encourage governments to embark into the longer term commitment of the CIC work, which could be supported through follow-on support by the WAVES program.

In addition to the four East Asian countries, WAVES supported the West Africa Coastal Areas Management Program (WACA) program as a way to show how NCA accounts can inform existing World Bank programs. The WACA Program is a major World Bank initiative to help West African countries save the social and economic assets of their coastal areas, addressing the risks and coastal erosion and flooding. The objective of the TTA was to carry out a scoping study to determine the feasibility of developing coastal NCA for the West Africa region. In addition, the study aimed to identify project design options that effectively integrate NCA for better coastal zone management under the regional World Bank WACA program. The study focused on Togo, Mauritania, and Benin. It was found that capacity and data availability vary quite a lot between countries. A general recommendation was to develop coastal NCA pragmatically, starting with ecosystem mapping and valuation of ecosystem services to input into key policies, plans, and projects in the short and medium term. A regional program providing capacity building was recommended to promote the uptake of NCA across the region and allow countries who are 'early starters' to inform others of their methodologies, successes, and lessons learnt.

GLOBAL PROGRAM FOR SUSTAINABILITY

Several years of WAVES experience suggest that natural capital accounting can provide important insights for governments' decision-making processes. At the same time, they point to the importance of scaling up efforts in several directions.

First, national efforts have to be accompanied by global analytics and advocacy. These are key to attract and sustain attention to the sustainability aspects of the development process; and make it possible for countries to assess their performance vis-a-vis comparable peers.

Second, the number of countries developing and using NCA approaches is still too low, particularly among lower income nations; and for many countries adopting NCA, the scope of is still too limited. There is therefore a need to both reach out to a larger number of countries, and to more widely integrate NCAs in the design, implementation, monitoring, and evaluation of development projects, programs, and policies.

Third, integration of NCA in decisions made by governments are only part of the challenge, especially because government's own finances often cover a small share of the total required for investments. An increasingly large share of financing comes from private and institutional investors, who provide, often through intermediary institutions, equity and fixed income financing to sovereign and corporate issuers. What is key is that financial markets have adequate information and incentives to allocate funding to investments that do not achieve financial returns today at the expense of natural capital, since this will in many cases lead to a decline of tomorrow's return.

Looking ahead and in an effort to address these challenges, the World Bank has started a new initiative, the Global Program on Sustainability (GPS) which expands the work initiated by WAVES to apply a 'sustainability' lens to a wide range of decision-making processes by the public and the private sector alike in developing countries. This program is structured around three interconnected pillars of engagement (information, implementation, and incentives), thereby providing a mechanism to continue fostering sustainable development and finance. The design of the program is based on several rounds of inputs from the WAVES Steering Committee members, as well as bilateral discussions with the donor community. The program will start implementation in 2019, with seed funding expected to be provided by the Government of Germany.

NEPAL ESTIMATES ECOSYSTEM SERVICES PROVIDED BY FORESTS

The objective of the Targeted Technical Assistance (TTA) to Nepal is to estimate the value of eco-system services provided by various types of forest lands. The estimated values would inform development of a compensation scheme for forest land diversion for development projects. The TTA is being implemented in the context of a broader Nepal Environmental Sector Diagnostic by the World Bank. The main objective of the ESD is to help the Government of Nepal set priorities for accelerating sustainable growth, with a focus on further developing the natural resource sectors, reducing the cost of environmental degradation, and building institutions for good governance in the new context of federalism. Two outputs are being produced. First, using the wealth accounting framework, a report estimating potential timber and fuelwood revenues, investment needs, and wealth accumulation as a result of policy change from forest conservation to

sustainable forest management. Initial analysis shows that transitioning Nepal's productive forests to scientific management holds the potential to significantly contribute to its natural capital wealth, and that interventions including increased harvest yields from productive forests and increased participation in commercial markets would substantially increase the asset value of forest, with community forest user groups seeing the highest increase in net rents. Second, based on the former report and existing other literature, an advisory note reviewing a proposed standard for valuing ecosystem services lost due to forest land diversion is being prepared. This note estimates per hectare values of lost services related to timber, firewood and carbon in different ecological zones, and proposes methods for estimating project area-specific values for non-timber forest products and tourism services.





MONITORING AND EVALUATION REPORT



The WAVES and WAVES Plus programs are periodically assessed based on result frameworks defined in consultation between the World Bank and its partners. In an effort to streamline reporting, the two results frameworks were consolidated in 2017; the 2018 report contains further improvements to enhance the clarity of the presentation (see box 5.1).

For both the WAVES and WAVES Plus programs, progress is assessed across the main components of country, regional, and global activities. As detailed and summarized below, considerable progress has been made during this reporting year (July 1, 2017–June 30, 2018) across these components. A more detailed narrative on the specifics of individual activities can be found in this report’s sections on country, regional, and global components.

COUNTRY COMPONENT—IR 1

The three remaining Core Implementing Countries (CICs) in WAVES (Indonesia, Guatemala, and Rwanda) continued to make strides in developing and publishing accounts and policy papers. Indonesia broke new ground by developing peatland accounts, which will provide crucial information to their climate change agenda. Guatemala is gearing up (after a downturn due to changes in government) and has made significant progress on

forest-related accounts and on using the land and ecosystem accounts to assess the ecological integrity of the country's eco-regions. Rwanda is on the verge of publishing a very comprehensive set of water accounts. In WAVES Plus, Zambia has taken major strides forward and is currently finalizing its water and forest accounts.

During the current reporting period, the Kyrgyz Republic (KR) started its WAVES engagement. Given some uncertainty at the time on the program's overall budget and due to the partial cancellation of Department for International Development (DFID) funding, the scope of KR work is at present more limited than in other CICs. The main focus of work is on forestry accounts and forest related ecosystem services (linked to the ongoing Integrated Forest Management Project -IFEM); and the development of a roadmap for tourism accounts (linked to the Third Phase of the Central Asia Regional Links Program -CARs-3 Project). It is expected that the work will also contribute to a better assessment of the contribution to GDP of the forest sector.

WAVES gained further momentum thanks to additional funding received at the end of 2017 from the Netherlands. On the CICs front, Uganda has joined WAVES, starting on a high note with a very successful launch event and then developing a comprehensive work plan.

Work included in the the TTA programs has also picked up. The TTA for West Africa

submitted a report on NCA readiness and a way forward in autumn 2017, and Nepal is finalizing a report on forest asset valuation. Four TTAs are starting up in South East Asia—Lao PDR, Myanmar, Vietnam, and Cambodia—and all are focusing on ecosystem accounts. In general, a stronger emphasis on WAVES Plus TTAs is expected to produce more agile work programs and help gain traction on the policy side.

There is a heightened interest from countries to develop ecosystem accounts. In addition to the three countries that have ecosystem accounts already, Rwanda, Zambia, and Uganda are working on ecosystem accounts in 2018.

A number of official policy documents in WAVES partner countries have used, or referred to, NCA. For WAVES countries, this indicator is reported for monitoring purposes only, and for consistency with the WAVES Plus result framework, but without an end-of-program target. In addition to this type of tangible evidence, Natural Capital Accounts have been able to generate high-level interest in governments in several countries, such as the Philippines, Costa Rica, and Botswana. Most notably, water accounts have spurred discussions on water availability and water efficiency at high levels of government in Rwanda, and also in the newest CIC, Zambia.

In all partner countries, stakeholder consultations and launching events are held

BOX 5.1:

IMPROVEMENTS IN M&E FRAMEWORK

Following the inception of the WAVES Plus program, the 2017 annual report included a Summary Monitoring and Evaluation (M&E) table (table 5.1) that allowed the tracking of indicators across the WAVES and WAVES Plus activities. In 2018, the M&E table has been further improved in terms of clarity and legibility. The main innovations include:

- The list of indicators is based on the WAVES Plus concept note, which reflects the latest thinking of the partnership members and is therefore more relevant for tracking the program progress over the coming years.

- For each indicator, the table contains figures related to baselines, end-of-program goals, and progress made in both the 2017 and 2018 reporting periods. Figures are reported separately for activities supported by WAVES and by WAVES Plus.
- To ensure consistency, the team estimated progress on indicators not included in the original WAVES (which by definition do not include end-of-program goals).

Once WAVES comes to an end in December 2019, the M&E table will cover only activities supported by WAVES Plus.



RWANDA, ZAMBIA, AND UGANDA

are working on ecosystem
accounts in 2018

regularly, including with government representatives and interest groups such as trade associations and civil society. Workshops include both in-depth training for Technical Working Groups and sensitization seminars for a wider group of government staff and civil society organizations. An estimated number of female participants are reported for monitoring purposes only, i.e., without an end-of-program target.

REGIONAL COMPONENT—IR 2

A reduced emphasis has been given to the regional component due to the necessity to prioritize scarce resources. WAVES co-organized two events in Latin America and Africa, together with other organizations, but the emerging community of practice in LAC was put on hold in favor of funding CICs.

GLOBAL COMPONENT—IR 3

Under the global component, WAVES has expanded the collaboration with partners on events and knowledge products (see chapter 1 for details). WAVES co-organized or participated in several workshops on the development of the methodology for ecosystem accounting. WAVES also contributed to the development of methodology and data for *The Changing Wealth of Nations 2018* report.

The 2nd Forum on Natural Capital Accounting for Better Policy was held in November 2017, this time with the UN Statistical Division as a co-organizer, together with WAVES and the government of the Netherlands.

The work done under the communications sub-component includes activities at both the global and country levels. While the global activities may be the most visible to the larger audience, a variety of communication activities and products are being done at the country level, often with support from the global communication team. For example, assistance is provided to countries in publishing their accounts on the WAVES Knowledge Centre. This year, support was provided to draft a communication strategy for Zambia.



TABLE 5.1: WAVES and WAVES Plus Consolidated Monitoring and Evaluation

| CN INDICATORS | | WAVES | | WAVES PLUS | |
|--|------|---|------------|--|------|
| Outcome | NA | Baseline | 8 | Baseline | 0 |
| Countries supported by the project with at least two environment-related sectors in natural capital accounts in accordance with defined criteria and publicly accessible | | End-of-program goal | 8 | End-of-program goal | 4 |
| | | Actual (2017) | 6 | Actual (2017) | 0 |
| | | Actual (2018) | 8 | Actual (2018) | 1 |
| | | Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, the Philippines, Rwanda | | Zambia | |
| Outcome | NA | Baseline | 0 | Baseline | 0 |
| Countries supported by the project with at least two natural capital accounting-related policy analyses made publicly accessible | | End-of-program goal | 5 | End-of-program goal | 16 |
| | | Actual (2017) | 6 | Actual (2017) | 0 |
| | | Actual (2018) | 8 | Actual (2018) | 2(2) |
| | | Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, the Philippines, Rwanda | | WACA. Nepal advanced draft being finalized in October 2018 | |
| Outcome | NA | Baseline | 0 | Baseline | 0 |
| Direct project beneficiaries (the number of female beneficiaries) | | End-of-program goal | 160 | End-of-program goal | 150 |
| | | Actual (2017) | 1289 (447) | Actual (2017) | 0 |
| | | Actual (2018) | 1175 (420) | Actual (2018) | 30 |
| | | Participants in workshops and stakeholder events. Number of female participants for reporting purposes only | | Participants in workshops and stakeholder events | |
| Output | IR 1 | Baseline | 0 | Baseline | 0 |
| IR Indicator 1.1: Countries supported by the project with Natural Capital Accounts Steering Committee established | | End-of-program goal | 8 | End-of-program goal | 4 |
| | | Actual (2017) | 8 | Actual (2017) | 0 |
| | | Actual (2018) | 8 | Actual (2018) | 1 |
| | | Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, the Philippines, Rwanda | | Zambia, Uganda, and Kyrgyz Republic are in the process of setting up SCs | |
| Output | IR 1 | Baseline | 0 | Baseline | 0 |
| IR Indicator 1.2: Skilled staff in relevant government institutions participating in natural capital accounting and related policy analysis (the number of females who participated) | | End-of-program goal | 10 | End-of-program goal | 12 |
| | | Actual (2017) | 175 (42) | Actual (2017) | 0 |
| | | Actual (2018) | 200 (49) | Actual (2018) | 8 |
| | | | | Zambia | |

Note: IR = intermediate results; CN = Concept Note; NA = not available; WACA = West Africa Coastal Areas Management Program; SC = Steering Committee; LAC = Latin America and the Caribbean.

TABLE 5.1: WAVES and WAVES Plus Consolidated Monitoring and Evaluation *(continued)*

| CN INDICATORS | | WAVES | | WAVES PLUS | |
|--|------|---|-------|--|---|
| Output | IR 1 | Baseline | | Baseline | 0 |
| IR Indicator 1.3: Countries supported by the project with first preliminary draft natural capital accounts collected in their second year (of which x have ecosystem accounts) | | End-of-program goal | | End-of-program goal | 4 |
| | | Actual (2017) | | Actual (2017) | 0 |
| | | Actual (2018) | 8 (3) | Actual (2018) | 1 |
| | | This indicator has been introduced by WAVES Plus; as a result, there is no indication of end-of-program target. Progress for the current reporting period is nevertheless included to ensure consistency with the WAVES Plus section of the table | | Zambia and Uganda will start developing ecosystem accounts in 2018 this FY | |
| Progress on ecosystem accounts refers to the Philippines, Colombia, and Indonesia. Rwanda will start developing ecosystem accounts in 2018 | | | | | |
| Output | IR 1 | Baseline | | Baseline | 0 |
| IR Indicator 1.4: Countries supported by the project with validation and publication of final natural capital accounts in their third year, and made publicly accessible (of which x have ecosystem accounts) | | End-of-program goal | | End-of-program goal | 4 |
| | | Actual (2017) | | Actual (2017) | 0 |
| | | Actual (2018) | 8 (3) | Actual (2018) | 0 |
| | | This indicator has been introduced by WAVES Plus; as a result, there is no indication of end-of-program target. Progress for the current reporting period is nevertheless included to ensure consistency with the WAVES Plus section of the table | | 2018 no country in year 3 | |
| Output | IR 1 | Baseline | | Baseline | 0 |
| IR Indicator 1.5: Countries supported by the project with preparation phase finalized, including firm political commitment received, key entry point for policy making/policy questions, and accounts identified | | End-of-program goal | | End-of-program goal | 4 |
| | | Actual (2017) | | Actual (2017) | 1 |
| | | Actual (2018) | 8 | Actual (2018) | 3 |
| | | This indicator has been introduced by WAVES Plus; as a result, there is no indication of end-of-program target. Progress for the current reporting period is nevertheless included to ensure consistency with the WAVES Plus section of the table | | Zambia, Uganda, and Kyrgyz Republic | |

Note: IR = intermediate results; CN = Concept Note; NA = not available; WACA = West Africa Coastal Areas Management Program; SC = Steering Committee; LAC = Latin America and the Caribbean.

TABLE 5.1: WAVES and WAVES Plus Consolidated Monitoring and Evaluation *(continued)*

| CN INDICATORS | | WAVES | | WAVES PLUS | |
|---|------|---------------------|---|---------------------|--|
| Output | IR 1 | Baseline | 0 | Baseline | 0 |
| IR Indicator 1.6: Number of key policy documents such as development plans, sectoral policies and strategies, bills, etc., that reference NCA or the accounts | | End-of-program goal | N/A | End-of-program goal | N/A |
| | | Actual (2017) | 36 | Actual (2017) | 0 |
| | | Actual (2018) | 39 | Actual (2018) | 2 |
| | | | Rwanda: input to National Strategy for Transformation, National Land Use Development Master Plan. Indonesia: input to modeling of carrying capacity by Ministry of Planning, informing national development plan. (no end of program target; indicator tracked for reporting purposes only) | | Zambia: presentation to Parliament. Inaugural meeting of Zambia National Development Coordinating Committee (NDCC) on SDGs: note on WAVES included in preparation papers. (no end target; for reporting purposes only) |
| Output | IR 1 | Baseline | 0 | Baseline | 0 |
| IR Indicator 1.7: Countries supported by the project with policy question(s) identified, methodologies chosen, and first results available (number of TTAs) | | End-of-program goal | 8 | End-of-program goal | 16 (12) |
| | | Actual (2017) | 6 | Actual (2017) | 1 |
| | | Actual (2018) | 7 | Actual (2018) | 3 (2) |
| | | | Botswana, Colombia, Costa Rica, Guatemala, Indonesia, the Philippines, Rwanda | | Zambia, Nepal |
| Output | IR 2 | Baseline | 0 | Baseline | 0 |
| IR indicator 2.1: Regional knowledge events on NCA supported by the project | | End-of-program goal | 3 | End-of-program goal | 3 |
| | | Actual (2017) | 5 | Actual (2017) | 1 |
| | | Actual (2018) | 5 | Actual (2018) | 3 |
| | | | Regional activities FY18 were funded by WAVES Plus | | NCA event with UNSD in Indonesia, webinar on forests and forest ecosystem services in LAC |
| Output | IR 2 | Baseline | 0 | Baseline | 0 |
| IR Indicator 2.2: Regional knowledge products supported by the project made publicly accessible | | End-of-program goal | 0 | End-of-program goal | 3 |
| | | Actual (2017) | 0 | Actual (2017) | 3 |
| | | Actual (2018) | 0 | Actual (2018) | 3 |
| | | | Not included in WAVES objectives | | The regional component was scaled down during FY2018 due to the need to prioritize the use of available funds |
| Output | IR 2 | Baseline | | Baseline | 0 |
| IR Indicator 2.3: Number of countries with targeted technical assistance | | End-of-program goal | | End-of-program goal | 12 |
| | | Actual (2017) | | Actual (2017) | 3 |
| | | Actual (2018) | | Actual (2018) | 6 |
| | | | Not included in WAVES objectives | | West Africa (regional report), Nepal, Lao PDR, Myanmar, Cambodia, Vietnam |

TABLE 5.1: WAVES and WAVES Plus Consolidated Monitoring and Evaluation *(continued)*

| CN INDICATORS | | WAVES | | WAVES PLUS | |
|---|------|---|----|---|---|
| Output | IR 3 | Baseline | | Baseline | 0 |
| IR Indicator 3.1: Global knowledge events on developing ecosystem accounts supported by the project | | End-of-program goal | | End-of-program goal | 4 |
| | | Actual (2017) | | Actual (2017) | 4 |
| | | Actual (2018) | | Actual (2018) | 7 |
| | | Not included in WAVES objectives | | Valuation in the context of NCA in Bonn (UBA); Expert Forum on Ecosystem Accounting in Glen Cove (UNSD, UN Environment, EU); Natural Capital Symposium at Stanford University, U.S. | |
| Output | IR 3 | Baseline | 0 | Baseline | 0 |
| IR Indicator 3.2: Global knowledge products on developing ecosystem accounts made publicly accessible | | End-of-program goal | 3 | End-of-program goal | 5 |
| | | Actual (2017) | 3 | Actual (2017) | 2 |
| | | Actual (2018) | 3 | Actual (2018) | 3 |
| | | Activities in FY18 funded by WAVES Plus | | "Prices for ecosystem accounting," available online | |
| Output | IR 3 | Baseline | | Baseline | 0 |
| IR Indicator 3.3: Global knowledge events on policy uses of NCA supported by the project | | End-of-program goal | | End-of-program goal | 5 |
| | | Actual (2017) | | Actual (2017) | 1 |
| | | Actual (2018) | | Actual (2018) | 2 |
| | | Not included in WAVES objectives | | Second Policy Forum on NCA for Better Decision-Making held in The Hague, in collaboration with the government of Netherlands and UNSD | |
| Output | IR 3 | Baseline | | Baseline | 0 |
| IR Indicator 3.4: Global knowledge products on policy uses of NCA made publicly accessible | | End-of-program goal | 10 | End-of-program goal | 5 |
| | | Actual (2017) | 15 | Actual (2017) | 1 |
| | | Actual (2018) | 15 | Actual (2018) | 2 |
| | | Activities in FY18 funded by WAVES Plus | | "2nd Policy Forum on Natural Capital Accounting for Better Policy Decisions: Applications for Sustainable Development," Parts 1 and 2. Available online | |

Note: IR = intermediate results; CN = Concept Note; NA = not available; WACA = West Africa Coastal Areas Management Program; SC = Steering Committee; LAC = Latin America and the Caribbean.

TABLE 5.1: WAVES and WAVES Plus Consolidated Monitoring and Evaluation *(continued)*

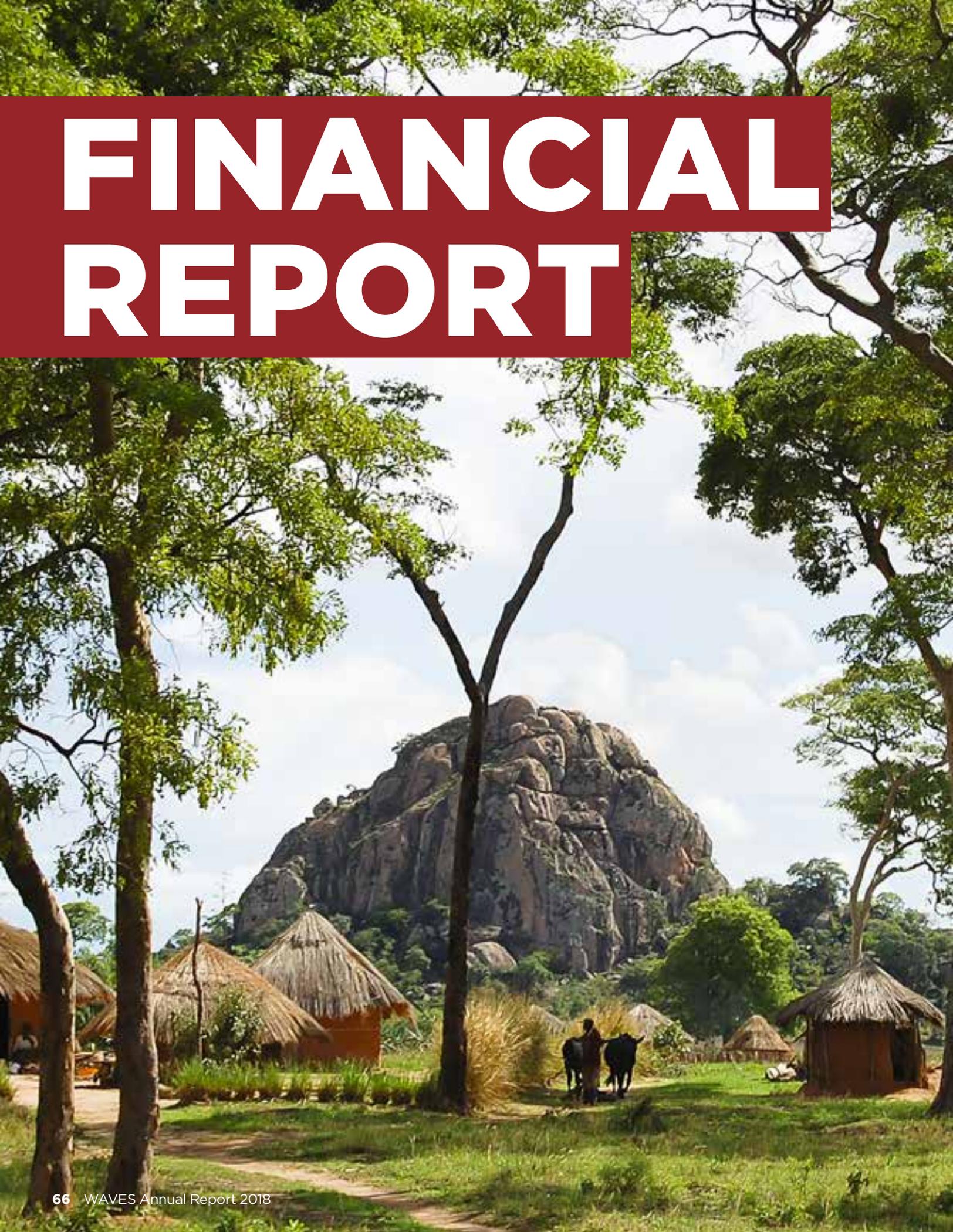
| CN INDICATORS | | WAVES | | WAVES PLUS | |
|--|------|---------------------------------|------------------------|---------------------------------|---------|
| Output | IR 3 | Baseline | 93,255 in 2015 | Baseline | 91,019 |
| IR Indicator 3.5: Hits on WAVES website (global and country pages) | | End-of-program goal | A 20% growth each year | End-of-program goal | 213,000 |
| | | Actual (2017) | 121,239 (2,200) | Actual (2017) | 121,239 |
| | | Actual (2018) | 140,000 | Actual (2018) | 140,000 |
| | | Joint goal WAVES and WAVES Plus | | Joint goal WAVES and WAVES Plus | |
| Output | IR 3 | Baseline | 0 | Baseline | 0 |
| (Subscribers newsletter) | | End-of-program goal | 4,000 | End-of-program goal | 4,000 |
| | | Actual (2017) | 2,200 | Actual (2017) | 2,200 |
| | | Actual (2018) | 2,600 | Actual (2018) | 2,600 |
| | | | | | |

Note: IR = intermediate results; CN = Concept Note; NA = not available; WACA = West Africa Coastal Areas Management Program; SC = Steering Committee; LAC = Latin America and the Caribbean.





FINANCIAL REPORT



The original WAVES Multi-donor Trust Fund (MDTF) was set up in March 2012 with an initial contribution of approximately US\$9.4 million from eight development partners. In November 2015, the steering committee endorsed WAVES+, and the United Kingdom, the Netherlands, and the EU have committed to WAVES+ since then. A new WAVES+ MDTF was set up in November 2016, with the first tranche of £1 million (equivalent to \$1.2 million) of U.K. funding.

Table 6.1 shows the financial status of the WAVES and WAVES+ Multi-Donor Trust Fund (MDTF) as of June 30, 2018. Donor pledges for both WAVES and WAVES+ (table 6.2) totaled US\$ 30,334,452 from nine donors, of which US\$25,674,833 (85 percent) has been received to date. The WAVES Partnership has disbursed or committed US\$22,435,664, amounting to 88 percent of the available funds (tables 6.3a, 6.3b, and 6.4).

The WAVES MDTF supports both country-level and global activities. Country-specific work is tailored to the requirements of the WAVES country partners and includes in-country communications and training workshops, disbursed and committed funds for these activities, as well as for regional workshops and preliminary country-level engagement and communications.

WAVES SUMMARY

Most of the funds were allocated and disbursed for country work amounting to US\$11,306,212. For global level work, a total of US\$5,398,350 were disbursed and committed to support a range of activities: knowledge-sharing events and workshops; developing methodology for ecosystem accounting; global communications; engaging with NCA partners at high-level events; and *The Changing Wealth of Nations 2018* report.

WAVES+ SUMMARY

WAVES+ country work has started and table 3 (b) reflects allocations and disbursements for Zambia, Kyrgyz Republic, Uruguay, and West Africa Coastal Area management programs. The total expense is US\$1,351,759 and the remaining balance is US\$282,641.

The overall structure of this year's financial report is consistent with previous reports. To help with the readability and proper interpretation of the data presented, a few presentational improvements have been introduced, as shown in Table 3a and 3b, including the following:

- The cost of country-level communication activities has been included in the overall program cost for each country
- The nature of some activities has been better described in footnotes
- A caveat on the figures related to Program Management and Administration (PMA) for both WAVES and WAVES+ has been added (also in the footnotes)

TABLE 6.1:
FINANCIAL SUMMARY (IN US\$, AS OF JUNE 30, 2018)

| | WAVES Trustee TF071860 | WAVES+ Trustee TF072708 | Total | In % |
|--|------------------------------|-------------------------------|-------------------|------------|
| A. Total donor pledges, per signed administration agreement | 23,269,677 | 7,064,775 | 30,334,452 | |
| United Kingdom—DFID | 3,747,042 | 2,564,775 | 6,311,817 | |
| France—Agence Francaise de Developpement | 1,051,046 | | 1,051,046 | |
| Norway—Ministry of Foreign Affairs | 3,028,770 | | 3,028,770 | |
| Germany—GIZ on behalf of BMZ | 2,255,142 | | 2,255,142 | |
| Netherlands—Minister of Foreign Affairs | 2,857,142 | | 2,857,142 | |
| Denmark—Royal Ministry of Foreign Affairs | 1,717,482 | | 1,717,482 | |
| EU—Commission of the European Communities | 3,116,386 | | 3,116,386 | |
| Japan—Ministry of Finance | 2,996,667 | | 2,996,667 | |
| Swiss Federal Department of Economic Affairs, Education and Research | 2,500,000 | | 2,500,000 | |
| Netherlands—Minister for Foreign Trade and Development Cooperation | | 4,500,000 | 4,500,000 | |
| B. Actual funds received from donors | 22,645,983 | 3,028,850 | 25,674,833 | 85% |
| United Kingdom—DFID | 3,747,042 | 1,903,850 | 5,650,892 | |
| France—Agence Francaise de Developpement | 1,051,046 | | 1,051,046 | |
| Norway—Ministry of Foreign Affairs | 2,844,527 | | 2,844,527 | |
| Germany—GIZ on behalf of BMZ | 2,255,142 | | 2,255,142 | |
| Netherlands—Minister of Foreign Affairs | 2,857,142 | | 2,857,142 | |
| Denmark—Royal Ministry of Foreign Affairs | 1,717,482 | | 1,717,482 | |
| EU—Commission of the European Communities | 2,826,936 | | 2,826,936 | |
| Japan—Ministry of Finance | 2,996,667 | | 2,996,667 | |
| Swiss Federal Department of Economic Affairs, Education and Research | 2,350,000 | | 2,350,000 | |
| Netherlands—Minister for Foreign Trade and Development Cooperation | | 1,125,000 | 1,125,000 | |
| C. Other adjustments | (266,014) | 26,041 | (239,974) | |
| Administrative fees to World Bank central units (-) | (452,920) | | (452,920) | |
| Investment income (+) | 186,905 | 26,041 | 212,946 | |
| D. Total funds available (B+C) | 22,379,969 | 3,054,891 | 25,434,860 | |
| E. Grants: allocations | 22,115,749 | 1,834,400 | 23,950,149 | 94% |
| WAVES | 22,115,749 | | 22,115,749 | |
| WAVES+ | | 1,834,400 | 1,834,400 | |
| F. Grants: Disbursements and commitments | 21,083,905 | 1,351,759 | 22,435,664 | 88% |
| Funds disbursed | 20,687,279 | 1,225,866 | 21,913,145 | |
| Funds committed to be disbursed—BETFs | 396,626 | 125,893 | 522,519 | |
| Funds committed to be disbursed—RETFs | | | | |
| G. Funds available (trustee and grant level) | 1,296,076 | 1,703,051 | 2,999,127 | 12% |
| at Grant and subfund level after disbursements and commitments | 856,124 | 308,039 | 1,164,164 | |
| at Trustee level after allocation to grants | 439,952 | 1,395,012 | 1,834,963 | |

Source: My Trust Fund database, October 16, 2018.

Note: **DFID** = Department for International Development; **GIZ** = German Corporation for International Cooperation; **BMZ** = Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

* Will fluctuate with exchange rate changes.

**TABLE 6.2:
DONOR PLEDGE AND CONTRIBUTION SUMMARY (AS OF JUNE 30, 2018)**

| Donor | Currency | Pledges | | Contribution made | | Outstanding contribution | | |
|--|----------|--------------------------------|-----------------------------|------------------------------|---------------------------|--------------------------------|-----------------------------|------------|
| | | Amount in contributor currency | Amount in US\$ ^a | Paid in contributor currency | Paid in US\$ ^a | Unpaid in contributor currency | Unpaid in US\$ ^a | Paid in % |
| United Kingdom—DFID | GBP | 2,402,424 | 3,747,042 | 2,402,424 | 3,747,042 | — | — | 100% |
| France—Agence Francaise de Developpement | EUR | 811,556 | 1,051,046 | 811,556 | 1,051,046 | — | — | 100% |
| Norway—Ministry of Foreign Affairs | NOK | 20,000,000 | 3,028,770 | 18,500,000 | 2,844,527 | 1,500,000 | 184,244 | 94% |
| Germany—GIZ on behalf of BMZ | EUR | 1,787,000 | 2,255,142 | 1,787,000 | 2,255,142 | — | — | 100% |
| Netherlands—Minister of Foreign Affairs | USD | 2,857,142 | 2,857,142 | 2,857,142 | 2,857,142 | — | — | 100% |
| Denmark—Royal Ministry of Foreign Affairs | DKK | 10,000,000 | 1,717,482 | 10,000,000 | 1,717,482 | — | — | 100% |
| EU—Commission of the European Communities | EUR | 2,500,000 | 3,116,386 | 2,250,000 | 2,826,936 | 250,000 | 289,450 | 91% |
| Japan—Ministry of Finance | USD | 2,996,667 | 2,996,667 | 2,996,667 | 2,996,667 | — | — | 100% |
| Swiss Federal Department of Economic Affairs, Education and Research | USD | 2,500,000 | 2,500,000 | 2,350,000 | 2,350,000 | 150,000 | 150,000 | 94% |
| Subtotal WAVES | | | 23,269,677 | | 22,645,983 | | 623,694 | 97% |
| United Kingdom—DFID | GBP | 2,000,000 | 2,564,775 | 1,500,000 | 1,903,850 | 500,000 | 660,925 | 74% |
| Netherlands—Minister for Foreign Trade and Development Cooperation | | 4,500,000 | 4,500,000 | 1,125,000 | 1,125,000 | 3,375,000 | 3,375,000 | 25% |
| Subtotal WAVES+ | | | 7,064,775 | | 3,028,850 | | 4,035,925 | 43% |
| Total WAVES & WAVES+ | | | 30,334,452 | | 25,674,833 | | 4,659,619 | 85% |

Source: My Trust Fund database, October 16, 2018.

Note: **DFID** = Department for International Development; **GIZ** = German Corporation for International Cooperation; **BMZ** = Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

* Will fluctuate with exchange rate changes.

TABLE 6.3a:
SUMMARY OF DISBURSEMENTS AND COMMITMENTS (IN US\$, AS OF JUNE 30, 2018): WAVES

| | Allocation | Disbursed | Committed | Disbursed and committed | Available balance |
|---|-------------------|-------------------|----------------|-------------------------|-------------------|
| Country work (a) | | — | | | |
| Original CICs | | | | | |
| WAVES—Botswana | 1,801,610 | 1,813,906 | — | 1,808,264 | — |
| WAVES—Colombia | 1,785,376 | 1,797,561 | — | 1,791,970 | — |
| WAVES—Costa Rica | 648,256 | 652,680 | — | 650,650 | — |
| WAVES—Madagascar | 801,261 | 806,730 | — | 804,221 | — |
| WAVES—Philippines | 2,574,733 | 2,591,304 | — | 2,583,245 | 921 |
| Added CICs | | | | | |
| WAVES—Indonesia | 1,659,735 | 1,034,338 | 218,902 | 1,268,749 | 366,320 |
| WAVES—Rwanda | 1,629,671 | 1,628,704 | 44,205 | 1,671,625 | (33,149) |
| WAVES—Guatemala | 925,098 | 584,363 | 133,519 | 727,487 | 185,438 |
| Subtotal country activities | 11,825,742 | 10,909,586 | 396,626 | 11,306,212 | 519,530 |
| Regional work | | | | | |
| WAVES—Regional workshops | 750,000 | 748,502 | — | 748,502 | 1,498 |
| Subtotal regional activities | 750,000 | 748,502 | — | 748,502 | 1,498 |
| Global work | | | | | |
| WAVES—Annual Partnership Forums | 1,250,000 | 1,005,338 | — | 1,005,338 | 244,662 |
| WAVES—Changing Wealth of Nations 2018 | 149,272 | 149,272 | — | 149,272 | — |
| WAVES—Engagement with the wider NCA community | 896,682 | 890,888 | — | 890,888 | 5,794 |
| WAVES—Global Communication Strategy | 1,320,000 | 1,319,800 | — | 1,319,800 | 200 |
| WAVES—Methodology Development and Policy Application for Ecosystem Accounting (b) | 2,052,500 | 2,033,052 | — | 2,033,052 | 19,448 |
| Subtotal global work program | 5,668,454 | 5,398,350 | — | 5,398,350 | 270,104 |
| Cross cutting work | | | | | |
| WAVES Inception activities (c) | 1,920,739 | 1,920,739 | — | 1,920,739 | — |
| Subtotal crosscutting | 1,920,739 | 1,920,739 | — | 1,920,739 | — |
| Waves Program Management and Administration (d) | 1,950,814 | 1,710,102 | — | 1,710,102 | 40,712 |
| Total | 22,115,749 | 20,687,279 | 396,626 | 21,083,905 | 831,844 |

Notes:

(a): Including communication work carried out at the country level

(b): Including pilot application to selected countries, e.g., Philippines

(c): This activity was labeled in previous annual reports as “WAVES Global Knowledge Sharing”. It includes activities carried out in the inception phase of the program (up to 2014), before the internal reporting system was set up to track separately country, regional, and global activities. It therefore comprises activities belonging to each of these groups

(d): These figures are provisional and subject to revision: at the time of their generation, a distinct code for tracking Program Management Activities (PMA) for WAVES Plus had not yet been introduced. Improved estimates of PMA cost, separate for WAVES and WAVES Plus, will be produced for the 2019 edition of the annual report

TABLE 6.3b:
SUMMARY OF DISBURSEMENTS AND COMMITMENTS (IN US\$, AS OF JUNE 30, 2018): WAVES Plus

| | Allocation | Disbursed | Committed | Disbursed and Committed | Available balance |
|---|------------------|------------------|----------------|-------------------------|-------------------|
| Country work (a) | | | | | |
| Original CICs | | | | | |
| WAVES+ Zambia | 450,000 | 381,699 | 49,829 | 431,527 | 18,473 |
| Part CICs | | | | | |
| WAVES Plus | 70,000 | 51,793 | 3,750 | 55,543 | 14,457 |
| WAVES Plus Kyrgyz Republic (a) | — | — | — | — | — |
| TTA | | | | | |
| WAVES+ TTA Uruguay | 24,602 | 24,602 | — | 24,602 | — |
| WAVES+ TTA WACA | 59,798 | 59,798 | — | 59,798 | — |
| Preliminary country work | | | | | |
| WAVES+ Preliminary Country Engagement | 390,000 | 158,075 | — | 158,075 | 31,925 |
| Subtotal country activities | 994,400 | 675,967 | 53,579 | 729,545 | 64,855 |
| Regional work | | | | | |
| WAVES+ Regional Work | 170,000 | 167,930 | — | 167,930 | 2,070 |
| Subtotal regional activities | 170,000 | 167,930 | — | 167,930 | 2,070 |
| Global work | | | | | |
| WAVES+ Methodology and Global Engagement | 120,000 | 76,379 | 4,361 | 80,740 | 39,261 |
| WAVES+ Annual Partnership Forums | 100,000 | 76,286 | 9,050 | 85,337 | 14,663 |
| WAVES Global Communications Strategy | 100,000 | — | 10,903 | 10,903 | 89,097 |
| WAVES+ Global engagement (strategic communications, policy uses of NCA) | 350,000 | 229,304 | 48,000 | 277,304 | 72,696 |
| Subtotal global work program | 670,000 | 381,968 | 72,314 | 454,283 | 215,717 |
| Waves Program Management and Administration (b) | | | | | |
| Total | 1,834,400 | 1,225,866 | 125,893 | 1,351,759 | 282,641 |
| Funds available in the Trustee and subfund level but not yet allocated | | | | | 1,420,410 |
| Total funds available in the Trustee, subfund and grant level | | | | | 1,703,051 |

Source: SAP Trust Fund Report, October 16, 2018.

Note: CICs = core implementing countries; TTA = targeted technical assistance

Notes:

(a): The team has confirmed the scope of work with the government only a few weeks before the cut-off date for the financial reporting; hence no expense is reported in this version of the WAVES annual report

(b): A distinct code for tracking Program Management Activities (PMA) for WAVES Plus (as distinct from WAVES PMA) had not yet been introduced at the time of collection of the financial information for this report. Improved estimates of PMA cost, separate for WAVES and WAVES Plus, will be produced for the 2019 edition of the Annual report

**TABLE 6.4:
DISBURSEMENTS BY EXPENSE CATEGORY (IN US\$, AS OF JUNE 30, 2018)**

| | World Bank 12-month fiscal year (July-June) | | | | Cumulative to FY14 | Total | % |
|-------------------------------|---|------------------|------------------|------------------|-----------------------|-------------------|-------------|
| | FY18 | FY17 | FY16 | FY15 | | | |
| WAVES | | | | | | | |
| Technical work (a) | | | | | | | |
| Staff costs | 846,625 | 1,054,576 | 1,638,425 | 1,293,613 | 2,509,515 | 7,342,753 | 35% |
| Consultant fees | 655,116 | 1,410,922 | 2,326,670 | 2,107,427 | 1,828,000 | 8,328,135 | 40% |
| Travel expenses | 133,976 | 357,680 | 664,208 | 761,179 | 1,130,567 | 3,047,609 | 15% |
| Media workshop | 51,879 | 110,734 | 178,055 | 165,317 | 258,734 | 764,719 | 4% |
| Contractual services | 14,709 | 146,981 | 45,518 | 37,904 | 54,519 | 299,632 | 1% |
| Disbursements to grantee (b) | (23,637) | 403,581 | 107,439 | 188,952 | — | 676,335 | 3% |
| Other (c) | 9,832 | 49,257 | 67,280 | 57,840 | 43,887 | 228,096 | 1% |
| Subtotal WAVES | 1,688,500 | 3,533,731 | 5,027,595 | 4,612,232 | 5,825,221 | 20,687,279 | #### |
| WAVES+ | | | | | | | |
| Technical work (a) | | | | | | | |
| Staff costs | 312,336 | 307,500 | — | — | — | 619,836 | 51% |
| Consultant fees | 124,746 | 107,369 | — | — | — | 232,115 | 19% |
| Travel expenses | 133,994 | 150,255 | — | — | — | 284,250 | 23% |
| Media workshop | 17,827 | 62,407 | — | — | — | 80,234 | 7% |
| Contractual services | 3,600 | 335 | — | — | — | 3,935 | 0% |
| Other (c) | 4,041 | 1,455 | — | — | — | 5,496 | 0% |
| Subtotal WAVES+ | 596,545 | 629,321 | — | — | — | 1,225,866 | #### |
| Total WAVES and WAVES+ | 2,285,045 | 4,163,052 | 5,027,595 | 4,612,232 | 5,825,221 | 21,913,145 | |

Source: My Trust Fund database, October 16, 2018.

Notes:

(a): including activities of program design, analysis, quality assurance, etc, carried out by both headquarter staff and country teams

(b): Resource used for Recipient Executed Trust Fund (RETF)

(c): Translations, proofreading, transcriptions, courier/freight service, phone calls, printing, interpretation services, video conferencing, airfare rebate, and equipment costs



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