WAVES

WORLD BANK GROUP

WEALTH ACCOUNTING AND VALUATION OF ECOSYSTEM SERVICES (WAVES)

PHILIPPINES
COUNTRY REPORT 2014

Philippines WAVES Steering Committee

Contents

1. WAVES in the Philippines

Wealth Accounting and Valuation of Ecosystem Services (WAVES) is a global partnership led by the World Bank that aims to promote sustainable development by mainstreaming natural capital in development planning and national economic accounting systems, based on the UN's System of Environmental-Economic Accounting 2012 (SEEA). The WAVES global partnership (www.wavespartnership.org) brings together a broad coalition of governments, UN agencies, nongovernment organizations, and academics for this purpose.

WAVES core implementing countries include developing countries—Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, the Philippines and Rwanda—all working to establish natural capital accounts. WAVES also partners with UN agencies—United Nations Environment Programme, United Nations Development Programme, and United Nations Statistical Commission—that are helping to implement natural capital accounting. WAVES is funded by a multi-donor trust fund and is overseen by a steering committee. WAVES donors include Denmark, the European Commission, France, Germany, Japan, The Netherlands, Norway, Switzerland, and the United Kingdom.

Past attempts to institutionalize natural capital accounting—both globally and in the Philippines—have often failed due to the lack of a clear policy link, disagreements on methodology, lack of global leadership, and limited capacity and resources. The WAVES global partnership program tries to tackle these issues by helping countries adopt and implement natural capital accounts that are relevant for their policy priorities and using a universally accepted standard—SEEA.

The Philippines

The Philippines was identified as one of the pilot countries for WAVES for several reasons. There is a high government demand for indicators, tools, and methodologies that will help determine the sustainable use of natural resources and inform development planning and policy analysis. Also, a more sustainable use of natural resources potentially could have a large impact on the poor and thus economic growth, as the incidence of poverty is particularly high among natural resource-dependent sectors. Finally, the government of the Philippines has a high latent capacity in natural capital accounting from previous initiatives,[1] while academic and private organizations have the necessary skills for ecosystem accounting.

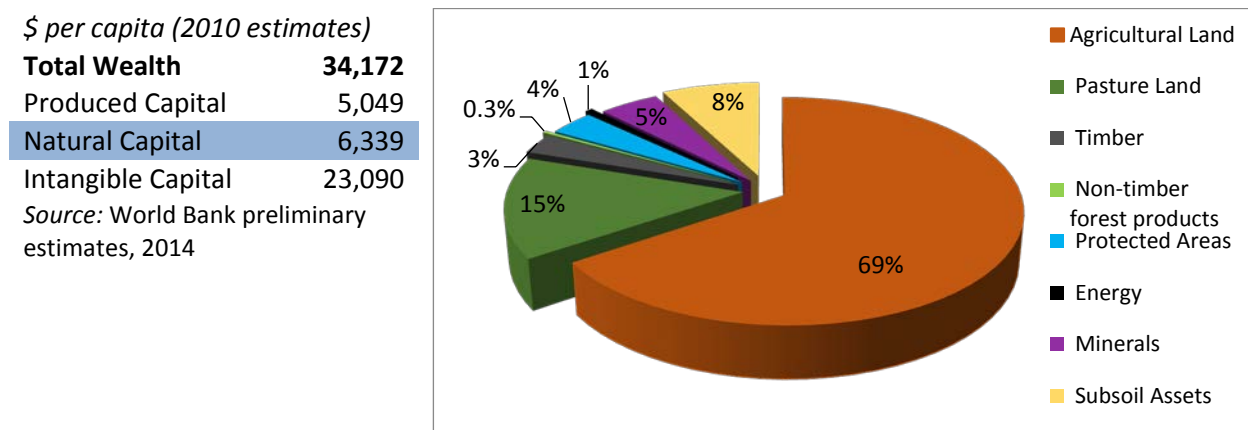## 2. Macroeconomic and Environmental Context in the Philippines

The implementation of natural capital accounting in the Philippines is well timed. The new political leadership emphasizes governance reforms that include transparent and science-based decision making,

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[1] The two major Philippine initiatives in environmental accounting were the Environmental and Natural Resources Accounting Project (ENRAP) and the Philippine Economic-Environmental and Natural Resources Accounting (PEENRA) Project. Both started in the 1990s and continued to about 2000. ENRAP was a led by the Department of Environment and Natural Resources, funded by USAID, and adopted the Henry Peskin approach to environmental accounting, focusing on data use for public policy. PEENRA, which started later, was implemented by the National Statistical Coordination Board, which used the SEEA framework for environmental accounting, with the UN providing financial and technical support.

while pursuing sustainable, inclusive, and resilient growth. Approaches such as natural capital accounting, market-based instruments, environmental valuation, and payments for ecosystem services—which are mentioned in the 2011–2016 Philippine Development Plan and the National Climate Change Action Plan—would be facilitated by the regular production of SEEA modules. Indicators derived from natural capital accounts also would provide a transparent tool to inform decision making and improve governance, which is a stated goal in the government's Social Contract.

Initial estimates suggest that natural capital accounts for about 15 percent of the Philippines' total wealth in 2010 (World Bank, forthcoming).[2] As indicated in Figure 1, agricultural land accounts for the highest proportion, followed by pasture land, subsoil assets, and minerals.

Figure 1: Wealth of the Philippines ($ per capita, 2010 estimates)

$ per capita (2010 estimates)	
Total Wealth	**34,172**
Produced Capital	5,049
Natural Capital	6,339
Intangible Capital	23,090

Source: World Bank preliminary estimates, 2014

The Philippine Development Plan recognizes the importance of natural capital for reaching the objective of inclusive growth. As can be seen in Table 1, agriculture, forestry, and fishing accounted for about a third of employment in the Philippines in 2013. Nonetheless, the poverty incidence is particularly high among the natural resource-dependent sectors, reaching 36.7 percent in 2009 (National Statistical Coordination Board 2012a). The recently published poverty data for 2012 supports this finding, as the poorest provinces have the largest share of rural population (National Statistical Coordination Board 2013) and hence are dependent on natural resources, while the richest provinces are the most urbanized (National Statistics Office 2010).[3] Significant action is necessary to halt the deterioration of the country's environment and natural resources, which is likely to be exacerbated by strong demographic pressures and the country's natural vulnerability to climate change.

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[2] Based on an initial analysis that includes agricultural land (crop land and pasture), forest land (timber and non-timber forest products), protected areas, minerals, and energy.

[3] The three poorest provinces in 2012 (ARMM, Region VIII, and Region XIII) had an average poverty incidence of 41 percent (National Statistical Coordination Board 2013) but an average urbanization level of only 23 percent (2010 data; National Statistics Office 2013), while the three richest provinces in 2012 (CAR, Region III, and Region IV-A) had an average poverty incidence of 7 percent and average urbanization level of 70 percent.

Table 1: Employment by Sector, 2013

EMPLOYMENT BY SECTOR	IN THOUSAND PERSONS	AS PERCENT OF TOTAL
All Sectors	**37,917**	
Agriculture	**11,759**	**31%**
Agriculture, Hunting, and Forestry	10,362	27%
Fishing	1,397	4%
Industry	**5,917**	**16%**
Mining and Quarrying	250	1%
Services	**20,240**	**53%**

Source: Bureau of Labor and Employment Statistics,
in: http://www.bles.dole.gov.ph/PUBLICATIONS/Current%20Labor%20Statistics/STATISTICAL%20TABLES/PDF/Tab5.pdf

Agricultural land: From 2004–2010, the average growth rate of the agricultural sector, including fishery and forestry, was 2.6 percent. The sector's average gross domestic product (GDP) share was 18.4 percent and it accounted for 35.1 percent of total employment (Philippine Development Plan 2011). This average growth rate slowed to 2.1 percent in 2010–2013, mainly due to a series of climate-related disasters, the most recent Typhoon Yolanda in 2013 (National Statistical Coordination Board 2012b and 2014). However, in 2013, the agricultural sector still made up of 10.4 percent of GDP and accounted for 31 percent of total employment.[4] Key issues identified in the agricultural sector were vulnerability to climate change and disaster risk, plus the conversion of agricultural land to other uses, declining productivity and competitiveness, an increase in food commodity prices, a stagnant poverty headcount, inadequate support services, and unsustainable resource utilization (National Economic and Development Authority 2011 and 2012). Future increases in agricultural productivity and food security are further hampered by a limited irrigation system—merely 55 percent of the potential irrigable area in 2012[5] —and extensive land degradation, due to expansion of grazing lands, slash-and-burn practices, and deforestation of watershed areas.

Forests: The country's forest resources, which officially make up about 53 percent of the country's total land area,[6] are increasingly under pressure. Based on the Socioeconomic Report 2010–2012, only 24 percent of the country's land area remains forested (National Economic and Development Authority 2012). The main drivers of deforestation and forest degradation include gathering of fuel wood for cooking and charcoal making, slash-and-burn practices, upland agricultural cultivation, and illegal logging. The increase in the rural population due to high fertility rates, the dependence on shifting cultivation, and rural poverty have placed further stress on forest resources.

Coastal and marine resources: The Philippines has some of the richest marine biodiversity in the world. Overall, its marine waters hold more than 500 of the 800 known coral reef species, in addition to more than 2,000 species of marine fish, more than 40 species of mangrove, and 16 species of sea grass (Asian Development Bank 2008). With these abundant fisheries and marine resources, the Philippines' fisheries sector contributes significantly to fisheries output nationally and worldwide. However, the fisheries

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[4] The employment share is an average of the National Statistics Office figures for January, April, July, and October of 2013 (National Statistics Office 2014).

[5] Data downloaded from the Bureau of Agricultural Statistics' CountryStatPhil website, accessed on April 15, 2014, at http://countrystat.bas.gov.ph/?cont=10&pageid=1&ma=P20LUTIA.

[6] This figure includes both classified forestland (50.2 percent) and unclassified forest land (2.5 percent) (Department of Environment and Natural Resources 2012).

sector has been facing key development challenges over the years, due to unsustainable use and management of its resources, resulting in an overall decline in fisheries productivity. The unsustainable practices included the loss of critical coastal habitat due to the conversion of mangroves to aquaculture and settlement, timber cutting for fuel and housing materials, and the degradation of coral reefs due to overfishing and destructive practices.

Water supply: Due to rapid population increase, urbanization, and economic growth, the demand for water has also been increasing. New water sources must be identified to address the increasing demand for water by residential, commercial, and industrial users, especially in industrial areas and highly urbanized cities. As a consequence, at least nine major urban centers are experiencing water stress, and per capita water availability in the Philippines is the second lowest among Southeast Asian countries (National Water Resources Board 2006). In addition, some areas suffer devastating floods during the wet season, while many areas experience water shortages during the dry season. The latter can lead to massive crop failures and water shortages, as experienced after the 1997–1998 ENSO events of temperature variations in the tropical eastern Pacific Ocean (Cruz et al. 2007). Climate change will further aggravate these impacts, with more than 40 percent of the 70 provinces, including metropolitan Manila, predicted to have 20 percent to 40 percent less precipitation during the summer months (Philippine Atmospheric, Geophysical, and Astronomical Services Administration 2011).

Water quality: Since surface water is more abundant than groundwater in the Philippines, ideally most of the potable water should be sourced from surface water. However, only about 36 percent of the river systems and surface water areas are potential sources for drinking water, with the remaining 64 percent unfit for drinking even after complete treatment. Given the low sewage cover—an average of 4 percent in urban areas and 8 percent in metro Manila (National Water Resources Board 2006)—discharge of inadequately treated domestic sewage is a major contributor of pollution of surface waters. Furthermore, aquatic ecosystems are threatened by this poor water quality.

Minerals: The Philippines are also rich in mineral resources. About 30 percent, or 9 million hectares, of the country's total land area has high mineral potential (Department of Environment and Natural Resources 2014). However, only 3.1 percent of the total land area is covered by mining tenements as of December 2013.[7] Between 2010 and 2013, mining only contributed on average of 1.3 percent of GDP (National Statistical Coordination Board 2012c and 2014). Therefore, questions are frequently raised about the mining industry's benefits to the country, including from the collection of excise taxes and royalties, income taxes, and other non-tax incentives. Also under discussion are benefit sharing mechanisms with indigenous peoples and local communities, as well as the associated environmental and social cost of forest clearing and mine waste.

Notwithstanding, mining has been contentious in the country for several reasons. First, current mining permits are within half of the titled and claimed ancestral domains and thus have significant effects on indigenous peoples in the country, leading to land and resource-use conflicts. Second, many environmental groups and some quarters in the Catholic Church hierarchy oppose mining in the country, arguing that the environmental and social costs to local communities are much greater than the financial returns. Mining has become a divisive issue among indigenous peoples, polarizing communities and community members to the detriment of social relationships. Third, the prevalence of poverty in the mining sector is high, especially in informal small-scale mining. Poorer workers are often exposed to significant occupational hazards that are generally undocumented.

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[7] This area is still subject to the mandatory relinquishment provided under the law.

Climate change: According to the WorldRiskIndex,[8] the Philippines has been ranked as the third most vulnerable country in the world to disaster risk from weather-related extreme events, earthquakes, and sea level rise (Alliance Development Works 2012). In addition, temperatures are expected to rise substantially over the coming 50 years, while a reduction in rainfall is expected in most parts of the country from March to May (Philippine Atmospheric, Geophysical, and Astronomical Services Administration 2011). At the same time, rainfall will increase during the monsoon season. Sea-level rises will have further adverse impacts on coastal areas. Since the Philippines generates a very small percentage of global greenhouse gases, climate change adaptation has been the country's major approach to global warming.

During preparation for WAVES, feasibility studies reviewed the past natural capital accounting experience in the Philippines and assessed the current capacity and institutional support for SEEA. In addition, the feasibility of natural capital accounting for minerals, soils, land, water, forests, fisheries, and coastal and marine resources was assessed. These efforts were complemented by workshops and meetings with officials from policy, planning, and statistics offices to identify policy priorities.

The feasibility studies and stakeholder consultations concluded that there is a long list of policy issues that could be addressed by WAVES technical assistance (summarized in Table 2). Out of the long list of potential policy issues, minerals, mangroves, and water resources were prioritized for Phil-WAVES. The main reasons were that these issues (1) urgently needed policy inputs; (2) had the potential to make a big impact on poverty and economic growth; and (3) complemented other initiatives by the World Bank, government of the Philippines, and development partners.

Table 2: Policy Issues for a Long-Term WAVES Program in the Philippines

SECTOR	ECONOMIC & SOCIAL POLICY ISSUE	ENVIRONMENTAL CONCERNS
A. Sectors to be Funded by Phil-WAVES (2013–2017)		
Minerals	• Sustaining income from resource rents • Increasing benefits for indigenous peoples & local communities • Allowing mining activities only in the identified go zones	• Mitigating environmental damages • Increasing water-use efficiency • Rehabilitating post-mining • Building credible data & information
Mangroves[9]	• Resolving competition among user groups • Increasing tourism benefits for the poor • Effectively & efficiently rehabilitating mangroves	• Reversing degradation & scaling up conservation • Valuing mangrove protection • Valuing sustainable marine-based economy

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[8] This ranking is based on the 2012 WorldRiskIndex, which was developed by the United Nations Institute for Environment (UNU-EHS) in cooperation with the Alliance Development Works. It assesses a country's disaster risk by combining four components: exposure to natural hazards (i.e., earthquakes, storms, floods, droughts, and sea-level rise), susceptibility, coping capacity, and adaptive capacity.

[9] Given capacity constraints at the Philippine Statistics Authority, a phased approach will be adopted in the implementation of the natural capital accounts. As minerals are a government priority, the mangrove accounts will only be compiled if the mineral accounts are complete and sufficient resources are still available.

SECTOR	ECONOMIC & SOCIAL POLICY ISSUE	ENVIRONMENTAL CONCERNS
Cross-cutting issues	• Resolving competing uses through institutional & pricing reforms • Generating employment, income, & local benefits	• Reducing environmental impacts • Reducing vulnerability to climate risk & geo-hazards
Site case studies on ecosystem accounting	• *Southern Palawan*: competing uses of land & coastal and marine areas; equitable access to ecosystem benefits • *Laguna Lake basin*: water & habitat ecosystem; update of fee on water abstracted for consumption	• Development of methodology • Mitigation of environmental damage • Increased water-use efficiency • Post-mining rehabilitation • Local benefit sharing • Climate risk • Water supply • Pollution • Sedimentation • Other economic values associated with fisheries, recreation, waste assimilation, flood control, health impacts, & habitat
B. Sectors Recommended for Funding by Other Sources		
Agricultural land	• Attaining food security amid climate risk • Addressing agricultural land conversion • Increasing productivity & competitiveness	• Scaling up sustainable land management • Increasing water efficiency • Adapting to climate change
Fisheries	• Reducing fishing effort & increasing benefits among local fishers • Resolving competition among user groups • Increasing tourism benefits for the poor • Financing marine Protected Areas	• Reversing degradation • Scaling up conservation
Forest land	• Resolving competing forest land uses • Developing competitive & sustainable forest industries • Increasing benefits for indigenous peoples & upland communities • Sustainably financing Protected Areas	• Reversing deforestation & scaling up conservation • Protecting downstream water supply • Protecting biodiversity-rich areas • Increasing carbon sequestration
Water	• Resolving competing uses • Pricing scarce water • Financing watershed management • Integrated water resources management	• Reducing pollution • Address flooding & sewerage infrastructure gap • Adapting to climate change
Tourism	• Increasing benefits for the poor & the local economy • Resolving competing ecosystem uses	• Managing environmental impacts • Adapting to climate change

SECTOR	ECONOMIC & SOCIAL POLICY ISSUE	ENVIRONMENTAL CONCERNS
	• Increasing competitiveness • Meeting the infrastructure & skills gaps	
Energy	• Improve balance and efficiency of renewable-nonrenewable energy mix • Lowering cost • Improving pricing without hurting the poor • Reducing health impacts of emissions	• Ensuring responsible geothermal energy in protected areas • Sustaining hydropower • Adapting to climate change

3. Policy Objectives in WAVES work plan

The objective of the Phil-WAVES technical assistance is to inform development planning and policy analysis on the sustainable use of key natural resources.

Policy Objective 1: Developing macroeconomic indicators that account for natural capital values, to measure the sustainability of economic development

New macroeconomic indicators that integrate natural resource values and are complementary with existing indicators are developed to guide and facilitate monitoring of sustainable development.

The Philippine System of National Accounts and macroeconomic indicators make scant reference to natural capital values. In fact, there has not been comprehensive natural capital accounting at the national scale during the last decade, due to a failure to institutionalize the donor-funded natural capital accounting initiatives of the 1990s. Yet with growing environmental awareness and concerns, there is now heightened demand from government, nongovernmental organizations, civil society, and the private sector for natural capital accounting to aid science-based and evidence-based policymaking. A priority activity for WAVES will be to undertake a comprehensive review of the System of National Accounts that evaluates the current situation and makes concrete recommendations for its improvement by future integration of natural resource issues.

Progressive inclusion of natural capital values in the System of National Accounts, from selected SEEA modules and the development of macroeconomic indicators, will improve the country's ability to monitor the sustainability of its economic development and manage key natural resource-based sectors. For the purposes of WAVES activities, the focus will be on developing new, complementary macroeconomic indicators, including adjusted net savings, adjusted net national income, produced capital, and comprehensive wealth. A progressive approach to development of these macroeconomic indicators will be applied. In the short term, existing preliminary estimates prepared by the World Bank will be refined and adjusted using available country-specific data. In the medium to long term, the outcomes of the selected SEEA modules will be progressively included to further refine the indicators. Technical activities will be complemented by capacity building, both in the development and maintenance of these indicators, as well as in their use and interpretation.

> *The proposed WAVES activities in the Philippines related to this policy objective are*
> - *Technical evaluation of the System of National Accounts and recommendations for improving the integration of natural capital into that system; and*
> - *Continued incremental improvement of macroeconomic indicators (adjusted net savings, adjusted net national income, produced capital & comprehensive wealth) throughout WAVES, including mining sector and mangrove accounts that are generated through other WAVES components.*

Policy Objective 2: Developing national accounts for prioritized natural resources—minerals and mangroves—based on the UN's SEEA 2012, and analyzing the impact of different natural resource management and revenue-sharing scenarios on income and economic development

Minerals

> - ***Information on the value of subsoil assets is generated, to contribute to medium- to long-term policy dialogue on rent recovery, distribution, and reinvestment.***
> - ***Information on the value of ecosystem services associated with terrestrial as well as coastal and marine resources in Southern Palawan is generated, under different resource-use scenarios, to contribute to local medium- and long-term development planning and sustainable management.***

Minerals were prioritized for Phil-WAVES because there is a strong demand from the Philippines' National Economic and Development Authority, Department of Environment and Natural Resources, and Climate Change Commission to develop tools and indicators for sustainably managing mineral resources and the adverse impacts of climate change on the mineral areas. In fact, Section 15 of Executive Order 79 on institutionalizing and reforming the Philippine mining sector refers to WAVES as a significant tool for conducting resource accounting and cost-benefit analyses. In addition, minerals could potentially have a large impact on economic growth. However, the minerals sector is highly contentious in the Philippines.

Phil-WAVES can inform this debate by constructing, updating, and refining mineral accounts at the national level. This will allow the government to determine whether resource rents have been reinvested and to compare mineral rents with environmental degradation based on different market conditions, investment incentives, and governance structures. Revenue allocation between national and local governments and benefits sharing with local communities and indigenous people will also be studied.

In addition, Phil-WAVES will test and develop tools and methodologies for an ecosystem account in Southern Palawan, which is considered to be highly mineralized. However, mining is not allowed in environmentally critical and sensitive areas declared as Core and Restricted Zones under the nationally legislated Strategic Environmental Plan for Palawan Act, and is often in direct conflict with existing or proposed protected areas, as well as ancestral domains. In fact, Southern Palawan is characterized by high levels of biodiversity and extensive mangroves and fisheries and thus has a large potential for conservation and tourism, which could be put at risk by minerals exploitation. A comprehensive investigation taking into account all the ecosystem services and their management structures is thus necessary, covering below- and above-ground natural, coastal, and marine resources. This work will be closely coordinated with the Philippine Statistics Authority to ensure the information can be incorporated into the national-level mineral accounts.

These activities will be aligned with other proposed World Bank initiatives, most notably the Extractive Industries Transparency Initiative and Open Data Initiative. Moreover, complementarities in data collection, analysis, and dissemination exist for the Southern Palawan ecosystem account with the Capturing Coral Reef and Related Ecosystem Services project.

The proposed WAVES activities in the Philippines related to this policy objective are

National Mineral Accounts
- *Development of satellite accounts for the mining sector to feed into macroeconomic indicators, based on the recently adopted SEEA methodology*
- *Analysis of issues related to rent recovery, distribution, and reinvestment ,and their implications for equity and sustainability*

Ecosystem Account for Southern Palawan
- *Development of ecosystem accounts for Southern Palawan using the experimental SEEA methodology*
- *Analysis of social, economic, and environmental trade-offs of different resource-use scenarios and their implications for sustainable management*

Mangroves

Information on the value of mangroves and mangrove reforestation is generated to contribute to the medium- to long-term policy dialogue on the benefits of mangroves for coastal zone protection, disaster risk management, fisheries, tourism, and reducing emissions from deforestation and forest degradation (REDD+).

Mangroves were prioritized for Phil-WAVES because they provide a wide range of ecosystem services closely linked to key government priorities of higher economic growth and climate change resilience, in particular through provisioning (fishing, timber and non-timber products, and tourism) and shoreline and storm-surge protection services. Furthermore, mangrove reforestation has long been a policy priority and is currently being implemented through the National Greening Program, which is planning to (re)plant more than 1.5 billion trees. A policy for the conversion of abandoned fishponds back to mangroves is also being discussed. However, past replanting efforts have been poorly targeted, with survival rates of only 10 percent to 20 percent.

Phil-WAVES will be able to inform this debate by updating and refining mangroves accounts and analyzing their contribution to the income of local communities and enhanced climate change resilience. It will do so both nationally and as part of the Southern Palawan case study, supported by the Capturing Coral Reef and Related Ecosystem Services project. Phil-WAVES will also support the country's work on REDD+, which is supported by Germany's Gesellschaft für Internationale Zusammenarbeit (GIZ). Since mangrove sequester significantly more carbon than terrestrial forests do, providing new data on mangroves will be critical. This analysis will also provide important information for the ongoing dialogue on adaptive capacity for climate change and disaster risk management led by the World Bank.

Given resource and staff constraints at the Philippine Statistics Authority, a phased approach will be adopted in the implementation of the natural capital accounts. As minerals are a government priority, the minerals accounts will be constructed in the first two years of project implementation, followed by

mangroves accounts in the last two years. The mangroves accounts will only be implemented if the minerals accounts have been constructed and sufficient resources are still available.

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The proposed WAVES activities in the Philippines related to this policy objective are

- *Development of satellite accounts for mangroves to feed into macroeconomic indicators based on the recently adopted SEEA methodology; and*
- *Analysis of issues related to mangrove reforestation, coastal zone protection, fisheries, tourism, and REDD+.*

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Policy Objective 3: Developing and constructing ecosystem accounts for Southern Palawan and the Laguna Lake basin, and analyzing the trade-offs associated with different resource and ecosystem-use scenarios

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Information on the value of ecosystem services associated with the Laguna Lake basin is generated under different resource-use scenarios to contribute to local medium- and long-term development planning and sustainable management, and to generate a water-pricing plan.

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National water accounts cannot be constructed under Phil-WAVES due to their complexity and the program's limited budget. However, the Laguna Lake basin was selected as a case study at the request of the Laguna Lake Development Authority. The 1996 Laguna de Bay Master Plan is being updated and the development authority is in negotiations for the pricing of abstracted raw water with three water utilities. Both activities should take into consideration wealth accounting and a comprehensive valuation of ecosystem services of various existing uses. In particular, such an evaluation should not only analyze water production costs, but also take into account potential interactions with other basin uses, including habitat for capture and culture fisheries, drainage of a highly urbanized watershed, flood control, pollution from various sources, sedimentation, and potential water demand from metro Manila.

Phil-WAVES can inform this debate by focusing on two key policy issues: pollution and sedimentation. The information to be generated will be crucial in modeling the causal relationships between the quality of the water in Laguna Lake, and the silt and pollutant loads of waters draining into the lake. By integrating land and water management, the Laguna Lake Development Authority will, for instance, be able to analyze how protecting upper watersheds will reduce siltation, and how reducing pollution loading—including solid waste disposal in the lowland area—will help maintain water quality and the capacity of the lake to act as a buffer and mitigate flood risks in metro Manila. Understanding the monetary component is equally important to analyze cost-effective interventions aimed at maintaining—and where possible enhancing—water quality in the lake. The monetary component also is important as an input into potential payment mechanisms for water use, which could lead to sustainable financing of improved water resource management in Laguna Lake.

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The proposed WAVES activities in the Philippines related to this policy objective are

- *Development of ecosystem accounts for the Laguna Lake basin, using the experimental SEEA methodology; and*
- *Analysis of social, economic, and environmental trade-offs of different water-use scenarios and their implications for sustainable management.*

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4. WAVES work plan

The work plan has been structured around three technical and two cross-cutting components, as shown in Table 2. The total estimated budget for the work plan is $1.5 million. Annex 1 contains the detailed work plan.

Table 3: Summary of Phil-WAVES Work Plan

Component	Policy Objective	Expected Outputs	Estimated Budget ($)
1. Macroeconomic indicators	Complement existing macroeconomic indicators and guide sustainable development and macroeconomic monitoring	Macroeconomic indicator development and annual revision, including adjusted net savings, adjusted net national income, produced capital, and comprehensive wealth	**40,000**
2. National satellite account for priority sectors			
2.1 National satellite account for mineral resources	Contribute to medium- to long-term policy dialogue on rent recovery, distribution, and investment	Satellite account development for proven resources in large-scale mining sector, and integration into macroeconomic indicators Analysis of issues related to rent recovery, distribution, and reinvestment and their implications for equity and sustainability	**60,000**
2.2 National satellite account for mangroves	Contribute to medium- to long-term policy dialogue on mangrove reforestation, coastal zone protection, fisheries, tourism, and REDD+	Satellite account development for mangroves, and integration into macroeconomic indicators Analysis of issues related to mangrove reforestation, coastal zone protection, fisheries, tourism, and REDD+	**60,000**
3. Ecosystem accounts			
3.1. Ecosystem account for Southern Palawan	Contribute to local medium- and long-term development planning and sustainable management	Development of ecosystem account and framework for replication Analysis of social, economic, and environmental trade-offs of different resource use scenarios and their implications for sustainable management	**145,000**
3.2. Ecosystem account for Laguna Lake Basin	Contribute to local medium- and long-term development planning and sustainable management, and generate a water-pricing plan	Development of ecosystem account and framework for replication Analysis of social, economic, and environmental trade-offs of different resource use scenarios and their implications for sustainable management	**145,000**
4. Capacity Building and Policy Dialogue (cross cutting)		Technical training for each component, awareness raising and communications activities	**650,000**

Component	Policy Objective	Expected Outputs	Estimated Budget ($)
5. Project Management, Coordination, and Oversight (cross cutting)		Operation of steering committee and technical working group	*400,000*
		Project management and technical coordination	
TOTAL ESTIMATED BUDGET			**1,500,000**

5. Institutional Arrangements for Implementation of WAVES Work Plan

The capacity and institutional assessment during the phase of preparing for WAVES concluded that the necessary legal and policy framework, government ownership, and capacity to institutionalize SEEA are in place. Furthermore, past initiatives have introduced the concepts underlying WAVES and have thus laid the institutional foundation for its implementation. Resource valuation is also a priority in the Philippine Development Plan and National Climate Change Action Plan, which explicitly call for a proper valuation of natural resources as a tool for science-based development planning and policy decisions, as well as climate change adaptation. The lead agency, the National Economic and Development Authority, will be in a good position to advocate for the adoption and institutionalization of WAVES—with support from other government agencies, nongovernmental organizations, and the private sector—because it is primarily responsible for the country's development blueprint.

To support institutionalization of the selected SEEA modules, Phil-WAVES will (1) provide training for newcomers and previously trained staff; (2) introduce Key Performance Indicators in the medium- and long-term development plans and Organizational Performance Indicator Framework; (3) synchronize project activities with the long-term planning processes of the National Economic and Development Authority, Department of Budget and Management, Department of Finance, and relevant statistical and sector agencies; (4) rely on government staff and budgetary commitments for the implementation of the selected SEEA modules and the associated policy analysis, in accordance with budgetary rules and policies; and (5) use existing inter-agency committees and technical working groups to involve all relevant government agencies and partner institutions during implementation.

The government has been and will be fully engaged in the preparation, implementation, and follow-up related to this activity. However, given that past natural capital accounting initiatives could not be continued because of a lack of capacity and resources, the Philippine Statistics Authority has explicitly requested the Phil-WAVES technical assistance to support the institutionalization of the selected SEEA modules. For this reason, the project will finance activities executed by both the World Bank and the Government.

The Recipient-Executed Trust Fund of $0.7 million will support in-house capacity building at the Philippine Statistics Authority. This will involve hiring four technical staff who will be in charge of compiling the natural capital accounts. Their salaries and terms of employment will be similar to other Philippine Statistics Authority staff, thus helping to facilitate their integration into government staff once the project closes. In addition to generating data and indicators, the Philippine Statistics Authority will also lead SEEA training activities and supporting studies, drawing on local resources where possible. Additional technical assistance will be provided by the Australian Bureau of Statistics, through financing from Australia's Department of Foreign Affairs and Trade. The country coordinator and their assistant,

housed at the National Economic and Development Authority, will also be financed through the Recipient-Executed Trust Fund, to facilitate project coordination across government agencies.

This work will be complemented by activities financed under the Bank-Executed Trust Fund of $0.8 million, which will focus on policy analysis at the national and local level. The fund will also finance the development of the ecosystem accounts for Southern Palawan and the Laguna Lake basin and analysis of the trade-offs associated with different resource and ecosystem-use scenarios.

To ensure prompt and smooth implementation, the following institutional arrangements have been made:

- *Steering committee*. The Phil-WAVES steering committee has been established and has met two times (July 26, 2013, and January 30, 2014). The steering committee is chaired by the National Economic and Development Authority, with the following agencies as members: Department of Budget and Management (vice chair), Department of Finance, Philippine Statistics Authority, Department of Environment and Natural Resources, Climate Change Commission, Department of Agriculture, Office of the Presidential Advisor on Environmental Protection, and Union of Local Authorities of the Philippines. The steering committee will provide strategic direction and guidance by facilitating implementation; reviewing and approving work plans, progress reports, and Phil-WAVES analysis; and establishing channels for policy dialogue.
- *Lead agency*. The Agriculture, Natural Resource, and Environment staff of the National Economic and Development Authority is leading Phil-WAVES by providing strategic direction and guidance through organizing and providing secretariat support to the steering committee. The National Economic and Development Authority technical working group has been set up through a special order. The Agriculture, Natural Resource, and Environment staff will be assisted by the national country coordinator, whose assistant will be in charge of monitoring and coordinating the project. This will include (1) monitoring the project progress and reporting regularly to the steering committee, Philippine Council for Sustainable Development, World Bank, and WAVES global partnership program; (2) coordinating the policy dialogue on the Phil-WAVES findings and their internal uptake through existing committees in development planning and policy analysis and external uptake through the Philippine Council for Sustainable Development; and (3) leading the training component. The National Planning and Policy Staff will lead the macroeconomic policy analysis under Policy Objective 1.
- *Implementation of SEEA*: The Philippine Statistics Authority will be responsible for implementing SEEA by constructing both the macroeconomic indicators and natural capital accounts, and leading the learning among the statistical and source agencies. The SEEA implementation will be supported by the technical working groups of the Inter-Agency Committee on Environment and Natural Resource Statistics, which will (1) oversee the generation of data and indicators, (2) provide technical advice and guidance, (3) ensure quality, (4) ensure that detailed and quality data is made available, and (5) coordinate and collaborate across government agencies. Four technical staff will be hired under the project to assist with SEEA implementation. The latter has already been set up.
- *Policy analysis and ecosystem accounts*. The Foreign-Assisted and Special Projects Office of the Department of Environment and Natural Resources will lead the policy analysis for the minerals and mangroves natural capital accounts. Working with the Palawan Council for Sustainable Development, the office is also leading the preparation of the ecosystem account of Southern Palawan. Technical working groups have been set up at both the national and local level and are effectively coordinating with each other. The Foreign-Assisted and Special Projects Office will

also provide coordination support by liaising with the National Economic and Development Authority and Philippine Statistics Authority and coordinating with other department offices, both national and regional. The Laguna Lake Development Authority will lead the ecosystem account for the Laguna Lake basin in consultation with the Federation of River Basin Councils. The internal technical working group has been set up and consultations with the federation are scheduled to take place in late May 2014. Each activity will be supported by a team of experts and receive policy advice and guidance from relevant sector and government agencies and local government units.

- ***The World Bank.*** The Bank team will support the National Economic and Development Authority and the other implementing agencies by (1) providing the necessary technical and policy advice and support as needed; (2) liaising with the government, key national and international stakeholders, and the WAVES global partnership program; (3) monitoring and reporting on the work plan and budget; and (4) managing all the consultant contracts and the Bank-Executed Trust Fund.

6. Progress and Next Steps

Preparation

The concept note for the Phil-WAVES project was reviewed and approved by the government and the World Bank on February 7, 2013. The Bank-Executed Trust Fund has been set up and is supporting the development of the ecosystem accounts, with considerable co-financing from the Department of Environment and Natural Resources and the Laguna Lake Development Authority. The Recipient-Executed Trust Fund was signed by the Government on April 25, 2014. The Philippine Statistics Authority and the National Economic and Development Authority are in the process of procuring the services of the technical staffs and country coordinator, as well as a junior assistant. The statistics authority will then start developing the minerals accounts, for which a first data assessment has already been carried out.

Activities in the Philippines kicked off in August 2013 with a series of public consultations on the ecosystem accounts. These involved various stakeholders from the national and local government, private sector, local communities, indigenous peoples, civil society, and academia. Since then, global and local experts have conducted a series of trainings and planning workshops on ecosystem accounts and the principles of natural capital accounting. These workshops helped develop consensus among stakeholders on the policy issues the two ecosystem accounts would address. The issues to be addressed in the Laguna Lake region are siltation and pollution of the lake. In Southern Palawan, the ecosystem account will help develop a plan for handling conflicting land uses.

Progress

Preliminary work on compiling these accounts has begun. Land-cover change matrixes were compiled and updated for Southern Palawan and the Laguna Lake Basin and a water use and supply table was compiled and updated for the Laguna Lake Basin. Both teams are carrying out data gap assessments and developing detailed work plans, with the support of local consultants. A hands-on training on modeling and valuing ecosystem services will be developed for the second half of the calendar year, to further build local capacity and support implementation. In addition, the European Space Agency will provide satellite imagery and analysis to fill existing data gaps, while experts from the University of Wageningen

and the Australian Bureau of Statistics are providing technical advice and guidance. In the coming months, the project will also explore how the Philippine Statistics Authority can be best involved to support each technical working group in the compilation of the ecosystem accounts.

The free and prior informed consent of indigenous people communities in Southern Palawan and the Laguna Lake Basin is in process. Certificates of non-overlap have been secured for areas without indigenous peoples/ancestral domains in the Laguna Lake Basin. These include the metro Manila cities of Caloocan, Manila, Marikina, Muntinlupa, Pasig, Pateros, Quezon, and Taguig. Field validations are being carried out in the remaining communities in the Laguna Lake Basin and in Southern Palawan. The issuance of the free and prior informed consent needs to be fast tracked.

A communications plan identifying the main stakeholder groups both inside and outside the government has been prepared and is being finalized/reviewed by the different partner government agencies. WAVES is building on existing multi-stakeholder groups to effectively engage all relevant government agencies, nongovernmental organizations, civil society, academia, and representatives of the private sector. A first set of communications products has been developed, including an information docket as well as press releases on major events. All the information on the workshops and trainings conducted is also available on the WAVES website.

Next steps

As the WAVES project progresses, additional communications products targeting the identified stakeholders will be developed. Another communications objective will be to analyze and identify points of convergence between WAVES and other World Bank projects, such as Capturing Coral Reef and Related Ecosystem Services, the Extractive Industries Transparency Initiative, and the Flood Master Plan. As the Phil-WAVES team identifies measures of success for the project, communication channels and activities may be reevaluated to achieve the overall communication objectives.

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Annex 1: WAVES Results-Based Monitoring Matrix

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Target Values						
	Base-Line June 2011	Prep year June 2012	Year 1 June 2013[10]	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016	Year 5 June 2017 (proposed)
Country-level: PDO 1. To implement natural capital accounting in the country							
Outcome Indicators:							
a. Country has committed to institutionalize natural capital accounting based on lessons learned from the WAVES program				Commitment to hire 4 staff in Philippine Statistics Authority; procurement in process	4 staff in Philippine Statistics Authority	Staff commitments for additional accounts in other government agencies (Department of Environment and Natural Resources, Laguna Lake Development Authority, Palawan Council for Sustainable Development)	Staff retained at Philippine Statistics Authority & other government agencies (Department of Environment and Natural Resources, Laguna Lake Development Authority, Palawan Council for Sustainable Development)
Results Indicators (Intermediate Outcomes)							
1.1 Country has completed the milestones for the WAVES Preparation Phase[11]			All completed				
1.2 Country has asset accounts for selected				Work started on mineral asset accounts	Subsoil assets, preliminary land	Preliminary mangrove	Land accounts scaled up to

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[10] In the Philippines the preparation period lasted until June 2013.

[11] National Steering Committee established, Feasibility study approved by National Steering Committee and WAVES Secretariat, Stakeholder consultation on draft work plan, Work plan approved by National Steering Committee and WAVES Secretariat.

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Target Values						
	Base-Line June 2011	Prep year June 2012	Year 1 June 2013[10]	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016	Year 5 June 2017 (proposed)
natural assets					accounts for ecosystem pilots	accounts, subsoil assets updated, land accounts for ecosystem pilots update, preliminary land accounts national level	regional/national level
1.3 Country has flow accounts for selected natural resources					Monetary minerals accounts	Mangrove products	Mangrove products updated
1.4 Country has experimental ecosystem accounts (if intended in country work-plan)				Work started on ecosystem accounts for 2 pilot sites: Laguna Lake (Metro Manila) & Southern Palawan	Preliminary results for 2 pilot sites	Phase 2 results for pilot sites	Scale up pilot site ecosystem accounts to regional/national level
1.5 Country has macro-economic indicators derived from the SEEA accounts (if intended in country work-plan)					Preliminary estimates adjusted net savings & adjusted net income	Preliminary estimates of produced capital & comprehensive wealth, updated adjusted net savings & adjusted net income	Updated all macroeconomic indicators
1.6 Country has capacity for maintaining NCA (evidenced by dedicated government staff for NCA and regular reporting mechanism for				Technical working groups established for ecosystem accounts & mineral accounts & received training	Unit in Philippine Statistics Authority created with 4 staff & received training	Technical working group established for mangroves accounts & received	

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Target Values						
	Base-Line June 2011	Prep year June 2012	Year 1 June 2013[10]	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016	Year 5 June 2017 (proposed)
production of natural capital accounts)					Technical working group established for macroeconomic indicators & received training	training	
PDO 2. To incorporate natural capital accounting in policy analysis and development planning in the country							
Outcome Indicators:							
a. a. NCA informs policy dialogue on growth, environment and poverty reduction, evidenced by citing NCA or using NCA indicators and data in, development plans, sector strategies and plans, executive orders, legislative documents, and the broader policy analysis literature (may include World Bank ESW, AAA and project formulation documents)			Executive Order on mining for mineral accounts	Natural capital accounting included in revised Philippine Development Report as mgmt. tool	Water pricing discussions for Laguna Lake based on preliminary results from ecosystem accounts Land use planning/zoning in Southern Palawan based on preliminary results from ecosystem accounts	Mining policy informed by mineral accounts & ecosystem pilot in southern Palawan. Watershed management & pollution regulation in the Laguna Lake basin informed by results from ecosystem accounts	Coastal development & disaster risk reduction/disaster risk management policy & national greening program informed by mangrove accounts
Results Indicators (Intermediate Outcomes)							
2.1 Country has policy notes and analytical work based on NCA				1st Policy Brief on Ecosystem Accounts for 2 sites, June 2014	1st note on macro indicators-minerals; 1st note on mineral accounts, 2nd note on ecosystem	Final technical report & policy notes on macro indicators, Final technical report & policy notes on 2 ecosystem pilot sites; Final	Technical reports, policy notes on ecosystem accounts for the country; Final technical report & policy

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Target Values						
	Base-Line June 2011	Prep year June 2012	Year 1 June 2013[10]	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016	Year 5 June 2017 (proposed)
					accounts	technical report & policy note on mineral accounts; note on scaling up ecosystem accounting to the rest of the country; 1st note on mangroves accounts	notes on mangrove accounts
2.2 Country has capacity for using NCA in policy dialogue(evidenced by government staff trained in using NCA)		2 training workshops for policy-makers, user agencies (government, academic, CSOs)	2 government staff sent UN Statistics Division international seminar on ecosystem accounts to Nov 2012	Two 2-day workshops on ecosystem accounting Sept 2013 (110+ participants from government, civil society, private sector & academia) 4 government staff sent to SEEA regional training in Bangkok, Oct 2013 10 government staff sent to one-week Introductory natural capital accounting course conducted by Australian Bureau of Statistics-Australian National University, December 2013			

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OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Target Values						
	Base-Line June 2011	Prep year June 2012	Year 1 June 2013[10]	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016	Year 5 June 2017 (proposed)
				30-40 government staff (Department of Environment and Natural Resources, Laguna Lake Development Authority, National Economic and Development Authority, Office of the Presidential Advisor for Environmental Protection) & civil society/academe representatives participated in one-week training on ecosystem accounting, February 2014 30-40 government staff(Philippine Statistics Authority, Mines and Geoscience Bureau, National Economic and Development Authority) participated in one-week training on SEEA central framework, February 2014			

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