Roadmap to Institutionalize Natural Capital Accounting in the Philippines (Abridged)

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The Roadmap to Institutionalize Natural Capital Accounting (NCA) in the Philippines is developed by the National Economic and Development Authority (NEDA) together with the Philippine Statistics Authority (PSA) and the Department of Environment and Natural Resources (DENR). This document provides strategic guidance on the national implementation of NCA from 2022 to 2040. It presents the critical activities, milestones, and outputs for each planning period to fully institutionalize and integrate NCA, including valuation of ecosystem services in the government's planning, investment decisions, and policymaking process. The activities in the Roadmap are tailored to respond to the issues and gaps in localized framework, data concerns, human resources and technical capacity, and institutional arrangements. The Interagency Committee on Environment and Natural Resources Statistics (IACENRS) of the PSA Board approved the Roadmap on March 30, 2022 through Resolution No. 01 Series of 2022.

1.0 Introduction

Natural capital refers to the stock of **renewable and non-renewable resources** (e.g., plants, animals, air, water, soils, and minerals) that provide a flow of benefits to people. It also includes the **ecosystem services** that are often "invisible" to most people, such as air and water filtration, flood protection, carbon sequestration, pollination of crops, and habitats for wildlife. As such it is a **key component of the country's wealth,** affecting long-term income and growth and sustaining a well-functioning economy.

Economic growth requires the environment to *sustain ecosystem services* that provide subsistence and livelihood for resource-dependent communities and capital for infrastructure, machinery, manufacturing, and production sectors. However, declining stocks and degrading environmental conditions affect the economy in a way that is not measured accurately (or at all).

The NCA Framework

Natural Capital Accounting (NCA) is a tool that *measures changes in the stock* of natural capital and *integrates the value* of ecosystem services into accounting and reporting systems for a given region or ecosystem. Using an accounting approach that integrates various economic, socio-demographic, and environmental data into aggregates and indicators, NCA provides accounting frameworks to "put together" dispersed environmental data and integrate them with conventional income accounts.

The Philippines has adopted the **United Nations System of Environmental-Economic Accounting (UN SEEA) Framework,** particularly the **Central Framework (CF)** and the **Ecosystem Accounting (EA) Framework,** consistent with the **System of National Accounts (SNA).**

The SNA provides a comprehensive conceptual and accounting framework to *compile and report macroeconomic statistics* for analyzing and evaluating the overall economic performance. The SEEA CF and the SEEA EA *complement the SNA* by using the same accounting principles to *compare data on the environment* with data from national accounts. These two are combined to provide a comprehensive picture of the environmental-economic relationship.

Central Framework	Provides concepts, definitions, and classifications to support integrated accounting for **physical flows, environmental transactions** and **transfers, and individual environmental assets.**
Ecosystem Accounting	A spatial approach to accounting in organizing biophysical information about ecosystems – measuring **ecosystem services,** tracking changes in **ecosystem extent and condition,** valuing **ecosystem services and assets,** and *linking this information* to measures of economic and human activity.

Accounts-to-Policy Approach

The NCA Roadmap emphasizes *linking accounts to decision-making,* which entails demonstrating the interactions of economic activity with the environment, leading to better economic decisions.

Gross Domestic Product (GDP) measures only the value of a finished product within a given time, ignoring much broader forms of wealth (such as regulation and protection services provided by forests and wetlands) and pressures on natural assets and the environment. For example, cutting all the country's trees would raise GDP temporarily, but common sense (and NCA) will tell us that healthy forestlands (i.e., ecosystem services) are needed to sustain a well-functioning economy.

NC accounts help by generating information that allows for a better assessment of economic performance, which will enable more appropriate economic reforms on a national level. At the site-specific level, these accounts can facilitate informed decision-making of political leaders and communities – guiding them in weighing gains and trade-offs of development interventions.

Translating accounts to policy is important so that policies and decisions on environment and natural resources are geared toward benefiting society.

2.0 Assessment of The Past and Current State of NCA Institutionalization

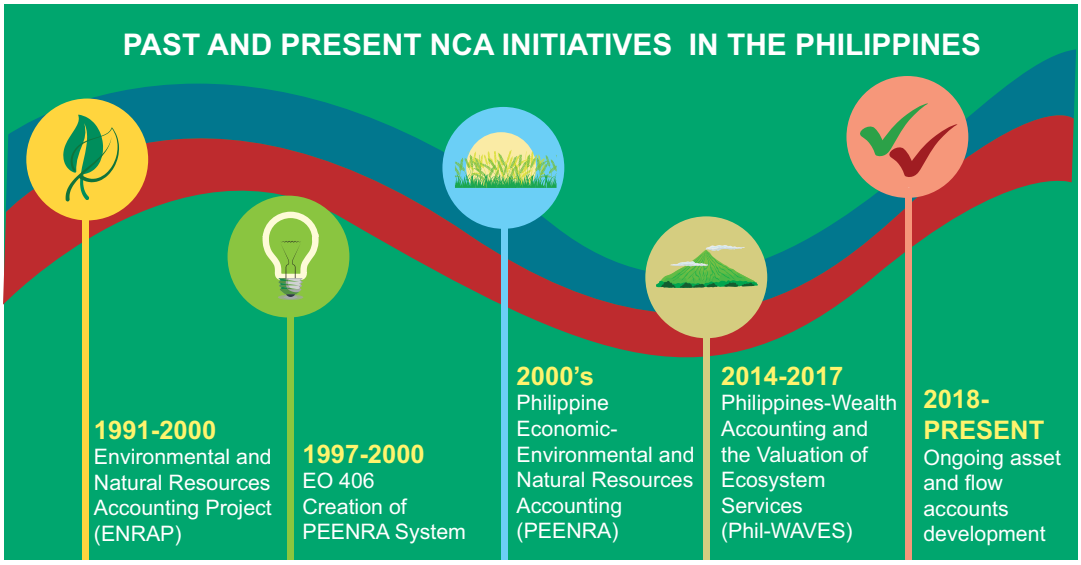

Figure 1. Past and Present Key NCA Initiatives in the Philippines

NCA was still in the early stage of development in the 1990s with no internationally agreed-upon methodology. An international agreement was only formally reached in 2012 when the UN Statistics Commission adopted the System of Environment – Economic Accounting (UN SEEA CF) Central Framework as an international statistical standard. In 2021, it also adopted SEEA Ecosystem Accounting. In the Philippines, there were several initiatives such as the **Environmental and Natural Resources Project (ENRAP),** the **Philippine Economic- Environmental and Natural Resources Accounting (PEENRA) Project,** and the **Philippines Wealth Accounting and Valuation of Ecosystem Accounts (Phil-WAVES) Project.**

ENRAP and PEENRA (a) developed the ENR statistics database; (b) established and strengthened institutional linkages; and (c) developed capabilities of human resources for environmental accounting. Phil-WAVES, on the other hand, heightened awareness and enhanced local capacity on the use of NCA in policy analysis and decision-making and resource management.

The NCA Roadmap, which was initially developed through the Phil-WAVES Project supported by the World Bank in 2017, was updated to consider the country's current priorities and needs as well as provide clear institutional arrangement and policy documents to enable its smooth implementation.

Issues and Challenges

Previous attempts to institutionalize NCA — not only in the Philippines but also at the global level — have been unsuccessful due to the lack of a clear policy link, disagreements on methodology, lack of ownership, and limited capacity and resources. In the Philippine context, NCA implementation faces major bottlenecks related to **data** (limited data infrastructure and fragmented data sharing platform); **human resources** and capacity development; **standards** (linking to national accounts); and the **local application** of international frameworks.

3.0 Relevant Frameworks and Policies

The development of the Roadmap is anchored on global and country-specific development goals and strategies based on the priority issues in the Philippines. The following are the local and international policy frameworks that need to be considered:

International Policy Frameworks	• Sustainable Development Goals (SDGs) • 2015 Paris Agreement on Climate Change • Sendai Framework for Disaster Risk Reduction 2015-2030
Local Policy Frameworks	• *AmBisyon Natin 2040* • 10-point Socioeconomic Agenda • Philippine Development Plan (PDP) 2017-2022 • Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP) • Philippines' Nationally Determined Contributions (PH-NDC) • National Climate Change Action Plan (NCCAP)

Consistent with ***AmBisyon Natin 2040,*** the ENR sector management also aims to "ensure ecological integrity and improve the socioeconomic condition of ENR dependent communities through enhanced ecosystem services." However, the country remains challenged by several environmental issues such degradation of our forests, watersheds, and marine ecosystems; depletion of non-renewable natural resources; and poor environmental quality.

4.0 The NCA Roadmap

The **Roadmap to Institutionalize NCA** in the Philippines (NCA Roadmap) aims to support the incorporation of natural capital accounts in the government system – including national economic accounting systems – as part of development planning and policy- and decision-making processes. The integration of natural capital into policy frameworks and development planning can strengthen policymaking for sustainable development.

Specifically, the NCA Roadmap aims to:

1. Lay down the recommended NC accounts and activities to address the issues and challenges in the implementation of NCA in the Philippines in the short-, medium-, and long term;
2. Provide the overall institutional arrangements, including roles and responsibilities of data producers, accounts compilers, and users; and
3. Identify areas for budget support and appropriate monitoring and evaluation system.

Components of the Roadmap

To achieve these aims, the Roadmap contains major components (development of natural capital accounts, estimation of natural capital–adjusted macroeconomic indicators, and policy use and applications) and ancillary ones (data management systems, capacity development, and dissemination) for support.

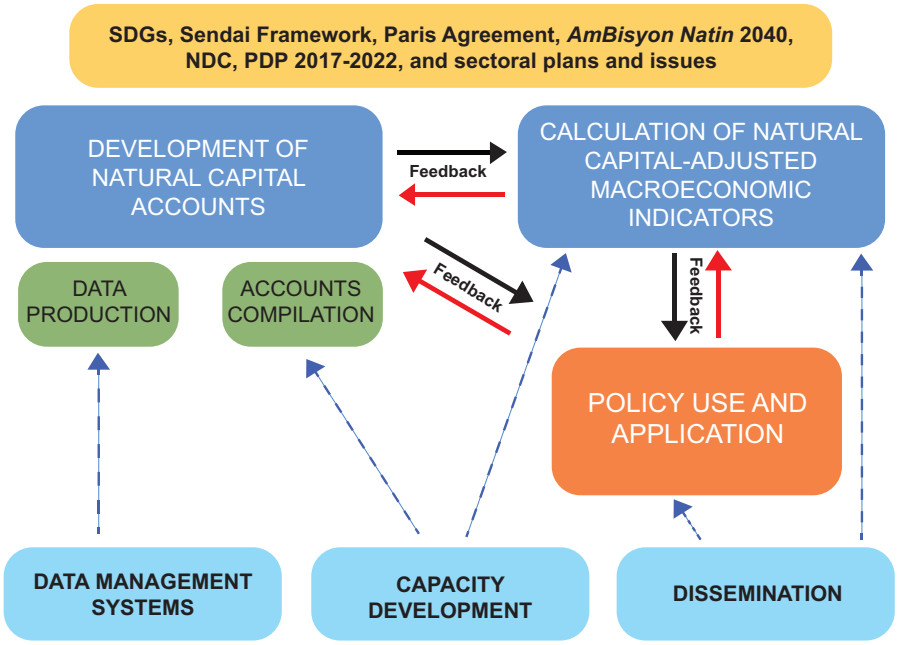

Figure 2. General Workflow of NCA Activities

Component 1: Development of Accounts

This involves several steps such as the (a) preparatory work and design phase, which includes the formation of a technical working group or task force, initial training on the specific account development, local adaptation of the UN SEEA framework, and preliminary data assessment; (b) data collection and consolidation phase; (c) actual compilation of accounts, and (d) the preparation of technical reports. These initial accounts (asset, flow, and ecosystem) need to be improved and regularly updated using more recent data so that changes in the state of natural assets can be monitored over time and appropriate intervention taken if warranted.

Asset Accounts

The primary objective of compiling asset accounts is to measure the physical and monetary values of natural assets, including the changes in their stocks over time. Asset accounting focuses on measuring addition to stocks due to natural growth and discoveries and reduction in stocks arising from natural losses and extraction of resources. Aligned with the UN SEEA Central Framework, PSA is looking at seven individual components that are considered environmental assets, which are prioritized to be updated and/or compiled both at the subnational (covering pilot regions and provinces) and national levels until 2040.

1. Mineral asset accounts. The PSA has compiled the mineral accounts for large-scale mines for the 2002-2012 and 2013-2020 periods. These existing accounts will be continuously updated by the PSA in partnership with the DENR Mines and Geosciences Bureau (MGB). The coverage of mineral accounts can also be extended to non-metallic resources and small-scale mining.

2. Energy asset accounts. The 2010 to 2017 Energy Asset Accounts was published by PSA in 2019, which already includes asset accounts for coal, oil, natural gas, and condensate. The latest compilation of PSA covers the years 2000-2020. In the period 2023-2028, the PSA will continue to update energy accounts and prioritize the same until 2040.

3. Water asset accounts. Water resources consist of fresh and brackish water in inland water bodies, including surface water, groundwater, and soil water. In the water resources accounts, the scope is on the volume of water and changes over time due to abstraction and use of water in the economy.

4. Land and soil resources asset accounts. In the SNA, land and soil resources are treated as a single asset type while in the SEEA Central Framework, these are considered as two separate assets. Physical asset accounts on land use and land cover can provide important information to policy makers since conflicts in land use and the distribution of benefits underpin most of the problems in resource use.

5. Timber resources asset accounts. The development of physical and monetary asset accounts for timber resources is important in analyzing its inputs for the manufacturing and construction industry for wood production. These accounts will also serve as bases for the measurement of the energy sourced from the timber resources. Changes in the stock of timber due to afforestation, reforestation, and deforestations will provide a critical basis in crafting the needed policy reforms to conserve timber resources.

6. Biological resources. PSA will determine the priority biological resources through stakeholder consultations. Data assessment will be done to determine the feasibility of compiling the accounts for the selected resource. Data will then be collected, organized, analyzed, and compiled to populate the SEEA asset accounts tables.

Flow Accounts

Flow accounts allow for consistent analysis of the relationship between the flows of natural inputs and economic activity, the relationship between economic activity and releases, and the relationship between the flows in physical and monetary terms.

1. Energy flow accounts. At present, the PSA has an ongoing research and development activity on energy flow accounts. Technical reports on the compilation of these accounts are expected to be completed in 2022. The PSA will coordinate with the users to identify priority accounts such as the inclusion of renewable energy sources (e.g., solar, wind, hydro, and geothermal) in the energy flow accounts. PSA is continuously coordinating with the DOE for the energy balance tables.

2. Water flow accounts. The PSA first published Water Flow Accounts in 2019. In 2021, the PSA released the Water Flow Accounts covering the physical flow accounts for water resources of the Philippines for the period 2010-2019. In compiling these water flow accounts, the National Water Resources Board (NWRB) made a significant contribution by providing data on the country's volume of water allocated per year by source from surface water or groundwater and by use (i.e., municipal, industrial, irrigation, power, fisheries, livestock, recreation, other purposes).

3. Material flow accounts. In 2022, PSA is focusing on research and development to refine the scope and methods on the recording of physical flows of products, air emissions, solid waste, and other residual flow. Considering that materials are inherently natural inputs, products, and residuals, it is important to conduct research on data requirements, sources, and economic boundaries with respect to flow of materials to complete the physical supply and use table. After the research work, PSA will compile material flow accounts from 2023-2028 and beyond with regular updating.

4. Other flow accounts. In 2023-2028, PSA will conduct exploratory activities on the development of water emissions and air emissions accounts at the national and subnational levels. These

accounts will be able to inform the formulation of policy reforms needed to address pressures on the environment and measures aimed at reducing emissions.

The complete details on the asset and flow accounts to be developed per period until 2040 can be found in the full NCA Roadmap (Table 3: The Roadmap Activities).

Ecosystem Accounts

In the development of site-specific ecosystem accounts in the Philippines, the DENR will adopt the UN SEEA Ecosystem Accounting Framework which includes (a) ecosystem extent account (in physical terms), (b) ecosystem condition (in physical terms), (c) ecosystem services (in both physical and monetary terms), and (d) ecosystem asset accounts (in monetary terms) as shown in Figure 3. It is envisioned that any ecosystem accounts development initiative in the country should contain this set of accounts to provide a more integrated approach on NCA.

The SEEA Ecosystem Accounting presents a framework for linking biophysical data, changes in ecosystems, and economic and human activities. It starts from the perspective of ecosystems and links ecosystems to economic and other human activities. Ecosystem accounting provides a framework for measuring the flows of services from ecosystems, including non-market activities, into economic and other human activities. Ecosystem accounting can then be helpful in assessing tradeoffs among different ecosystem services within a geospatial area.

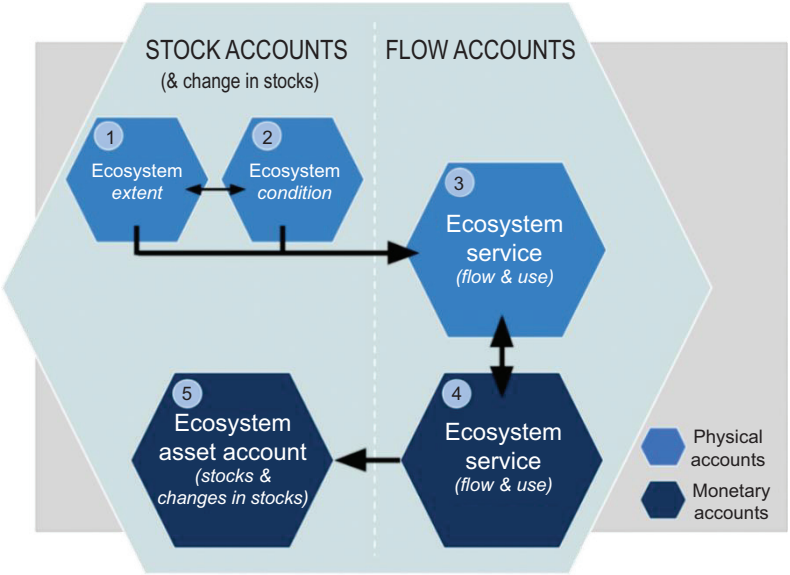

Figure 3. Summary of Ecosystem Accounts
(Source: UN SEEA, 2021)

1. Ecosystem extent accounts. Ecosystem extent accounts organize data on the extent or area of different ecosystem types. Data from extent accounts can support the derivation of indicators of composition and change in ecosystem types. This provides a common basis for discussion among stakeholders, including issues such as conversions between different ecosystem types within a country. Compilation of these accounts is also relevant in determining the appropriate set of ecosystem types that will underpin the structure of other accounts.

2. Ecosystem condition accounts. A central feature of ecosystem accounting is its organization of biophysical information on the condition of different ecosystem types. The ecosystem condition account organizes data on selected ecosystem characteristics and how far they are from the baseline condition and/or ideal state to provide insight into the ecological integrity of ecosystems. It will also organize data that helps measure the capacity of an ecosystem to supply different ecosystem services.

3. Ecosystem services flow accounts – physical terms. The supply of final ecosystem services by ecosystem assets and the use of those services by economic units, including households, enterprises, and government, constitute one of the central features of ecosystem accounting. The supply and use table is used to record the flows of final ecosystem services supplied by ecosystem assets and used by economic units during an accounting period. It also allows for the recording of intermediate service flows between ecosystem assets. In the Philippines, the ecosystem services to be accounted for will vary depending on the identified policy issues and intended policy use of the accounts per ecosystem site.

4. Ecosystem services flow accounts – monetary terms. Commonly, estimates of ecosystem services in monetary terms are computed by multiplying the physical quantities recorded in the ecosystem services flow account with the estimated prices for individual ecosystem services.

5. Ecosystem asset accounts – monetary. It records information on stocks and changes in stocks (additions and reductions) of ecosystem assets. This includes accounting for ecosystem degradation and enhancement.

The DENR, together with its bureaus and attached agencies, identified the sites for ecosystem accounting (Table 1). These were subjected to a three-tiered set of evaluation criteria:

Tier 1: the existing major policy issues involve tenure issues, land conversion, deforestation, solid waste, and water quality;

Tier 2: characterized as key biodiversity areas, mining areas, critical watershed or river basin, climate change, and disaster; and

Tier 3: characterized as environmentally-critical areas and/or environmentally-critical projects that fall within the scope of the Environmental Impact Statement System.

Table 1. Priority Ecosystem Sites for Ecosystem Accounting in the Philippines

Period (years)			
2022	**2023-2028**	**2029-2034**	**2035-2040**
1. Masinloc-Oyon Bay Protected Landscape and Seascape (MOBPLS) in Zambales 2. Mt. Mantalingahan Protected Landscape (MMPL)	3. Laguna de Bay (LdB) 4. Southern Palawan 5. Puerto Princesa Subterranean River National Park (PPSRNP) 6. Cleopatra's Needle Critical Habitat (CNCH) 7. Siargao Island Protected Landscape and Seascape (SIPLAS) 8. Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) 9. Victoria-Anepahan Mountain Range (VAMR) 10. Calamianes Group of Islands	11. Chico River Basin (CRB) and Mt. Pulag National Park (MPNP) 12. Laur in Pantabangan, Nueva Ecija 13. Sierra Madre in Nueva Ecija 14. Sierra Madre in Cagayan 15. Iloilo 16. Apayao 17. Zambales 18. Northern Samar 19. Eastern Samar 20. Zamboanga Del Norte	21. Kaliwa Watershed in Marikina and Sierra Madre 22. Sorsogon 23. Samar (formerly named Western Samar) 24. Cebu 25. Kalinga 26. Ifugao 27. Catanduanes 28. Surigao Del Sur 29. Southern Leyte 30. Bukidnon

Expected Milestones

End of 2022 ☐ Compilation of national and subnational environmental asset accounts (pilot regions), exploratory work on flow accounts (material flow and renewable energy), and preliminary work on new ecosystem accounts

End of 2028 ☐ Exploratory activities and research and development work on biological resources, non-metallic minerals, small-scale mining, water and air emissions; and compilation of ecosystem accounts for new priority sites

End of 2034 and 2040 ☐ Regular compilation of complete set of natural capital accounts

Component 2: Calculation of Adjusted Macroeconomic Indicators

The PSA will lead the calculation of natural capital-adjusted macroeconomic indicators to account for natural capital in the country's comprehensive wealth, which we use to generate income. At present, the economic performance is measured using the UN SNA – an internationally-agreed statistical standard that provides an overview of economic processes and a record of how production is distributed among consumers, businesses, government, and foreign nations in the form of macroeconomic indicators, such as the gross domestic product (GDP) and gross national income (GNI), among others. However, while it measures economic activity, it does not fully capture the sustainability of such activities, especially ecosystem services and natural capital depletion and degradation.

The PSA will explore the calculation of (a) **Adjusted Net National Income (ANNI)** and (b) **Adjusted Net National Savings (ANNS)**. With regular estimation and publication of these adjusted macroeconomic indicators, decision-makers will be better informed and guided in policy, planning, and investment programming. Specifically, this will help: (a) NEDA in policy review and evaluation and in socioeconomic planning and programming, (b) the Department of Finance (DOF) in finance and investment decisions, and (c) DBM in budgeting, among others. The timetable for this can be found in the full NCA Roadmap.

Expected Milestones

End of 2022	☐ Capacity development and scoping work on integrating economic indicators for ecosystem services in the adjusted macroeconomic indicators and national wealth
End of 2028	☐ Release and publication of preliminary NC-adjusted macroeconomic indicators and more capacity building work on incorporating ecosystem assets and services in the NC-adjusted macroeconomic indicators
End of 2034	☐ Strengthening demand, appreciation, compilation, and use of NC-adjusted macroeconomic indicators
End of 2040	☐ Continuous work and publication of NC-adjusted macroeconomic indicators

Component 3: Policy Use and Application

This is a major component of the NCA Roadmap to address the lack of appreciation in using the environmental asset and ecosystem accounts and environmentally-adjusted macroeconomic indicators. The choice of accounts to be prioritized will be guided by the early practical application of the accounts in policymaking and resource management decision-making. The activities in this component are timely since ongoing reforms focus on transparent and science-based decision-making while pursuing sustainable, inclusive, and resilient growth.

In the Philippines, the government recognizes that NCA will help:

- **Guide the formulation of development plans, policymaking process, investment programming, and monitoring toward sustainable development.** The use of a balanced set of social, economic, and environment indicators in planning allows choices that support economic and social needs without compromising ecological integrity.
- **Facilitate informed decision-making of political leaders and local communities on development options/activities vis-à-vis trade-offs.** NCA will guide us in weighing the gains and trade-offs of a development intervention using SD-lens to manage the competing uses of our natural capital properly.
- **Improve the reporting of the country's performance and monitoring of ENR indicators. NCA allows for more systematic collection, monitoring, and reporting of data from national and local governments, including academic and research institutions.** The indicators identified for the NCA will help update and improve the compilation of ENR statistics/data following the UN System of Environmental-Economic Accounting (UN SEEA) framework in the context of the Philippines.

Expected Milestones

End of 2022	☐ Policy issuances directing the integration of NCA in sectoral, spatial, and national/local development planning requirements and processes
	☐ Publication of policy notes/briefs related to NCA tailored for the policymakers/decision-makers, local planners, business/industry sector, and government agencies
	☐ Approval of the NCA indicators/parameters in the PDP-RM
End of 2028	☐ Open access reference guide, technical reports, and policy analysis publication
	☐ Updated PEISS-related guidelines providing the entry points for the integration of NCA in environmental and social impact assessments of development initiatives
	☐ Approval of the NCA indicators/parameters in the PDP-RM
	☐ Pilot financing instruments for easier incorporation of NCA in investment decision process of the government in partnership with financial institutions
	☐ Integrated natural capital-adjusted macroeconomic indicators in policy analysis to measure economic performance
End of 2034	☐ It is envisioned that several milestones have already been attained to ensure functional application and use of NCA at this point, especially its direct use in investment decisions and prioritization at subnational level. The integration of NCA in higher education will

Expected Milestones	
	support the future workforce in advancing their competencies, especially those in the field of ENR management, environmental economics, land use/urban planning, and climate change
End of 2040	☐ The government has fully internalized NCA in the public system across different sectors and levels
	☐ NCA is already part of the regular ENR statistics and reporting of economic performance – achieving "green" GDP

Component 4: Data Management Systems

As a major data producer of environment-related data/statistics, the DENR is the primary agency concerned with the NCA data management system, with its Knowledge and Information Systems Service (KISS) as the overall focal unit for implementation.

In implementing NCA, other data gaps and problems can be identified. With a feedback mechanism between data producers and data users (account compilers and policy analysts), remedies can be explored to upgrade the data systems used in NCA.

- **Establishment and maintenance of ENR database.** The implementation of NCA requires an effective database and data management system to facilitate the storage, access, and processing of NCA data. The information and communications technology (ICT) requirements for ecosystems account development, production, and compilation will be identified. This includes hardware, software, and the appropriate architecture and governance for data processing. The DENR will lead this subcomponent.
- **Data production, governance, and sharing protocol.** It is important to identify the data generators, compilers, analysts and users, and the linkages among these institutions during the implementation of the Roadmap activities. The DENR and PSA will develop the design and architecture of database and information systems for data compilation and establish the flow and process for compiled data based on identified account components.
- **Data interoperability.** Specific activities for this are the development of (a) an algorithm for data interoperability and (b) protocol for common data input/output as well as (c) an information system to manage data integration at the front-end for users and policy developers. The DENR, together with the DICT and DOST, will conduct a beta-test of the information system for data interoperability and sharing. They will also utilize cloud services and other data science technologies.

Expected Milestones	
End of 2022	☐ Work plan (identification of data requirements linking with the prerequisite for data infrastructure and setting working arrangements, protocols, and procedures) has systematized the supporting data management activities for the next period. Account compilation protocols and policies have been established to ensure efficient process for data sharing and submission in the data platforms (e.g., DENR Central Portal)
End of 2028	☐ Working data management which serves as the backbone of the entire NCA process. Data generation of ENR data at the local level has strengthened NCA compilation. Technical and financial support provided to DENR regional and field offices have resulted in the establishment of their respective local ENR databases
End of 2034	☐ Well-functioning data management systems have enabled updating of databases to accommodate emerging needs on NCA compilation
End of 2040	☐ Data automation and innovations have enabled the faster completion of accounts , making them ready for policy use

Component 5: Capacity Development

NCA requires bringing together ecological, accounting, and valuation expertise, among others, hence the need for capacity development. Capacity-building interventions are mainly at the account compilation and policy use phases and are focused on developing human resources to undertake NCA. A mechanism for accessing technical assistance and expert advice, both local and international, is needed. International exchanges of ideas and experiences can help raise the standards of NCA, introduce the Philippine account compilers to new methodologies, and make the process of account compilation more efficient by drawing from good practices and lessons learned from experiences in other countries.

A systematic approach to capacity building should be adopted, taking into account the following activities:

- Development of training program and conduct of basic training on NCA and UN SEEA frameworks.
- Development of Technical Note to provide a standard set of Ecosystem Typology (ET) or NCA terminology.
- Establishment of a local pool of trainers
- Development, review, and updating of training kits and manuals
- Competency development and human resource complement for NCA.

Expected Milestones

End of 2022	☐ Training needs assessment, engagement of stakeholders (including new officials and decision-makers in the next administration), designation of NCA units, and adoption of training modules have improved the understanding and appreciation of NCA work, which is crucial in developing human resources and collaboration in the succeeding period
End of 2028	☐ Regular conduct of trainings on NCA frameworks and policy analysis, updating of training kits, updating of skills and competencies, and hiring additional personnel in the concerned government units have made the NCA accounts development process fully operational
End of 2034	☐ Fully-functional staff dedicated for NCA have contributed to advancing and upscaling NCA work in the country.
End of 2040	☐ Local pool of experts and trainers regularly receiving and conducting capacity development activities have significantly contributed to the expansion and upgrading of NCA knowledge base in the Philippines

Component 6: Dissemination

To sustain and strengthen the demand for NCA, communication activities that involve multi-sectoral participation for enhancing public awareness on NCA and its usefulness in policy analysis need to be undertaken. Policy analyses created using the compiled asset and ecosystem accounts act as incentives for data producers and account compilers, hence the use of the accounts by other government agencies and local governments, the academe, private sector, and civil society organizations should be encouraged. Dissemination activities can enhance the relationship among data producers, compilers, and users. To do so, stakeholder mapping should be conducted to glean vital information on the target participants involved in the NCA to help obtain the buy-in needed for successful NCA implementation.

The following need to be done:

- Establishment of NCA Community of Practice (CoP)
- Crafting of NCA Communication Plan
    - Release/uploading of NCA implementation annual report;
    - Linking of outputs to the PSA website;
    - Public awareness activities (e.g., press briefing, policy dialogues);
    - Release/uploading of NCA implementation annual report on the website;
    - Public awareness activities (e.g., press releases, social media cards, videographics, dashboards) and production of audiovisual and multimedia materials for NCA.

- Publication of initial results to the DENR e-library; and
- Publication of reports and curated ecosystems accounts summary data in the DENR website.

- Establishment of coordination and feedback mechanisms among the NCA players.
- Publication of State of the Philippine Environment and Natural Resources (SOPENR)

Expected Milestones

End of 2022	☐ Collaboration platform such as NCA Community of Practice (CoP) has made NCA work in the country more transparent and effective leading to improved uptake on NCA
End of 2028	☐ Regular preparation and updating of NCA Communication Plan has ensured that the community, organization, and relevant stakeholders are always directed towards the same goals and objectives in NCA implementation. First publication of the State of the Philippine Environment and Natural Resources (SOPENR) has informed policies and decisions
End of 2034	☐ Continuous delivery of dissemination activities has made NCA institutionalization more relevant and beneficial to the users of the accounts
End of 2040	☐ Improved collaboration, coordination, and communication on NCA-related activities has significantly supported the implementation of priority activities in accounts development, policy use and application, and capacity development components

Budget Support

Regular government funding must be secured for this. While the PSA has already incorporated NCA activities in their regular work program, the DENR has yet to fully incorporate NCA activities in their budget plan starting FY 2023. Funding requirements such as additional full-time staff and other resource requirements (e.g., equipment, materials, travel, consultants, training, counterpart funds for foreign-assisted projects, etc.), especially in undertaking ecosystem accounting need to be assessed.

Funding appropriations for special studies. In future budget requests for NCA implementation under the GAA, PSA and other relevant agencies should include funding for special studies, in addition to funding for training programs. Special studies may include the estimation of production and reserves in small-scale gold mining, the estimation of illegal withdrawals (water and forestry) and informal production (forestry and mining), and water pricing and subsidies, among others.

External assistance. Foreign-funded and special projects may also be a source of additional financing for NCA activities. For the DENR, it may be possible for some of the ecosystem accounts or some of the supporting components of the NCA institutionalization Roadmap or their subcomponents (e.g., capability building, data systems upgrading, etc.) to be funded under foreign-assisted projects.

Program Convergence Budgeting. The NCA roadmap implementation can also be incorporated in the Program Convergence Budgeting under the Cabinet Cluster on Climate Change Adaptation and Mitigation and Disaster Risk Reduction (CCAM-DRR) as it directly supports the conservation and protection of the environment and natural resources.

5.0 Implementing the Roadmap

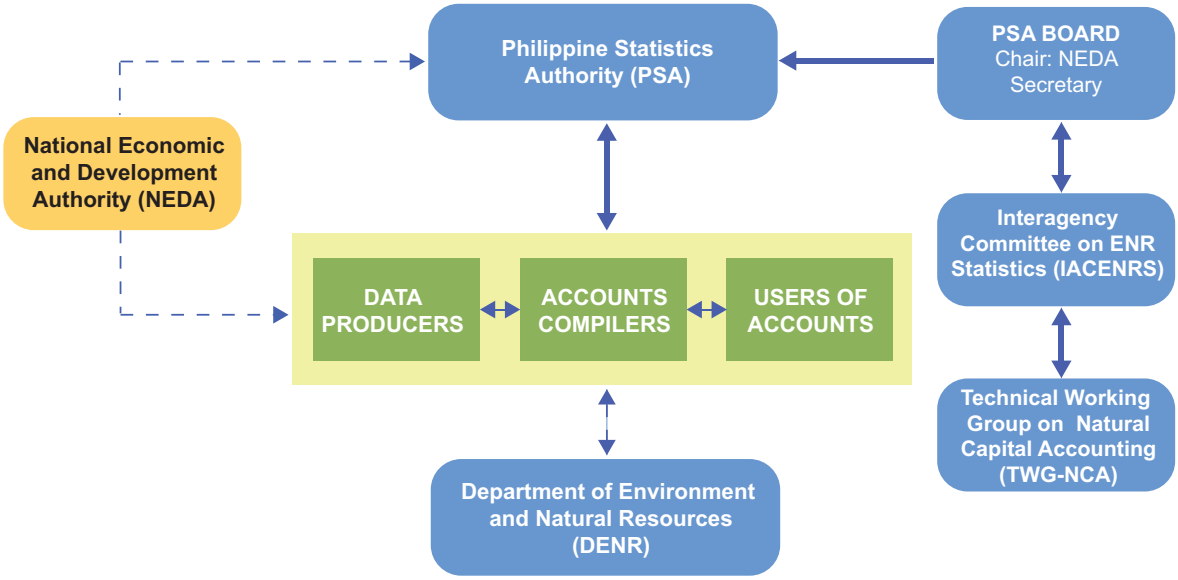

Figure 4. Proposed Implementation Structure for NCA Institutionalization

PSA Board. Strategic direction and guidance shall be provided by the PSA Board, chaired by the Secretary of Socioeconomic Planning. This includes matters on: (a) designation of natural capital accounts to be developed based on policy issues and priorities; (b) localization of the UN SEEA frameworks for the improvement of statistical coordination; and (c) harmonization of government statistical operations, standards, and classifications related to NCA.

PSA. The Philippine Statistics Authority shall have the overall responsibility for the institutionalization and implementation of NCA. As the primary statistical agency, the PSA shall be responsible for the compilation of national and subnational accounts and provision of technical support to other government agencies on (a) data systems and management and (b) account compilation to ensure consistency with the UN SEEA frameworks. The PSA has primary responsibility over national censuses and surveys, sectoral statistics, community-based statistics, consolidation of selected administrative recording systems, and compilation of national accounts. As such, the PSA can create a pool of technical staff with expertise and/or background on statistics, economics, and environmental science, among others.

NEDA. The National Economic and Development Authority shall ensure that NCA is included in the development priorities of the government based on the usefulness of the accounts in policy analysis, planning, and investment programming processes. In the interim, NEDA will support institutionalization by linking accounts to policies to respond to the demand for NCA in the Philippines and enabling evidence-based decision-making. In the long run, as chair of the PSA Board, NEDA's role will focus on providing strategic guidance to improve the uptake on policy use and application, enhance institutional capacity, and raise awareness and transparency of NCA work. NEDA will also support the policy instruments/legislation that will strengthen the implementation of NCA and ensure budget support in the government.

DENR. The Department of Environment and Natural Resources will construct site-specific ecosystem accounts and be a major data producer as well as user of the accounts. In parallel, the PPS will have overall responsibility for NCA within the DENR, with KISS as the PSA counterpart in the DENR, responsible for the compilation of ecosystem accounts and providing the major data support service for NCA. Within the DENR, a technical working group (TWG) is created under Special Order No. 2021-315 for the institutionalization of NCA. The Directors of PPS and KISS serve as the chairs of the TWG with members from various DENR bureaus and attached agencies.

Interagency Committees. The Interagency Committee on Environment and Natural Resources Statistics (IACENRS) shall assist the PSA in addressing agency and sectoral concerns that may arise in the development of the NC accounts, particularly on the: (a) techniques and methodologies in generating ENR statistics; (b) areas of duplication, discrepancies, and gaps; and (c) workable schemes for the improvement of data systems of accounts including production, dissemination, and archiving of data and information. The IACENRS shall provide support in ensuring that all concerned agencies are generating the data requirements of the NCA. The Technical Working Group on NCA (TWG-NCA) under the IACENRS shall serve as a dedicated body acting as entry point for all NCA initiatives in the country and provide immediate support to achieve the priority activities across all components of the roadmap (e.g., securing budget/ financial and technical support and collaborating with development partners for project preparation and implementation).

Data producers. The agencies that produce relevant data to develop NC accounts are expected to know the data requirements (i.e., types of information, frequency of collection, and data format and parameters) of the NCA to ensure that the generated information could feed into the national statistical system. Data producers continuously discuss standards and classifications of statistical information to facilitate the timely compilation of accounts. Key data producers are the DENR bureaus and attached agencies (e.g., MGB, FMB, LMB, BMB, EMB, ERDB, regional offices, LLDA, PCSD, NAMRIA, NWRD), DA bureaus (e.g., Agricultural and Fishery Standards, Fisheries and Aquatic Resources, Soils and Water Management), DOST (e.g., PCAARRD, PAGASA), DOE, PSALM, NPC, NTC, NGCP, NEA, ERC, WESM, distribution utilities, DTI, DOF, DOT, DOTr, DHSUD, DILG, PSA, NCIP, BSP, NEDA, LGUs, non-government bodies, and academic institutions.

Accounts compiler. The PSA as the lead in the compilation of national and subnational accounts facilitates all the processes in the account development – from the designation of the priority accounts to the release of final estimates and dissemination. In the interim, the DENR, LLDA, PCSD, and other stakeholders can develop ecosystem accounts for site-specific and area-based ecosystem accounts, particularly in their priority ecosystem sites. The development of these ecosystem accounts should be closely consulted and coordinated with PSA. In the long term, PSA is envisioned to handle the development of ecosystem accounts on a national scale.

Users of accounts. Policymakers, planners, and decision-makers can utilize NC accounts to identify strategies and needed reforms for a specific sector, particularly by using relevant information on the stocks and flows of natural capital. This may involve policy analysis to develop policy decisions and recommendations to better manage the country's natural resources and understand the contribution of the natural capital to economic growth. The intended users of accounts include the executive branch such as NEDA, DENR, DA, DOE, DILG, DOF, and other government agencies, which can use said accounts to develop their plans and programs. The legislative branch (i.e., senate, house of representatives) are also potential users of these accounts for policy and other legislative instruments. Other key users include LGUs, especially in planning and development, CSOs, business sector, international organizations, and the academe.

Details on implementation as well as a more thorough discussion of the various components may be found in the complete NCA Roadmap.

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