



PHILIPPINE ACTION PLAN FOR SUSTAINABLE CONSUMPTION AND PRODUCTION (PAP4SCP)



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List of Abbreviations

A&D	Alienable and disposable
ABS	Access and benefit sharing
ADB	Asian Development Bank
BOD	Biochemical oxygen demand
CCC	Climate Change Commission
CCT	Conditional Cash Transfer
CE	Circular economy
CHED	Commission on Higher Education
COVID-19	Coronavirus disease 2019
CSO	Civil society organization
DA	Department of Agriculture
DBM	Department of Budget and Management
DENR	Department of Environment and Natural Resources
DENR-BMB	Department of Environment and Natural Resources – Biodiversity Management Bureau
DENR-EMB	Department of Environment and Natural Resources – Environmental Management Bureau
DENR-MGB	Department of Environment and Natural Resources – Mines and Geosciences Bureau
DepEd	Department of Education
DHSUD	Department of Human Settlements and Urban Development
DICT	Department of Information and Communications Technology
DILG	Department of the Interior and Local Government
DOE	Department of Energy
DOF	Department of Finance
DOH	Department of Health
DOJ	Department of Justice
DOLE	Department of Labor and Employment
DOST	Department of Science and Technology

DOT	Department of Tourism
DOTr	Department of Transportation
DPWH	Department of Public Works and Highways
DSWD	Department of Social Welfare and Development
DTI	Department of Trade and Industry
EO	Executive Order
EUF	Environmental users' fees
ENR	Environment and natural resources
GCF	Green Climate Fund
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gas
GIA	Grants-in-aid
GOCC	Government owned and/or controlled corporations
GPP	Green Public Procurement
GPPB	Government Procurement Policy Board
ICT	Information and communications technology
IEC	Information, education, and communication
IGES	Institute for Global Environmental Studies
IPAF	Integrated Protected Area Fund
KM	Knowledge management
LCA	Life cycle assessment/analysis
LGU	Local government unit
LWUA	Local Water Utilities Administration
MBI	Market-based instrument
MEA	Multilateral environmental agreement
MRF	Materials recovery facility
MTOE	Metric Tons of Oil Equivalent
MSME	Micro, small, and medium enterprise
MWSS	Metropolitan Waterworks and Sewage System
NAMRIA	National Mapping and Resource Information Authority
NCA	Natural capital accounting
NCR	National Capital Region
NDC	Nationally determined contributions

NEDA	National Economic and Development Authority
NELP-GCP	National Ecolabelling Program of the Philippines – Green Choice Philippines
NGA	National government agency
NGCP	National Grid Corporation of the Philippines
NGO	Non-government organization
NIPAS	National Integrated Protected Area System
NNC	National Nutrition Council
NSWMC	National Solid Waste Management Commission
PA21	Philippine Agenda 21
PAP4SCP	Philippine Action Plan for Sustainable Consumption and Production
PCEPSDI	Philippine Center for Environmental Protection and Sustainable Development, Inc.
PCSD	Philippine Council for Sustainable Development
PDP	Philippine Development Plan
PEISS	Philippine Environmental Impact Statement System
PES	Payment for ecosystem services
PhilSA	Philippine Space Agency
PhilGBC	Philippine Green Building Council
PIA	Philippine Information Agency
PIDS	Philippine Institute for Development Studies
PLC	Publicly-listed company
PPP	Public-private partnership
PSA	Philippine Statistics Authority
RA	Republic Act
R&D	Research and development
RETF	Renewable Energy Trust Fund
RETA	Regional Technical Assistance
SCP	Sustainable consumption and production
SDG	Sustainable Development Goal
SEA	Strategic environmental assessment
SEC	Securities and Exchange Commission
SEEA	System of Environmental-Economic Accounting
SK	<i>Sangguniang Kabataan</i>
SLF	Sanitary landfill

SR	Sustainability reporting
SUC	State universities and colleges
SWM	Solid waste management
TESDA	Technical Education and Skills Development Authority
TFEC	Total final energy consumption
TIEZA	Tourism Infrastructure and Enterprise Zone Authority
TPES	Total primary energy supply
VEVA	Value Engineering/Value Analysis

Foreword



Over the past decades, countries worldwide, including the Philippines, have been implementing policies and intervention measures to shift toward sustainable consumption and production (SCP), as an increasing number recognize that **basic changes in the way societies produce and consume are imperatives for achieving sustainable development.** However, it has been a challenge for the Philippines, as with the rest of the world, to achieve high economic growth to meet growing needs and aspirations for better quality of life without harming the environment.

According to the 2020 Census of Population and Housing conducted by the Philippine Statistics Authority, approximately 109 million people are living in the country as of May 2020. From 2015 to 2020, the population increased by 8 million, equivalent to an annual growth rate of 1.63 percent.

The country is also rapidly urbanizing. The National Capital Region, Central Luzon, and CALABARZON alone account for about 38.6 percent of the total population. We expect that challenges associated with population growth and urbanization – such as more demand for food, water, and energy resources; increasing waste generation; aggravating traffic congestion; flooding and air and water pollution; and poverty – will likely persist and even worsen in the next few years.

Recognizing these challenges, the government has put in place policies, plans, and programs to manage growth such that economic activities do not put too much pressure on the environment. Some of the notable ones are Republic Act (RA) 11285 or the Energy Efficiency and Conservation Act; RA 10068 or the Organic Agriculture Act; RA 9003 or the Ecological Solid Waste Management Act; RA 10771 or the Green Jobs Act ; Executive Order No. 301, s. 2004 or the Green Public Procurement Program; and Securities and Exchange Commission Memorandum Circular 4, s. 2019 or the Guidelines on Sustainability Reporting for Publicly-Listed Companies.

We have also integrated SCP in the Philippine Development Plan (PDP) 2017-2022 to promote eco-friendly technologies, formulate a “polluters pay” policy, promote green procurement in the public and private sectors, and establish sustainable markets for recycled products.

Still, more reforms, especially in waste management, are needed. Importantly, more work must be done to fully enforce the policies we have put in place so that we can maximize their benefits and positive impacts on our society.

Thus, NEDA spearheaded the formulation of the Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP), with the support of the Asian Development Bank and technical inputs from relevant agencies and various stakeholders. The PAP4SCP consists of concrete executive and legislative reforms and broad-based interventions geared to holistically address the continuing challenges in the environment sector while achieving economic and social development. For instance, institutionalizing natural capital accounting and conducting carrying capacity and assimilating capacity assessments can provide detailed information and statistics as sound bases for better management of natural resources to optimize their contribution to economic growth.

The Action Plan also identifies the development and adoption of green technologies and R&D initiatives, including innovative solutions, to help the country transition from the current linear ‘take-make-dispose’ to a circular economy. In addition, legislative reforms — such as extended producer responsibility, sustainable procurement, and zero food waste — shall also be pursued to help the country delink its economic growth from degradation of the environment and depletion of our natural resources.

With less than eight years left to achieve the 2030 Sustainable Development Agenda and 18 years left to realize the *Ambisyon Natin 2040* of a *Matatag, Maginhawa, and Panatag na Buhay para sa lahat*, the implementation of PAP4SCP can sustain our momentum to achieve these. The support and shared commitments from all our partners in the government, business sector, academe, civil society, and international development partners are vital to the successful implementation of the PAP4SCP. On this note, I encourage everyone to adopt and implement the strategies of the Plan to achieve sustainable development for the present and future generations.



Ernesto M. Pernia

Socioeconomic Planning Secretary
(2016-2020)

Preface



The Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP) is the government's commitment to driving behavioral change among Filipinos, starting with government agencies, to promote sustainable consumption and production. Its formulation will contribute to attaining the Sustainable Development Goals (SDG) and realizing our *Ambisyon Natin 2040* of a *Matatag, Maginhawa at Panatag na buhay* for all Filipinos.

This PAP4SCP is timely and relevant as we have now overcome our country's greatest economic and health crisis. The Philippines has recovered to the pre-pandemic gross domestic product level in the first quarter of 2022. However, more work is needed to undo the long-term scarring effects brought about by the COVID-19 pandemic.

But even before the pandemic struck, we had long been contending with the impending triple planetary crises of climate change, pollution, and biodiversity loss. These threaten decades of development gains and impede the achievement of the SDGs. Greenhouse gas emissions continue to rise after a short respite during the pandemic; the health of terrestrial and marine ecosystems has been deteriorating at a rapid pace given the unsustainable consumption of the human population; and the rapid economic growth has also resulted in a toxic trail of pollution and waste.

These unfolding global challenges — compounded by the pandemic which we have yet to fully contain and the negative consequences of the ongoing Russia-Ukraine conflict — tell us that the development path we need to chart should be more adaptive and resilient to multidimensional risks.

In response to these challenges, the PAP4SCP was formulated to help the country shift to sustainable and climate-smart practices by creating enabling mechanisms to scale-up programs, projects, and activities that veer away from the “take-make-waste” schemes to those that are more regenerative and restorative by design.

The Action Plan also aims to steer behavioral change among Filipinos by promoting green goods and services. The Plan will help us balance economic growth, social inclusivity, and environmental conservation, as espoused in the Updated Philippine Development Plan 2017-2022.

The PAP4SCP is a product of a meaningful multistakeholder process. It puts great value on Filipinos' well-being, economic growth within ecological limits, and protection of our environment and finite natural resources. Its implementation also requires a whole-of-society approach. We therefore must work together to secure its financial requirements, mobilize technology transfer, enhance capacity building, expand trade, and promote regional integration to accelerate the uptake of SCP and circular economy principles and modalities across sectors.

NEDA remains committed to making the PAP4SCP a means towards achieving a low-carbon, resource-efficient, and circular economy. And we thank you, our partners, for your contribution to this initiative. The time for action is now. Let us make it happen.



Karl Kendrick T. Chua

Socioeconomic Planning Secretary
(2020-2022)

Executive Summary

The formulation of the Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP) was spearheaded by the National Economic and Development Authority (NEDA) along with various government agencies, business sector, academe, and civil society, with assistance from the Asian Development Bank (ADB). It is a product of research and consultations with relevant stakeholders to understand how goods and services are produced and consumed, which can impact the environment and the economy. The intent is to identify concrete interventions to address these issues and influence behavior towards accelerating sustainable consumption and production (SCP) implementation in the country. Using a participatory and consultative process to ensure a whole-of-society approach, the initiative included: (a) scoping of the current SCP implementation and existing enabling policies of the government; (b) assessment of circular economy (CE) in the Philippine context; (c) mapping of interlinkages with Sustainable Development Goal (SDG) 12 or SCP; and (d) development of the SCP strategic framework and action plan.

Based on current socioeconomic trends in the Philippines, population and economic growth create an increased demand for food, social services, infrastructure, transport facilities, power, and other basic needs. Meeting the demand requires increased extraction, processing, and transport of renewable and non-renewable resources. Over the last three decades, the Philippines' material and energy flows have increased (corresponding to a two- to four-fold increase in the demand for raw materials and energy), which signals the transition from agrarian towards an industrial and service-based economy. Waste composition is also shifting from biodegradable to non-biodegradable materials (e.g., plastics, metals, and non-metallic minerals). This signifies inefficient allocation and use of resources and low levels of circularity, posing greater risks to the environment and public health.

Recognizing this intensifying resource use and waste generation, the government has put in place policies, plans, and programs to (a) promote resource conservation and efficiency and (b) facilitate the adoption of green technologies and systems to decouple economic growth from environmental degradation (i.e., economic growth need not always entail a considerable cost to the environment). The private sector has also initiated efforts to green its business practices (e.g., greening supply chain programs). However, despite the numerous policies and initiatives that are supportive of SCP, its uptake remains hounded by fragmented implementation, poor enforcement, and inadequate monitoring of policies and programs.

Building on the above-mentioned assessment, the implementation of enhanced SCP and CE approaches will be pursued to drive resilient and inclusive economic growth while reducing detrimental impacts on the environment and natural resources under the 'new normal' brought about by the coronavirus disease 2019 (COVID-19) pandemic. The PAP4SCP will therefore serve as a guiding framework to influence and steer sustainable practices and behavior across sectors and levels of government through programmatic policy reforms and actions over the short (2022-2023), medium (2024-2030), and long term (2031-2040).

Specifically, the Action Plan envisions having more Filipinos produce and consume green goods and services to accelerate the shift towards sustainable and climate-smart practices and lifestyles that will contribute to the country's long-term vision of a “*matatag, maginhawa, at panatag na buhay*.” To facilitate this, the Action Plan aims to internalize and integrate economic activities' social and environmental impacts into the market system. The Plan intends to: a) value the economic, social, and environmental costs and benefits of production and consumption processes; and (b) ensure efficient and equitable use and allocation of natural resources. Apart from these, the Plan also aims to achieve the following intermediate outcomes: (a) NCA institutionalized; (b) ecological limits and negative externalities determined; (c) innovation and investment in the development of innovative and green technologies and systems increased; and (d) sustainable resource allocation and equitable sharing schemes established.

To facilitate attainment of the above goal and outcomes, the PAP4SCP prioritizes actions along four nodes: (a) policy and regulation; (b) research and development, innovation, and technology; (c) infrastructure; and (d) promotion and education. Specifically, the Action Plan identifies the following key actions:

- a. Institutionalize NCA to enable comprehensive measurement and accounting of the value of the country's natural resources;
- b. Undertake carrying capacity and assimilating capacity assessments to determine ecological limits towards effective management of the environment and natural resources;
- c. Conduct life cycle analyses to assess environmental impact of products over their life cycle, facilitating shift to more resource-efficient technologies and processes;
- d. Strengthen the National Ecolabelling Program (NELP) and other green certification schemes to increase preference for green/sustainable products and services;
- e. Pursue choice-editing (e.g., addressing single-use plastics, and unsustainable packaging) and choice-influencing (e.g., establishment of sustainable mobility solutions and active transport) strategies to steer behavioral change;
- f. Develop and adopt green technologies and circular economy solutions to improve resource use efficiency and transform waste/residuals into other usable products; and
- g. Adopt a spatial approach in development planning and implement appropriate zoning to ensure more prudent use of land and natural resources and optimize economic, social and environmental benefits.

Given the cross-cutting scope of the intended interventions, the operationalization of PAP4SCP will require multi-stakeholder participation and commitment to ensure effective and timely implementation of the identified actions. Equally important are the means necessary to implement the action plan, such as adequate financing, capacity building, and technology transfer, among others. With the government at the forefront of PAP4SCP implementation, financial resources for policymaking and institutional

arrangements may be sourced from national and local budgets. The significant role of local government units (LGUs) in shaping the country's SCP agenda is highly recognized. LGUs could well cover the implementation of local SCP actions with the expected increase in their internal revenue resources in light of the Supreme Court's Mandanas ruling. To leverage these expanded financial resources at the local level, LGUs would require assistance to strengthen their capacities to effectively plan, implement, and monitor SCP actions, along with other development programs that they will be absorbing from the national government. Meanwhile, partners in the private sector can also contribute by sharing existing SCP technology they are using, helping in capacity-building, and contributing to the start-up funds or venture capital to further develop innovations and technologies in the country. The academe can promote SCP by mainstreaming the principles into relevant curricula, while civil society organizations (CSOs) can contribute by integrating SCP advocacies into their related programs, projects, and other initiatives.

01

Background and Rationale





PART 1:

Background and Rationale

The Oslo Symposium in 1994 defined SCP as *“the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations”* (ISSD, 1994). The Johannesburg Plan of Implementation, adopted in 2002 at the World Summit on Sustainable Development, recognized the concept of SCP as one of the three overarching objectives for sustainable development, along with poverty eradication and management of natural resources. The Marrakech Process, a global multi-stakeholder process launched in 2003, developed the 10-year Framework of Programmes on SCP (10YFP).

After almost a decade, the UN Conference on Sustainable Development (Rio+20) adopted the global 10YFP on SCP in 2012. During this summit, world leaders also decided to launch a process to develop a set of SDGs built upon the Millennium Development Goals. The purpose of these SDGs was to promote sustainable development in an organized, integrated, and global way. In 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, with 17 Goals and 169 targets. Among the 17 SDGs is SDG 12: *“Ensure sustainable consumption and production.”*

While a stand-alone goal, the achievement of SCP will deliver not only SDG 12 but also contribute significantly to the achievement of the majority of the SDGs. Mapping the interactions of SDG 12 with the rest of the SDGs indicates its pivotal role as an enabler for the implementation of a range of other goals and many of their corresponding targets (*Figure 1*).

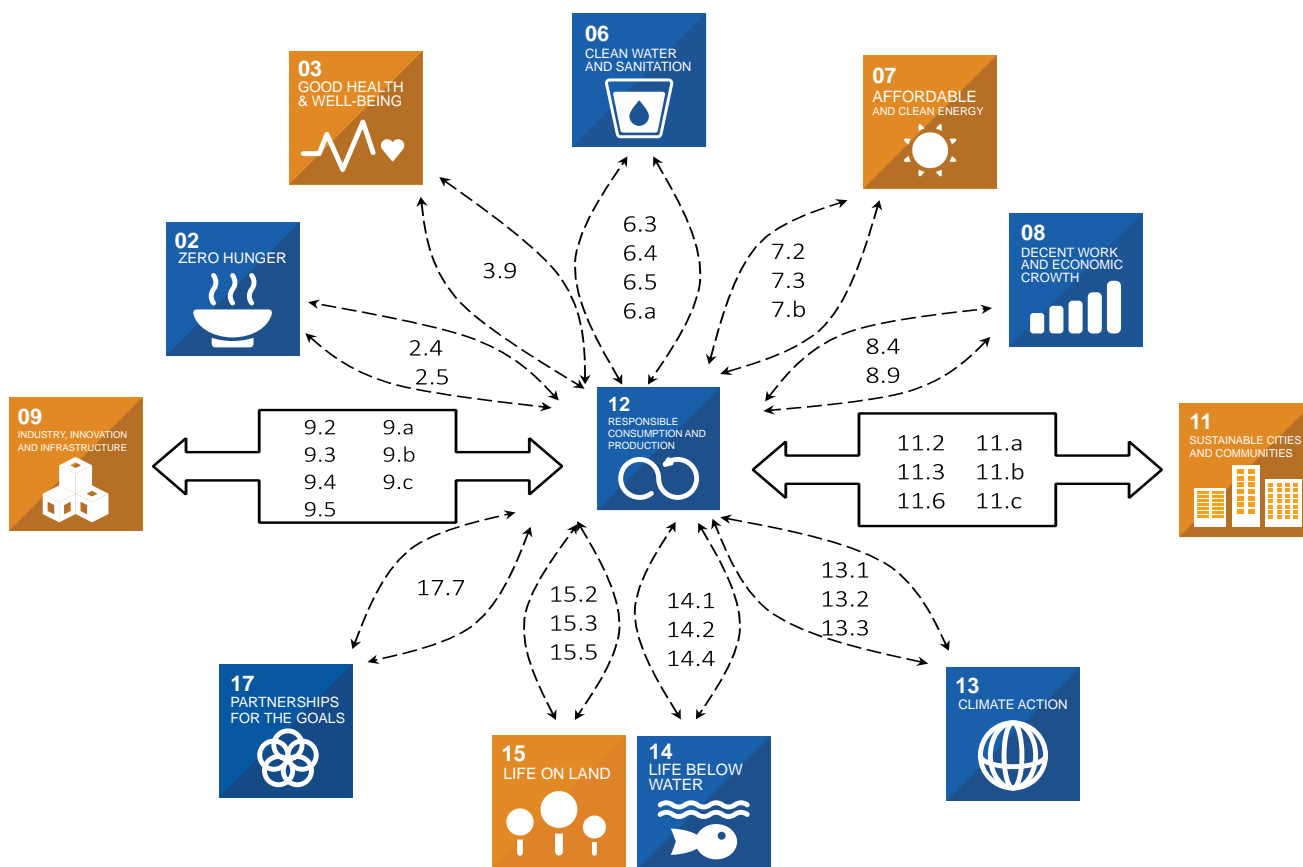


Figure 1. SDG 12 Interlinkages with Other SDGs

For instance, the implementation of initiatives relevant to the sustainable management and efficient use of natural resources (SDG 12.2) will contribute to the achievement of the following SDG targets: (a) ensuring sustainable food production systems and maintaining genetic diversity (SDG targets 2.4, 2.5); (b) increasing water use efficiency, water reuse and recycling, and water and sanitation-related capacity building programs, including water harvesting, desalination, and wastewater treatment (SDG targets 6.3, 6.4, 6.5, 6.a); (c) increasing share of renewable energy in the energy mix, improving energy efficiency, and expanding sustainable energy infrastructure (SDG targets 7.2, 7.3, 7.b); (d) sustainable management of coastal and marine ecosystems and ensuring fisheries harvest within ecological limits (SDG targets 14.2, 14.4); and (e) promoting implementation of sustainable management of all types of forests and protecting biodiversity and natural habitats (SDG targets 15.2, 15.5).

The shift to SCP patterns will also help improve the quality of the environment and support related targets on (a) providing access to safe, affordable, and sustainable transport systems, enhancing sustainable urbanization, reducing the adverse per capita environmental impact of cities, increasing access to green spaces, and supporting sustainable cities (SDG targets 11.2, 11.3, 11.6, 11.a, 11.b, 11.c),

(b) reducing land degradation (SDG 15.3), and (c) reducing marine pollution (SDG target 14.1). These will also contribute to reducing mortality due to hazardous chemicals and air, water, and soil pollution, and contamination (SDG 3.9).

Moreover, CE approaches in SDG 12 will facilitate increased productivity and the creation of new jobs and business opportunities (SDG targets 8.9, 9.3), contributing to reducing poverty and inequality. It is connected to targets on (a) promoting inclusive and sustainable industrialization, increasing infrastructure and adoption of clean and environmentally sound technologies and industrial processes, and enhancing scientific research and upgrading technological capabilities of industrial sectors as well as supporting targets on technology development, research, and innovation (SDG targets 9.2, 9.4, 9.5, 9.a, 9.b, 9.c), and ultimately (b) supporting decoupling economic growth from environmental degradation (SDG 8.4).

SDG 12 is also interlinked with targets with respect to increasing resilience and adaptive capacities to climate-related hazards and natural disasters (SDG 13.1, 13.2, 13.3) and promoting the development, transfer, and diffusion of environmentally sound technologies to developing countries (SDG 17.7).

Given this critical role of SCP, it is often at the forefront of many efforts to create a world where economic activity and environmental conservation coexist. The practical idea of SCP is not the complete prevention of environmental degradation but a level of use where ecological integrity is maintained despite economic activity. The pursuit for SCP is not about compromising welfare for economic activities. Instead, it focuses on redirecting how the two basic economic activities—consumption and production—are attained at a sustainable level. This is the objective of SCP and the Philippines intends to apply this in the pursuit of economic progress.

The PAP4SCP was formulated to contribute towards decoupling the country's economic growth from environmental degradation and achieving sustainable development. The Plan formulation was spearheaded by the NEDA, with support from the ADB through its Regional Technical Assistance (RETA) 9245: *Supporting Implementation of Environment-Related SDGs in Asia and the Pacific*. Part of ADB's technical assistance is to assess CE approaches in the country and provide recommendations on the design and implementation of CE policies and initiatives, as input to the PAP4SCP.

This PAP4SCP is a product of research and consultations undertaken to understand the issues on consumption and production, which served as the basis for identifying concrete interventions to accelerate SCP implementation in the country. It is envisioned to serve as a guiding framework for policymakers and development planners in leading the country towards attaining its economic growth and development objectives that secure human welfare while preserving the quality of the country's natural assets for generations to come. With this framework, the Action Plan is also envisioned to facilitate green recovery from the COVID-19 pandemic and drive resilient and inclusive economic growth towards achieving the country's development thrusts and priorities.

The Consumers and Producers

In its most basic sense, SCP is about promoting resource efficiency and providing access to basic services, green and decent jobs, and a better quality of life. Thus, the fundamental objective of a government that adopts SCP is to create policies and implement programs and actions that support economic growth and development while ensuring ecological integrity.

The concept of SCP can also be explained in terms of the characteristics of the two basic economic activities: consumption and production. Sustainable consumption is considered “green consumerism” or the type of consumption pattern that increases human welfare by consuming goods produced with a minimal negative impact on the environment and natural resources. On the other hand, sustainable production refers to the production of goods that have minimal ecological footprint. As such, the pursuit of SCP centers around creating economic goods that are “green” in characteristics in terms of how they were produced and how benefits were derived from consuming them. Given that the production activities create a good response to consumers' demand, it is the good that binds the producers and consumers, and it is the good that is the linchpin for SCP.

The Consumer's Behavior

Individuals consume goods because they derive benefits from them. It is also generally agreed that consumers are affected by the following categories of variables: (a) price of the good; (b) prices of other goods; (c) income; and (d) preferences. This relationship is summarized in the following simple demand equation:

$$\text{Demand for a good} = f(\text{price of the good, price of substitutes and complements, income, preferences})$$

Among the four variables, preferences are the most difficult to alter because of their complex nature depending on factors such as age, culture, location, gender, religion, education, or family. Moreover, while no single factor determines preferences, it is conceivable that one or two factors could be targeted to change preferences and consumer behavior. This is the reason for the success of marketing campaigns that attempt to shape consumers' patronage and behavioral patterns.

The Producer's Behavior

Producers are guided by the desire to optimize welfare. For the producer, welfare is expressed in terms of profit, and as such, the producer seeks to generate as much revenue from producing and selling a good as he can while minimizing his costs. The source of welfare for the producer, as with the consumer, therefore, is the good. The producer's behavior is driven by how much revenue they can get for selling the good, as this would be the take-off point for his profit. In simple terms, the producer's desire to supply the good is summarized by the following equation:

Supply of the good = f (selling price of the good, price of inputs, price of alternative goods, technology, taxes and subsidies, etc.)

Based on this, producers are expected to be responsive to any action that could minimize costs and increase revenue. As such, it is logical to assume that the producer responds to the desire of the market and will adjust operations accordingly to enhance the revenue potential.

The specific strategies for SCP focus on the above-mentioned economic agents. They are linked by the good that contributes to the well-being of the agents through welfare for the consumer and profit for the producer.

Circular Economy in the Philippine Context

CE offers a promising solution and concrete pathways toward SCP and a sustainable economy. CE and SCP overlap and are closely intertwined in practice and concept. Both are based on life cycle thinking, aimed at systemic changes in the current linear production and consumption patterns. There are many synergies between the two, especially with respect to sustainable consumption and lifestyles, circular business models, sharing economy, collaborative consumption and waste management.

One important difference between these two concepts is that CE focuses more on technology and business solutions to reduce wastes and residuals and achieve circularity of use of materials and resources, whereas SCP addresses broader concerns, such as social norms, culture, and affluence to change consumption patterns and shift preferences toward green goods and services (ADB, 2020). CE highlights the importance of changing the current linear model (take–make–waste) into a circular system that is regenerative and restorative by design (Ellen MacArthur Foundation, 2015). It redirects energy and material flows from linear to circular direction, transforms waste into productive inputs, and reduces pollution and greenhouse gas (GHG) emissions, consequently reducing negative environmental impacts, lessening health risks, and improving overall well-being. Moreover, a CE involves systems thinking approaches that steer changes in values/behavior. The implementation of policy reforms helps internalize negative externalities and provides novel modes of production, distribution, consumption, and investment in each sector of the economy (Stahel, 2016).

02

Methodology



PART 2:

Methodology

The PCSD provides oversight functions throughout the Plan formulation, with technical support from three inter-agency and multi-stakeholder technical working groups on (a) resource conservation, efficiency, and cleaner production; (b) recycling, waste, and chemicals management; and (c) sustainable business and lifestyles. The Plan formulation adopted a participatory approach, which involved key government agencies, business groups, non-government organizations, and development partners across various sectors. The Plan formulation followed a six-step process to deliver the expected outputs (**Figure 2**) – (a) assessment/scoping of the current SCP and CE situation in the Philippines; (b) SDG 12 interlinkages mapping; (c) stakeholder mapping; (d) formulation of SCP Strategic Framework; (e) identification and prioritization of key strategies/actions; and (f) SCP Action Plan Development.

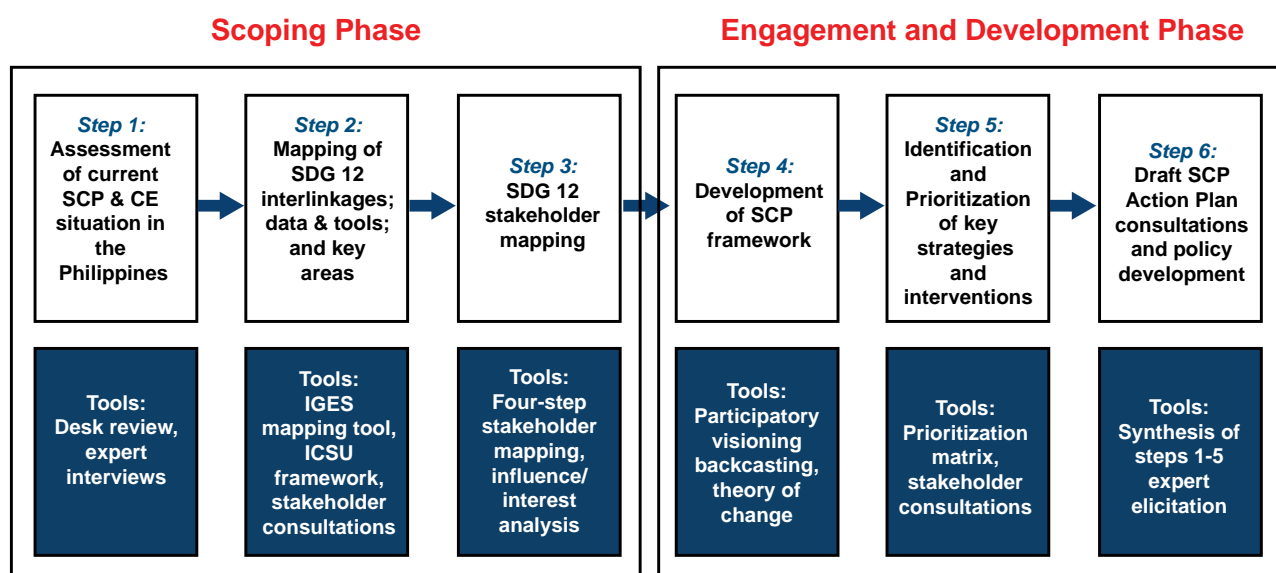


Figure 2. Methodology for the Formulation of the PAP4SCP

Assessment of current SCP and CE situation in the Philippines (Step 1). This involved stocktaking of existing initiatives on SCP and CE and assessing gaps and opportunities for replication and scaling-up. In particular, the SCP and CE assessment in the country involved a literature review of initiatives and an evaluation of their applicability in the Philippines. A series of key informant interviews with the national and local governments and CSOs was conducted to gather information on the level of knowledge on SCP and CE and assess opportunities for implementation.

To guide the assessment, an analytical framework was used to establish the basic and theoretical foundations of economic agents. A driving force, pressure, state, impact, and response (DPSIR) framework was also used to identify the social and economic developments that exert pressure on the environment, which consequently brought about changes in the state of the environment and impacted health, ecosystems, and economy. Using the results of the assessment guided by these frameworks, a theory of change was developed to map out the logical chain of events and target activities that would lead to the desired outcomes for SCP and CE.

Mapping the interlinkages of SDG 12 with other global Goals (Step 2). The interlinkages of SDG 12 with the other Goals were determined using the SDG Interlinkages Analysis and Visualization Tool developed by the Institute for Global Environmental Strategies (IGES). The exercise affirmed that SDG 12 is linked to nearly all other goals. This pivotal role of SDG 12 means that actions towards SCP will facilitate the attainment of the other SDG targets and the country's development goals.

Mapping of key stakeholders for the SCP plan formulation (Step 3). Stakeholder mapping was conducted to ensure an inclusive and broad-based formulation process. The activity used an interest/influence matrix to identify key stakeholders who are critical in the formulation and implementation of SCP actions in the Philippines. Based on this exercise, agencies/organizations with the greatest interest and influence with regard to SCP were involved in the activities conducted in crafting the Plan.

After completing the preliminary steps, the project team and NEDA proceeded into the engagement and development phase. This involved participation of national and sub-national stakeholders to help craft the SCP Strategic Framework and Action Plan. A series of workshops and national and regional consultations were conducted to solicit inputs on key outcomes and actions/interventions that will be included in the Action Plan.

Formulation of SCP Framework (Step 4). The SCP Strategic Framework was developed through an iterative process as a guiding structure on which the SCP Action Plan was built. It reflected the strategic hierarchical linkages of the overall long-term vision and goal of SCP implementation in the country with the support outcomes and nodes of action critical to facilitate the implementation of SCP priority actions.

Identification and prioritization of key strategies and actions (Step 5). From the long list of SCP actions/interventions, a prioritization matrix was used to map out programmatic actions that the stakeholders can implement in the short, medium, and long term.

SCP Action Plan Development (Step 6). Steps 1-5 were synthesized to create a systematic, integrative plan aiming to steer consumers' sustainable behavior and lifestyles and influence producers' sustainable practices. The goal is to avoid a siloed approach to the implementation of SCP. In this step, responsible agencies that will implement the SCP actions were also identified. With the onset of the COVID-19 pandemic in 2020, the PAP4SCP was revisited to ensure its responsiveness to the new normal.

03

Assessment of Socioeconomic and Environmental Trends in the Philippines





PART 3:

Assessment of Socioeconomic and Environmental Trends in the Philippines

Assessment of the socioeconomic profile, resource use, and environmental trends in the Philippines before the pandemic showed how the country's dynamic economic growth affected the state of the environment. With the pandemic, the interlinkages between and among the environment, public health, and the economy have become more pronounced. It underscored the need to re-shape and shift the current consumption and production pattern from one that generates considerable negative externalities and high social costs to one that leaves a minimal environmental footprint and less disturbance to natural habitats, towards ensuring the natural environment's ability to provide for the next generation.

Pre-pandemic Socioeconomic Context

Before the COVID-19 pandemic, the Philippines was one of the most dynamic economies in the East Asia Pacific with strong consumer demand supported by a robust labor market and remittances. Business activities were buoyant, especially in the services sector (business process outsourcing, real estate, tourism, and finance and insurance industries). In fact, the Philippines was on track to becoming an upper middle-income economy, growing at more than 6 percent from 2012 to 2019. The country was also delivering on inclusive growth with the 2022 promise of lifting 6 million Filipinos out of poverty achieved four years ahead of time, as evidenced by the decline in poverty rate from 23.5 percent in 2015 to 16.7 percent in 2018 (World Bank, 2021).

In terms of demographic trends, the country's population grew at a rate of 1.72 percent annually from 2010 to 2015, reaching 100,981,437 in 2015 (Philippine Statistics Authority [PSA], 2015). The population was estimated to increase to 110 million in 2020, 126 million in 2030, and 142 million in 2040, based on the United Nations projections (United Nations [UN], 2011).

The Philippines had also been rapidly urbanizing. In 2015, the level of urbanization was recorded at 51.2 percent compared to 45.3 percent in 2010 (PSA, 2019a). Projections show that the number of people living in cities and urban areas will be around 56 percent of the total Philippine population by 2050 (UN, 2014). While cities account for about 70 percent of the country's gross domestic product (GDP), they have been confronting many challenges, such as severe traffic congestion, flooding, air and water pollution, rising poverty, proliferation of slums, and high vulnerability to natural disasters.

Population growth and urbanization resulted in increased demand for food, social services, infrastructure, transport facilities, electricity and power, and other basic needs. This translated to increasing demand for natural resources, and possibly higher environmental footprints, resulting from rising consumption and production if left unabated.

Material Consumption and Footprint of the Philippine Economy

The country's socioeconomic trends influenced resource use patterns over time as indicated by domestic material consumption (DMC)¹ and material footprint (MF):²

DMC for the past decades (1980-2014) showed the increasing extraction of non-metallic minerals (e.g., sand, gravel, limestone) and the shift from agrarian towards a more industry and service-driven economy (Figure 3). Overall, DMC increased from 282 million tons (6.0 tons per capita) in 1980 to 581 million tons (5.9 tons per capita) in 2014 at a compounding annual growth rate of 2.2 percent. The country is extracting mostly non-metallic minerals (49%) followed by biomass, metal ores, and fossil fuels in 2014. This is slightly different from the structure of domestic extraction in 1980, where biomass accounts for the largest share (53%), followed by metal ores, non-metallic ores, and fossil fuels. The change in the patterns of domestic extraction is linked with the country's shift from being a net resource-dependent (importer of fossil fuel and non-metallic minerals) in 1980 to being a net resource provider (exporter of metal ores and biomass) in 2014. This implies that much of the primary production of materials in the Philippines benefits or responds to the demands of other countries (Martinico-Perez, et al., 2018a).

¹ Domestic material consumption (DMC) refers to the amount of materials (in terms of weight) used in an economy, i.e. materials extracted or harvested in the country, plus materials and products imported, minus material and products exported. (OECD, 2018).

² Material footprint (MF) is an accounting of fossil fuels and other raw materials extracted globally and used in a particular country. It reflects the amount of primary materials required to meet a country's needs and can be interpreted as an indicator of the material standard of living or level of capitalization of an economy (UN Statistics Division, 2016). It is computed as raw material equivalent of imports (RMEIM) plus domestic extraction (DE) minus raw material equivalents of exports (RMEEX).

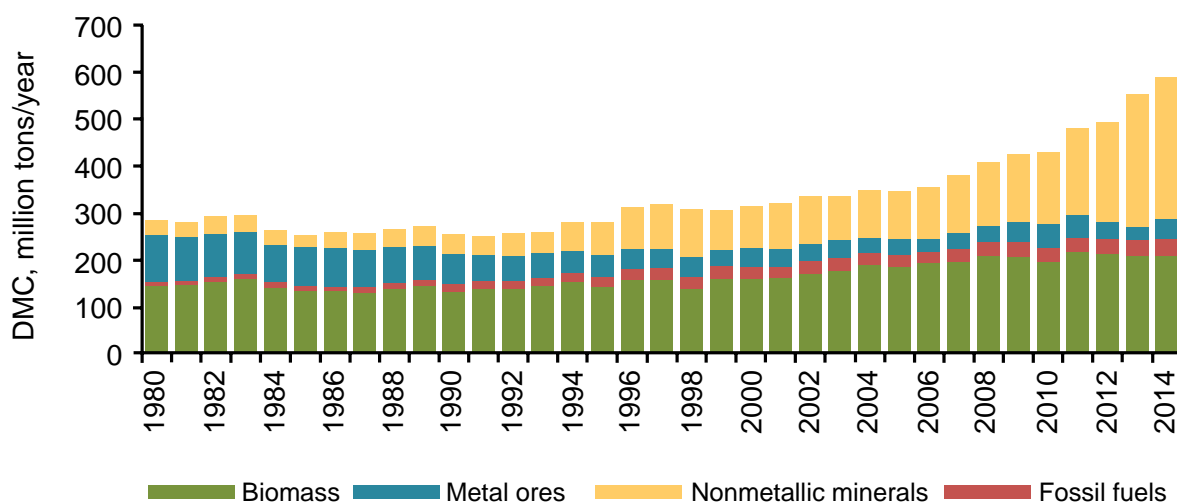
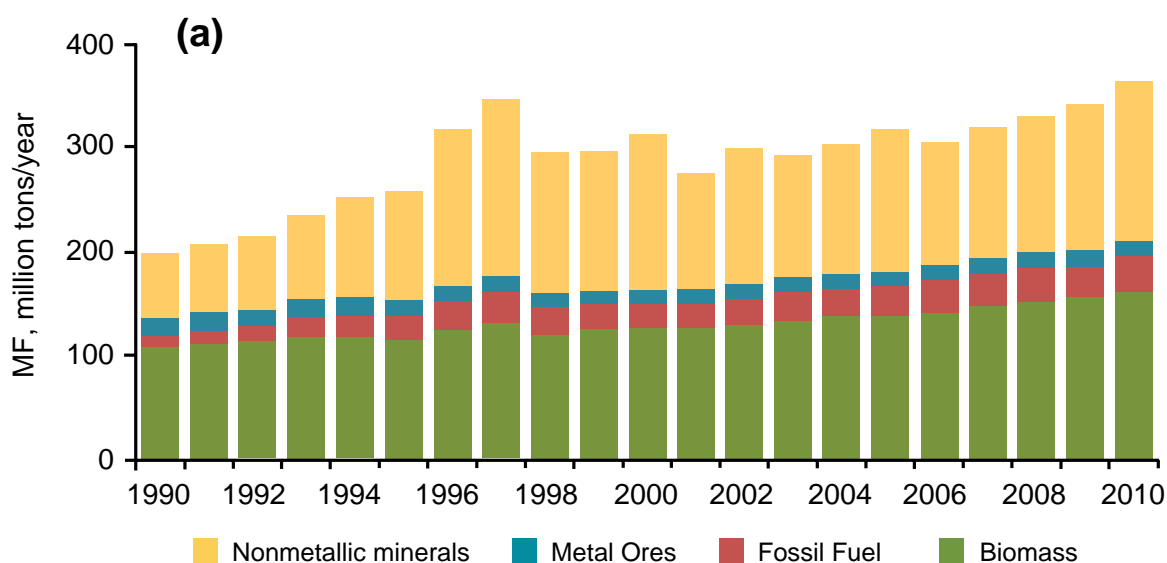


Figure 3. Domestic Material Consumption from 1980 to 2014 (Martinico-Perez, 2018a)

Trends in MF or domestic resource use per capita are driven by an increase in domestic utilization of non-metallic minerals and fossil fuels, and a decrease in biomass and metal ores. The MF in the Philippines has been historically dominated by biomass, but its share decreased from 55 percent of the total materials extracted (109 million tons [Mt]) in 1990 to 44 percent (159 Mt) in 2010. On the other hand, the use of non-metallic minerals increased in the same period from 32 percent (63 Mt) to 42 percent (155 Mt). Similarly, the use of fossil fuels increased from five percent (10 Mt) to nine percent (33 Mt). Meanwhile, metal ores consumption declined from eight percent (15 Mt) to five percent (17 Mt) (Figure 4a) (Martinico-Perez, et al., 2018a).



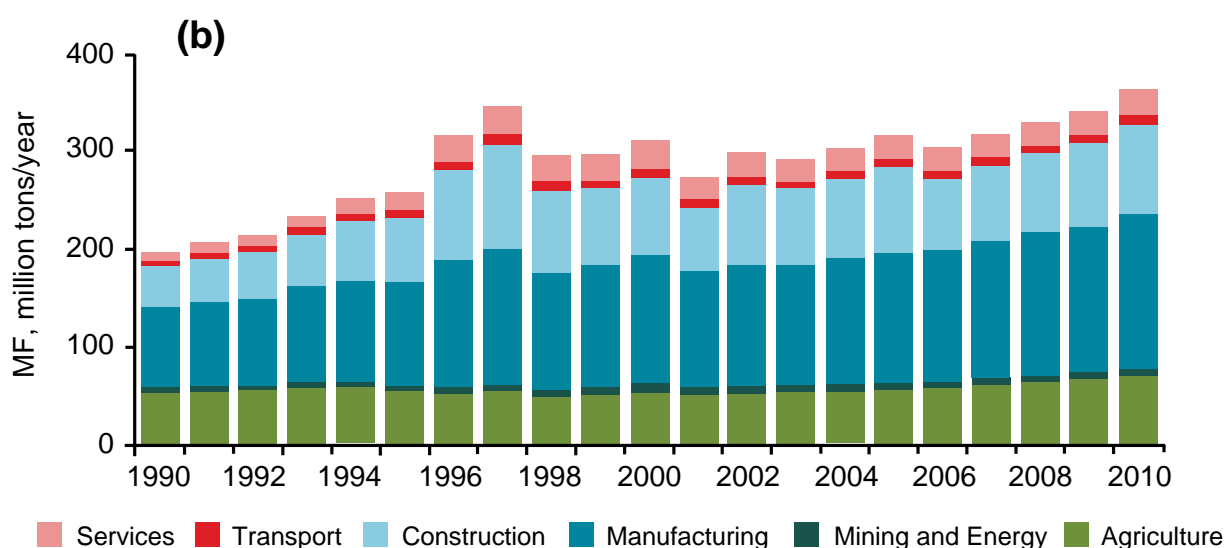


Figure 4. Material Footprint from 1990 to 2010 in Terms of (a) Main Material Categories and (b) Economic Sectors (Martinico-Perez, 2018a)

Around 40 percent of the overall MF occurred for final demand for manufacturing goods, followed by 25 percent for construction expenditure. Agricultural products attracted between 19 to 27 percent of the overall footprint and services at 5 to 7 percent. Products and services from mining, energy, and transport attracted low material footprints of 2 to 3 percent (*Figure 4b*).

Accompanying the changes in DMC and MF is the shift in the country's waste composition. As the country's economic structure changes, waste composition is also shifting from biodegradable to non-biodegradable materials (e.g., plastics, metals, and non-metallic minerals). Disposal of these non-renewable materials poses a challenge in terms of quantity, handling, and treatment. Materials consumed are also released to the environment at a fast rate, which signifies inefficient allocation and use of resources and low levels of circularity (Martinico-Perez et al., 2018b).

Environment and Natural Resource Trends

A closer inspection of the country's environment and natural resources (ENR) reveals the trends and threats it is facing are due to intensifying consumption and production activities driven by population, economic growth, and urbanization.

Increasing demand for natural resources due to population and economic growth is exerting more pressure on ENR. The Philippines is endowed with rich natural resources (*Table 1*). These resources provide ecosystem services to the population and raw materials for economic activities. However, as the economy grows and population increases, the country's natural resources will struggle to provide food and inputs for production as these resources are finite and take time to regenerate. Poverty will aggravate the environmental stress as the marginalized population relies on the ENR for subsistence and livelihood, either upland cultivation or various unregulated activities.

Table 1. Philippines' Main Resource Categories

Land	Minerals	Water	Energy
Forestland	Metallic minerals	Surface water (i.e., inland, coastal and marine)	Fossil fuels
Alienable and disposable land	Non-metallic minerals	Groundwater	Renewable energy

Land resources. Land resources are threatened by changing land uses, degradation, and increasing population. Over the years, land cover has significantly changed because of urbanization and growth in human settlements. Based on the land cover data from the National Mapping and Resource Information Authority (NAMRIA), built-up areas have doubled from 302,340 hectares (ha) in 2003 to 692,121 ha in 2010, while the area of closed forest cover decreased by about 26 percent. Logging, forest fires, slash-and-burn farming, pests and diseases, and other activities like mining are the main drivers of forest depletion. Surface and strip mining are particularly disruptive, causing soil erosion and tailings pollution. Agricultural areas also decreased by 11.25 percent from 2003 to 2010. As of 2018, around 11.13 million hectares of land are considered degraded.

Freshwater resources. Increasing water demand from the growing population and urbanization causes significant pressure on water resources, thereby affecting the country's water security. With the population at 107 million as of 2018, the country's estimated water availability per capita stands at 1,553 m³/year. This indicates that the country already falls below the international "water stress" threshold of 1,700m³/ year and is fast approaching the "water scarcity" threshold of 1,000 m³/year. Based on data from the National Water Resources Board (NWRB), hydropower is the largest user of water albeit the nature of use is non-consumptive. On the other hand, the largest consumers of water are irrigation, followed by industry and municipal use (USAID, 2018). Aside from increasing

demand, water resources are threatened by water pollution and droughts, further exacerbated by a weak institutional framework for water resources management.

Coastal and marine resources. Coastal and marine resources contribute 19 to 36 percent of the Philippines' food supply. Several industries are also directly reliant on the sector such as food production, tourism, energy, transport, and services. In 2018, ocean-based industries accounted for 3.6 percent of GDP with a value-added amounting to PHP 622.2 billion³ and employed 2.5 million or 6.0 percent of the year's total employment (PSA, 2019b). However, the sector continues to face the challenges of (a) unsustainable coastal development practices (e.g., illegal dumping of sewage, unregulated construction of tourist facilities/infrastructure, illegal conversion of mangrove areas to fishponds or reclamation areas); (b) illegal, unreported, and unregulated fishing; and (c) overfishing – resulting in the degradation of the country's coastal and marine habitats. It is estimated that one-third of the country's coral cover has been lost over the past decade, based on the findings of the National Assessment of Coral Reef Environment (NACRE) Program,⁴ while 10 out of 13 of the country's fishing grounds show signs of overfishing.⁵ Habitat degradation and overfishing contributed to the low catch per unit effort and consequently lower income for fishers. In addition, increasing generation and leakage of solid waste and marine litter contributed to the decline of coastal and marine water quality. In 2015, the Philippines ranked as the third-largest source of ocean plastics, contributing to five percent of all the plastics entering the global marine environment.

Mineral resources. The Philippines is a highly-mineralized country with 30 percent (nine million hectares) of its total land area considered to have high mineral potential. In 2020, there were 50 operating metallic mining operations in the country. However, the contribution of mining to national economic growth had been minimal, accounting for less than one percent of the country's GDP and only 0.47 percent of the country's total employment in 2020. The Mining Industry Coordinating Council (MICC) review of the performance of 45 large-scale mining operations in the country from 2018 to 2020 showed that despite the good practices exhibited by some companies, mining is still under criticism for the purported negative impact on the environment and the community. The review also identified opportunities to improve the industry's contribution to sustainability, such as (a) incorporating NCA in the environmental reports of mining operators and factoring in climate risk in improving the ecosystems covering the mined-out areas; (b) enhancing partnerships between the mining companies and stakeholders in implementing the Social Development Management Program (SDMP); and (c) helping LGUs re-invest their mining-related revenues in enterprise-enhancing basic services.

³ Value based on the Ocean Economy Satellite Accounts published by the PSA. Value in current prices.

⁴ Commissioned by the Department of Science and Technology in cooperation with the Department of Environment and Natural Resources and the De La Salle University, among others.

⁵ As reported by the DA-BFAR and NFRDI. These include: (a) Lingayen Gulf; (b) northern Zambales; (c) Camotes Sea; (d) Honda Bay, (e) Babuyan Channel; (f) Lagonoy Gulf; (g) Sorsogon Bay; (h) Hinatuan Bay; (i) Dinagay Bay; and (j) Davao Gulf

Energy Resources. In terms of supply, the country's total primary energy supply (TPES) reached 60.1 metric tons of oil equivalent (MTOE) in 2019. Fossil fuel accounted for 67.2 percent share, with oil accounting for about 32.1 percent, followed by coal at 29.1 percent, and natural gas at 6 percent of the TPES. Aggregate renewable energy supply accounted for 32.8 percent of TPES during the period (Department of Energy [DOE], 2019). The total indigenous energy went up by 3.0 percent while net energy imports dropped by 1.7 percent, resulting in a slight improvement in energy self-sufficiency from 50.2 percent in 2018 to 51.4 in 2019.

In terms of demand, total final energy consumption (TFEC) went up by 1.6 percent to 36.3 MTOE in 2019 from 35.7 MTOE in 2018. Transport remains the most energy-intensive sector at 34.9 percent share of the TFEC, followed by the household sector accounting for 26.7 percent share of the demand mix.

The country's economy-wide energy intensity level reached 3.1 tons of oil equivalent per million pesos of real GDP (TOE/MPHP) in 2019, lower by 3.6 percent than the 3.2 TOE/MPHP in 2018. Carbon intensity, or the amount of GHG emission per unit of economic output, declined by 0.6 percent to 0.67 tons of CO₂ equivalent (tCO₂e) per PHP100,000, owing to mitigation efforts involving the promotion and use of renewable energy and other low carbon fuels.

Nevertheless, it is expected that GHG emissions may further increase in the medium to long-term. Also, there remains a challenge in terms of limited investments in renewable energy systems, and high electricity prices, among others.

Unregulated disposal and poor management of waste and emissions from economic activities result in declining environmental quality. Economic activities generate residuals, and the negative effects of consumption and production processes are manifested in the quality of the environment. As the environment's waste assimilation capacity is pushed to the limit, the social and economic impacts of declining environmental quality will be increasingly felt.

Solid waste. The National Solid Waste Management Commission (NSWMC) reported that a total of 40,000 tons of waste is generated in the Philippines per day (SEPO, 2016). This translates to an average of 0.40 kg of waste generated per person per day for both urban and rural areas. Of these wastes generated, (a) biodegradable wastes (e.g., kitchen or food waste and yard or garden waste) account for 52 percent; (b) recyclable wastes (e.g. plastic, paper and cardboard waste, metals, glass, textile, leather, and rubber) account for almost 28 percent; (c) special wastes (e.g., household healthcare waste, electric and electronic equipment waste, bulky waste, and other hazardous materials) contribute only two percent; and (d) residuals make up 18 percent of generated solid waste (NSWMC, 2013).

Air quality. There had been a decrease in the proportion of highly urbanized cities (HUCs) and major urban centers that passed the ambient air quality guideline for particulate matter (PM)₁₀ and PM_{2.5} – from 47 percent in 2015 (18 out of 38 HUCs), to 45 percent in 2017 (17 out of 38 HUCs), to 32 percent in 2018 (12 out of 38 HUCs) (NEDA, 2018). Around 73 percent of air

pollutants came from mobile sources (e.g., cars, motorcycles, trucks, and buses), 16 percent from stationary sources (e.g., power plants and factories), and the remaining 11 percent were from area sources (e.g., construction activities, open burning of solid wastes, and *kaingin* in upland areas).

Water quality. There had been an observed decline in the water quality of priority water bodies, making them unfit for their intended uses. The water pollutants came from point sources (e.g., commercial and industrial establishments that discharge effluent from wastewater treatment plants) and non-point sources (e.g., rainwater or runoff from irrigation, carrying water with pollutants from farms and urban areas). In 2013, the biochemical oxygen demand (BOD) loading from point sources was estimated at 4.5 million metric tons (MMT). Around 45 percent of this was generated by the agriculture sector while approximately 31 and 24 percent were from domestic and industry sources, respectively. These sources generated a BOD loading of 465,595 metric tons in 2013. Agricultural runoff contributes the highest pollution load at 61 percent, followed by urban runoff at 29 percent, and forest runoff at 10 percent (Department of Environment and Natural Resources-Environmental Management Bureau [DENR-EMB], 2014).

Limited information and weak monitoring system pose a challenge to timely and evidence-based policy and decision-making. Natural resource management requires effective and timely monitoring to ensure evidence-based policy and decision-making. While the international community has institutionalized natural asset and wealth accounting, the Philippines has not yet consistently nor regularly collected and updated information and data on the stock or extent of our natural capital, and the direct and indirect socioeconomic benefits and ecosystem services we derive from our natural resources.

Support policies and programs promoting SCP are in place, but their effectiveness and coordinated implementation and enforcement remain limited. Numerous policies have been formulated to promote the protection of the country's environment and natural resources. These policies and initiatives aim to enjoin compliance with environmental standards and resource efficiency measures. They also outline the mechanisms to encourage the private sector to practice, implement, and integrate sustainability into their business processes. However, these support policies promoting SCP are fragmented, rendering efforts scattered and ineffective. Moreover, while there is a comprehensive set of national laws, these are constrained by ineffective implementation due to conflicting provisions and unresponsive institutional arrangements (*Table 2*).

Table 2. Gaps and Challenges in Existing Laws and Policies

Law/Policy	Description	Gaps/Challenges
Resource Use Efficiency		
Energy Efficiency and Conservation Act (Republic Act 11285)	<p>This law aims to institutionalize energy efficiency and conservation as a national way of life. It introduces policy mechanisms to (a) promote efficient and judicious utilization of energy, (b) encourage adoption of energy efficiency and renewable energy technologies, and (c) delineate the responsibilities of government agencies and private entities.</p> <p>It provides for the development of energy performance standards and labeling requirements for energy-consuming products and equipment as well as the corresponding fiscal and non-fiscal incentives for energy efficiency projects and the development of energy-efficient technologies.</p>	<p>Energy efficiency and conservation initiatives are considered to be in their early stages given that the law was only enacted in 2019. As such, most energy end-users, particularly designated establishments, still have low awareness and capacity to meet their obligations under the law such as (a) integrating an energy management system into their business operations; and (b) setting up programs that promote energy efficiency, conservation, and sufficiency that may include installation of renewable energy technologies; and (c) conducting an energy audit once every three years, among others.</p>
Renewable Energy Act (RA 9513)	<p>This law establishes the framework for the accelerated advancement of renewable energy (RE) resources and the development of a strategic program to increase their utilization in the country.</p>	<ul style="list-style-type: none"> • Lack of supporting programs or policies to advance RE infrastructure development (e.g., framework for de-risking of projects, data collection system, and comprehensive energy transition program) • Intermittency of RE technologies affects grid stability and reliability of power supply • Other implementation gaps that are hampering the scaling of RE technologies such as (a) net metering issues (e.g., lengthy application process and sizeable capital expenditure); (b) delayed implementation of remaining rules and guidelines of other mechanisms under the law (e.g., Renewable Portfolio Standards, RE market); and (c) excess RE generation combined with priority-in-dispatch forces curtailment in baseload generation to mitigate grid congestion.

Law/Policy	Description	Gaps/Challenges
Biofuels Act (RA 9367).	<p>This law mandates the use of biofuels or bioethanol and biodiesel and other fuels made from biomass to help: (a) develop and utilize indigenous renewable energy sources, (b) mitigate GHG emissions, (c) increase rural employment, and (d) ensure the viability of renewable energy without harming the natural ecosystems.</p> <p>The Act mandates the incorporation of biofuels in the fuel mix and prioritizes the use of locally produced bioethanol as a source of said biofuels. The Act also requires a minimum percent of biodiesel in the diesel mix.</p>	<p>The law mandates biofuel (from sugar-cane and molasses) blending at 20 percent and biodiesel (e.g., coconut oil) at 10 percent. However, the government lowered the targets to only 10 percent for bioethanol and 2 percent for biodiesel due to the following constraints:</p> <ul style="list-style-type: none"> • Limited investments in biofuel production infrastructure; • Limited supply of feedstock; • Fluctuating prices of petroleum and coconut oil in the global market; and • Inadequate support for biofuels over traditional fuel (Acda, 2022)
Organic Agriculture Act of 2010 (RA 10068, as amended by RA 11511)	<p>This law aims to promote, propagate, further develop, and implement the practice of organic farming in the Philippines. It particularly supports programs that would contribute to increasing farm productivity and reducing pollution and destruction of the environment, thereby preventing depletion of natural resources, and protecting the health of farmers, consumers, and the general public, among others.</p>	<ul style="list-style-type: none"> • Limited support to production (e.g., lack or low access to organic inputs such as seeds, planting materials, biological control agents, and organic soil amendments); • Marketing issues (e.g., lack of market information system, lack of product disaggregation, and inappropriate packaging); • Low competencies in organic production of both program implementers (e.g., LGUs and operating units) and producers; • Lack of/limited irrigation facilities (e.g., communal, drip irrigation and alternative irrigation prime movers) for organic farms; and • Expensive and very tedious certification process.
Wildlife Resources Conservation and Protection Act of 2001 (RA 9147)	<p>This law provides for the conservation, preservation, and protection of wildlife species and their habitats to preserve and encourage ecological balance and biological diversity. It also provides for the control and supervision of wildlife capture, hunting, and trade and promotes scientific research on protecting biodiversity.</p>	<ul style="list-style-type: none"> • Weak enforcement and cooperation mechanism to (a) address illegal wildlife trade, and (b) ensure biosafety protocols provisions to protect wildlife from the adverse effects of modern biotechnology; • Weak penalties for illegal acts, particularly for wildlife trafficking.

Law/Policy	Description	Gaps/Challenges
Waste Management and Environmental Quality Improvement		
Ecological Solid Waste Management Act of 2001 (RA 9003)	This Act provides an ecological solid waste management program for managing the transfer, transport, processing, and disposal of solid waste. The law also mandates phasing out of open dumpsites and converting them into sanitary landfills.	<ul style="list-style-type: none"> • Access of LGUs to solid waste management (SWM) facilities (e.g., materials recovery facilities [MRFs] and sanitary landfills [SLFs]) has remained low because of the lack of technical and financial capacity of LGUs to implement their respective SWM plans⁶ and to cope with the high capital and maintenance costs required to establish and operate SWM facilities. • In 2018, only 41 percent of wastes in Metro Manila cities were diverted⁷ for reuse and recycling due to insufficient and not fully-functional garbage collection facilities, sanitary landfills, and MRFs. • Few households practice 3Rs (reduce, reuse, and recycle) in managing their wastes
Toxic substances and hazardous and nuclear wastes control act of 1990 (RA 6969)	This Act aims to control toxic substances and hazardous and nuclear wastes. It covers the importation, manufacture, processing, handling, storage, transportation, sale, distribution, use, and disposal of all unregulated chemical substances and mixtures in the Philippines, including the entry, even in transit, as well as the keeping or storage and disposal of hazardous and nuclear wastes into the country for whatever purposes.	<ul style="list-style-type: none"> • Free trade regime allowed the export of toxic and hazardous waste from developed countries to developing countries for additional livelihood opportunities and other economic objectives (e.g., Australia, South Korea, and Canada exported hazardous waste to the Philippines) • The Philippines remains a leading exporter of persistent organic pollutants (POPs) • There is a lack of a pre-entry inspectorial mechanism for authorities to prevent the landing and entry of toxic and hazardous wastes • Penal provisions of the law are a weak deterrent to illegal activities

⁶ A total of 1,589 provinces, cities, and municipalities have already submitted their 10-year Solid Waste Management Plan (NEDA, 2018).

⁷ Actual SWDR is computed as: Number of biodegradables and recyclable wastes including residual wastes with potential for diversion (tons/year) over the total waste generated. These are the wastes diverted through recycling and other recovery methods.

Law/Policy	Description	Gaps/Challenges
Clean Air Act of 1999 (RA 8749)	This Act provides a comprehensive air pollution control policy and a national program to prevent, control, and reverse air pollution through regulatory and market-based instruments.	<ul style="list-style-type: none"> • Outdated National Ambient Air Quality Guidelines values; • Lenient standards for mobile and stationary sources; • Lack of GHG requirements despite synergies between air pollution and climate change (Suarez and Garcia, 2021). • Further compounding the issue of declining air quality are monitoring issues: <ul style="list-style-type: none"> ◦ insufficient/incomplete monitoring stations; ◦ poor maintenance of existing monitoring stations and equipment; and ◦ failure of data capture
Clean Water Act of 2004 (RA 9275)	This law aims to protect the country's water bodies from pollution from land-based sources (e.g., industries and commercial establishments, agriculture, and community/household activities) by promoting environmental strategies, using appropriate economic instruments, and control mechanisms.	<ul style="list-style-type: none"> • Weak enforcement and overlapping functions of government agencies with mandates on water management • Weak implementation of provisions regulating pollution of water bodies from point and non-point sources due to the following: <ul style="list-style-type: none"> ◦ Inadequate sewerage and sanitation and SWM facilities ◦ Improper agricultural practices ◦ Inadequate industrial/commercial waste disposal facilities ◦ Deforestation ◦ Land development
Greening Infrastructure and Markets		
Green Public Procurement Program (Executive Order No. 301)	This policy mandates all government departments, offices, and agencies to establish a Green Procurement Program (GPP) to promote the culture of making environmentally-informed procurement decisions in government.	<p>The country's existing initiatives on GPP (e.g., EO 301, GPP Roadmap, NELP) need to be further strengthened in the following areas:</p> <ul style="list-style-type: none"> • market readiness for GPP; • validation mechanism (self-certification vis-à-vis third-party certification); • capacities of relevant stakeholders

Law/Policy	Description	Gaps/Challenges
Greening Infrastructure and Markets		
		<ul style="list-style-type: none"> ◦ capacity building for GPP and Green Criteria Development for Government Procurement Policy Board (GPPB) staff; ◦ GPP training for procuring entities; and ◦ capacity building and technical support for industry and micro, small, and medium enterprises (MSMEs)
Green Jobs Act of 2016 (RA 10771)	<p>This law mandates the development and implementation of the (a) National Green Jobs Human Resource Development Plan (NGJ-HRDP) that shall build green skills, and (b) Green Jobs Assessment and Certification System and Guidelines that shall facilitate the availment of incentives by firms. Incentives recognized through the Green Jobs Act include tax deductions (equivalent to 50% of total cost) for skills training, research and development for green jobs, and tax-free imports of capital equipment that would be used directly and exclusively to promote green jobs.</p>	<p>The full implementation of the law was hampered by the delay in the development of the Green Jobs Assessment and Certification System and Guidelines. These are needed to enable the Climate Change Commission (CCC) to assess and certify green goods and services as well as green technologies and practices for the purpose of regulating the availment of incentives and creating green jobs, pursuant to the NGJ-HRDP.</p>
Green Building Code	<p>This is a referral code to the National Building Code of the Philippines. It focuses on minimizing the impact of buildings on public health and the environment through resource efficiency strategies. It includes a set of standards on energy efficiency, water and wastewater management, materials sustainability, solid waste management, site sustainability, and indoor environmental quality among buildings. The law requires hotels, malls, offices, residential condominiums, schools, hospitals, and mixed occupancy buildings that fall under a certain minimum gross floor area to comply with green measures.</p>	<ul style="list-style-type: none"> • Limited technical capacity to plan, implement, and monitor green building strategies/ interventions • Limited awareness of local governments and businesses on environmental and building laws, regulations, and standards • Hidden costs associated with implementing the code, particularly in securing permits

Law/Policy	Description	Gaps/Challenges
Sustainability Reporting Guidelines for Publicly-Listed Companies (PLCs) (Securities and Exchange Commission (SEC) Memorandum Circular No. 4, s. 2019)	This aims to help PLCs assess and manage non-financial performance across the economic, environmental, and social aspects of their organization. In this way, the PLCs can measure and monitor their contributions toward achieving development goals. Sustainability reporting can help improve the company's reputation and brand value, enhance investor attractiveness, and generate opportunities for companies for stronger engagement with their stakeholders, and may also provide companies with competitive advantage. This is in view of the greater attention given by stakeholders/consumers to how businesses impact the economy, environment, and society and how corporations respond to sustainability challenges.	Given that this policy has only been implemented starting in 2019, consolidation and assessment of the PLCs' overall contribution to SDGs/specific sustainability targets have yet to be completed.

Supporting these policies are the key plans and programs that promote SCP and CE (*Annex B. Plans and Programs Supportive of SCP*).

Impacts of the COVID-19 Pandemic

The COVID-19 pandemic emphasized the interlinkages of the environment, public health, and the economy. It also underscored the need to ensure ecological integrity to support the country's recovery and lay down the groundwork to better prepare for and be resilient against multidimensional risks arising from biological and natural hazards and climate change.

The pandemic negatively affected the economy, with the country's real GDP contracting by 9.5 percent in 2020. This was mainly due to the quarantine restrictions and limited private consumption and demand for transport, tourism, and other economic activities. Notwithstanding, the country's GDP started to pick up in the 2nd semester of 2021 with a growth of 6.9 percent in the third quarter, and 7.7 percent in the fourth quarter of 2021, resulting in 5.6 percent full-year growth (**Figure 5**). This positive growth signals that we are on track toward economic recovery.

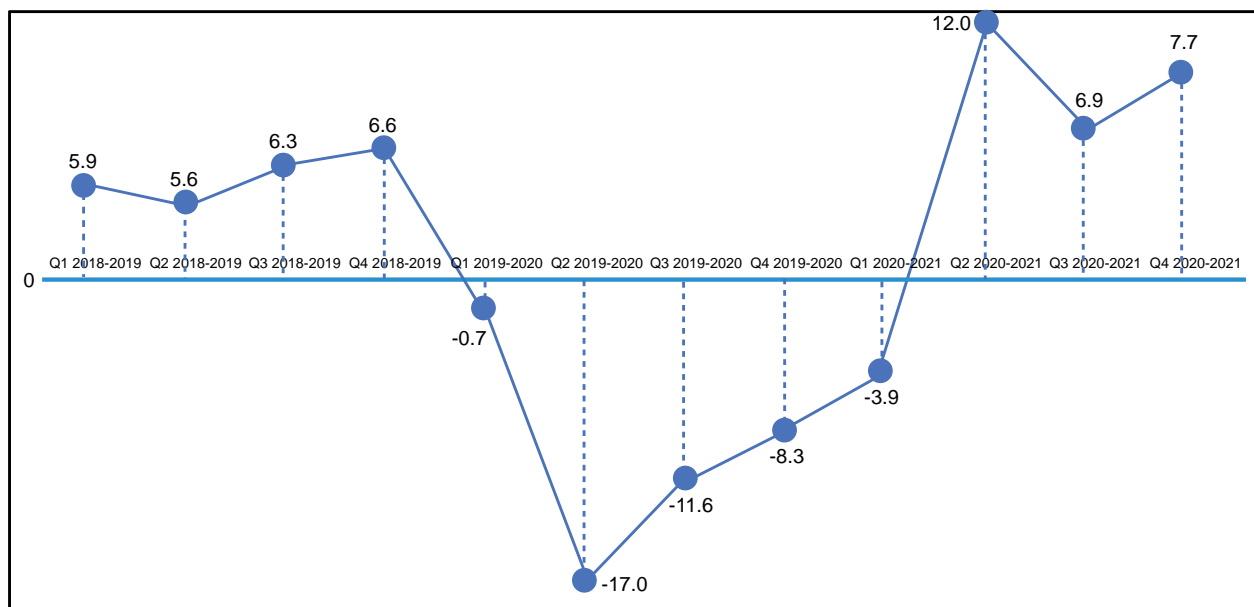


Figure 5. Quarterly GDP (2018-2021) (in constant 2018 prices)

On the other hand, the imposition of community quarantine resulted in both negative and positive impacts on the ENR sector. The limited movement of people contributed to temporary improvements in air and water quality, rehabilitation of habitats and tourism destinations, and reduction in GHG emissions. However, the health protocols imposed and the shift to digital/online platforms resulted in the increased generation of solid and medical wastes and a surge in electronic wastes. Moreover, recycling activities and patrolling activities in wildlife and habitat protection areas were weakened due to mobility restrictions. If not managed properly, waste leakage into the environment will eventually contribute to poorer environmental quality and can further threaten wildlife and habitats.

Given the foregoing, moving towards SCP has become more urgent and critical to support green recovery and enable the shift to a more sustainable and resilient pathway of development.

04

SCP Framework and Action Plan



PART 4:

SCP Framework and Action Plan

Building on the findings of the assessment, the PAP4SCP was developed to serve as a guiding framework to influence and steer sustainable practices and behavior across sectors and levels of government by implementing programmatic policy reforms and actions over the short (2022-2023), medium (2024-2030), and long-term (2031-2040).

SCP Strategic Framework

The PAP4SCP will contribute to achieving the country's *AmBisyon Natin* 2040 by laying down the policy reforms and actions to ensure that the present and future generations of Filipinos will enjoy a “*matatag* (strongly rooted), *maginhawa* (comfortable), *at panatag na buhay* (secure life).” The likelihood of realizing this is increased when more Filipinos consume and produce green goods and services towards more sustainable and climate-smart lifestyles (Goal). To achieve such vision and goal, priority actions/reforms will be implemented to help (a) value the economic, social, and environmental costs and benefits of production and consumption processes and (b) ensure efficient and equitable use and allocation of natural resources. These two sub-outcomes are key to internalizing/integrating the negative externalities arising from socioeconomic and environmental impacts of economic activities in the market system. Supporting intermediate outcomes will also be pursued, to wit: (a) NCA institutionalized; (b) ecological limits and negative externalities determined; (c) innovation and investment in the development of innovative and green technologies and systems increased; and (d) sustainable resource allocation and equitable sharing schemes established. These are reflected in the SCP Strategic Framework intended to guide the implementation of SCP actions from now up to 2040 (*Figure 6*).

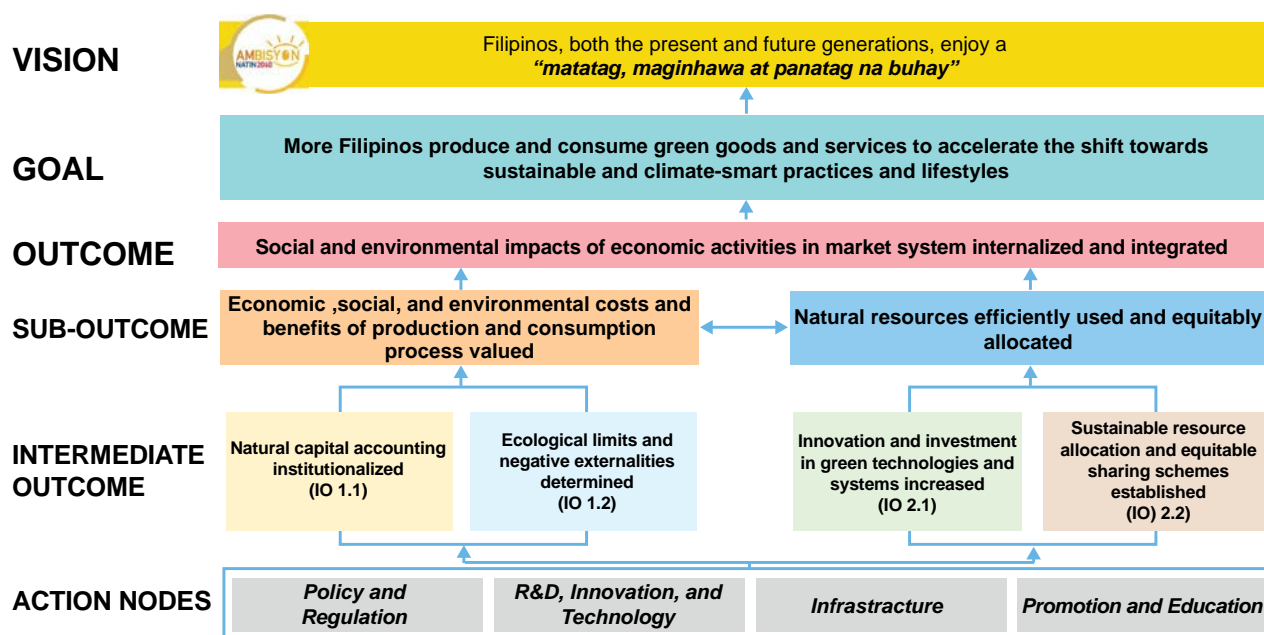


Figure 6. SCP Strategic Framework

SCP Action Plan

The PAP4SCP categorizes its priority actions into the following nodes: (a) policy and regulation; (b) research and development, innovation, and technology; (c) infrastructure; and (d) promotion and education. The nodes are interlinked such that policy reforms facilitate research and development and technological innovations as well as infrastructure-related interventions, among others. The actions are programmed over the short (2022-2023), medium (2024-2030), and long-term (2031-2040).

Short-term actions will lay the foundation for a more cohesive and accelerated SCP implementation in the country. Agencies and concerned stakeholders will play a vital role in ensuring that interventions are in place and policy reforms are initiated both in the executive and legislative branches of government and across all levels of society.

The succeeding matrix presents the SCP actions per outcome. The actions are grouped into four nodes in a programmatic approach with corresponding responsible agency or entity also identified.

SCP Action Matrix

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
Sub-outcome 1: Economic, social, and environmental costs and benefits of production and consumption processes valued				
Intermediate Outcome 1.1: NCA institutionalized				
Policy and Regulation	<p>Adopt and implement NCA institutionalization roadmap based on the UN System of Environmental-Economic Accounting (SEEA) Framework.</p> <p>Update adjusted macroeconomic indicators to account for waste accumulation, pollution, and emission.</p>	Incorporate NCA in the Philippine Environmental Impact Statement System (PEISS) (Refer to Intermediate Outcome 1.2).	<p>Continue evaluation and impact assessments for further strengthening and enhancement.</p> <p>Integrate NCA in national and subnational development plans and programs and private sector processes.</p>	PSA, DENR, NEDA, LGUs, Congress
R&D, Innovation, and Technology	<p>Develop a localized methodology for all natural capital (NC) accounts (physical and monetary ecosystem valuation).</p> <p>Map genetic resources and develop a methodology for accounting.</p>	<p>Scale-up valuation of ecosystem services, including genetic resources in critical watersheds and ecosystems.</p> <p>Undertake nationwide and periodic assessment and updating of NC accounts.</p>	Continue updating NC accounts.	PSA, academe, NEDA, DENR, DOST, DA
Infrastructure	Set up information and communications technology (ICT) infrastructure and use “green informatics” to process remotely-sensed and lab-based environmental data and statistics (e.g., satellite or aircraft-based sensors) for NCA and real-time estimation of pollution/damages.	<p>Operationalize ICT infrastructure to generate up-to-date information on the state of the environment and natural resources and estimate the value of damages/pollution (downscaled at the municipality/city level).</p> <p>Establish an interoperable database and ICT network system on environmental data and statistics.</p>	Upgrade ICT infrastructure as needed.	Department of Information and Communications Technology (DICT), Department of Science and Technology (DOST), DENR, DILG, Philippine Space Agency (PhilSA), academe

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
Promotion and Education	Scale-up information dissemination and capacitate national government agencies (NGAs), LGUs, and the private sector on NCA, including ecosystem service valuation and development of asset and flow accounts	<p>Publish NC Accounts, adjusted macroeconomic indicators, policy briefs, and information, education, and communication (IEC) materials.</p> <p>Apply NCA to report environmental statistics (e.g., Compendium of Environmental Statistics, State of the Coasts).</p> <p>Integrate NCA concepts in the secondary and higher education curricula.</p>	<p>Report/Publish "Green GDP."</p> <p>Continue involvement of the community, LGUs, academic institutions, and the private sector in NCA.</p>	PSA, DENR, NEDA, Department of Education (DepEd), Commission on Higher Education (CHED), DOST
Intermediate Outcome 1.2: Ecological limits and negative externalities determined				
Policy and Regulation	<p>Review and amend Presidential Decree 1586 or the PEISS to include:</p> <ul style="list-style-type: none"> • Principles of NCA (to emphasize environmental accounting and valuation); • Strategic environmental assessment (SEA) covering policies, plans, and programs; and • Methodology on the conduct of carrying capacity and assimilating capacity assessment 	Roll out and implement the revised PEISS policy.	Monitor and evaluate the implementation of the revised PEISS policy.	DENR, Congress, DILG, PSA, NEDA

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	Develop guidelines for the conduct of the Strategic Environmental Assessment (SEA) process.	Adopt SEA in development planning and investment programming processes at the national and local level and in the development of legislative actions.	Evaluate the effectiveness of SEA mainstreaming in development processes for further strengthening or adjustments in policy if needed.	DENR, NEDA, DILG
	Update public and private investment appraisal processes and manual to incorporate quantified environmental parameters based on NC accounts (Refer to Outcome 1.1).	Implement updated investment appraisal processes/systems.	Review and evaluate implementation.	NEDA, DENR, Public-Private Partnership (PPP) Center
	Develop policy and guidelines for damage compensation and penalties for economic activities polluting major natural resources (water bodies and land resources).	Implement a policy on damage compensation.	Review and evaluate implementation.	DENR, Congress, Supreme Court, local courts, green courts, Department of Justice (DOJ)
R&D, Innovation and Technology	Conduct carrying capacity assessments using localized methodology and standards to ensure sustainable development in major tourism/ecotourism areas, growth areas, and highly urbanized areas (air, water quality, solid waste, ground subsidence), and critical watersheds/ ecosystems.	Expand carrying capacity assessments to inform management plans of legislated and locally-managed protected areas (terrestrial and marine), emerging tourism areas, new growth areas (peri-urban or suburbs), inland wetlands, caves, and major river basins and catchment areas.	Update carrying capacity assessments.	DENR, Department of Tourism (DOT), Department of Agriculture (DA), Department of the Interior and Local Government (DILG), LGUs, academe
	Conduct assimilative capacity assessments to determine the	Continue conduct of assimilative capacity assessment.	Update assimilative capacity assessments.	

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	ability of ecosystems to absorb wastes without detrimental effects on the environment and resource users, informing absorptive capacity for economic use (i.e., forestry, fisheries).			
	Collate and complete baseline information on generation and management of: <ul style="list-style-type: none"> • Solid waste, including marine litter; and • Hazardous waste, including electronic waste. 	Regularly update information on wastes.	Conduct impact evaluation/assessments.	NSWMC, DENR
	Develop a life cycle analysis (LCA) program to determine a product's environmental impacts, inform policy-/decision-making and support green product development.	Undertake detailed programming of and implementation of LCA.	Update LCAs and evaluate the implementation of the LCA program.	DOST, DENR, Department of Trade and Industry (DTI), academe, private sector
Infrastructure	Develop user-friendly web-based application/software to estimate and report carrying capacity and assimilating capacity. Establish a network of government-owned environmental laboratories (linked to NCA-ICT Infrastructure).	Link carrying capacity and assimilating capacity to NCA ICT infrastructure (Refer to Outcome 1.1).	Review and evaluate the implementation and upgrade of software as necessary.	DICT, DENR, DILG, LGUs, PSA, NEDA
	Develop web-/mobile-based applications that provide ready information on the	Develop and implement LCA knowledge management (KM) platform.	Review and evaluate implementation.	DICT, DOST, DENR, DTI, CCC

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	environmental impact of daily activities to influence “conscientious consumption and production” (e.g., health tracker, carbon footprint calculator, <i>pasabay</i> or ride-sharing/carpooling applications).			
Promotion and Education	Build capacity of national and local governments and academic institutions on the conduct of carrying capacity and assimilating capacity assessments. Disseminate information on carrying capacity and assimilating capacity assessments and encourage exposure of youth to demonstration sites.	Integrate carrying capacity and assimilating capacity concepts in the secondary and higher education curriculum.	Review and evaluate implementation.	DENR, DOT, DILG, LGUs, DepEd, CHED, DOST, Public Information Agency (PIA)
	Disseminate information on environmental cases to increase awareness of legal and judicial remedies and penalties against unsustainable practices.	Capacitate green courts on tools to inform regarding damage, compensation, and penalties.	Continue promotion and education campaigns.	Supreme Court, local courts, DOJ
	Institute citizen ENR reporting.	Promote the use of the web-/ mobile-based applications and the LCA knowledge platform.	Review and evaluate implementation.	DICT, DOST, PIA

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
Sub-Outcome 2: Natural resources efficiently used and equitably allocated				
Intermediate Outcome 2.1: Innovation and investment in green technologies and systems increased				
Policy and Regulation	Strengthen and legislate GPP (EO 301) to: <ul style="list-style-type: none"> • Enhance compliance by procuring entities; • Clarify LGU involvement in GPP; and • Integrate green criteria in the procurement guidelines, bidding documents, and technical specifications. 	Strengthen ecolabelling program and other green certification schemes (e.g., green jobs, green hotels/resorts, green buildings, sustainable agriculture, and fisheries).	Review and evaluate policy implementation.	GPPB, Department of Budget and Management (DBM), NELP Board, DTI, DOST, Department of Labor and Employment (DOLE), CCC, Congress
	Enact new laws on: <ul style="list-style-type: none"> • Food waste management, food donation, and redistribution to adopt a system to promote, facilitate, and ensure food waste reduction across different sectors of society (e.g., households, food establishments, food distributors, supermarkets) through redistribution. • Community composting of food/kitchen waste, including its integration in the implementation guide on greening urban open spaces and in the implementation of the Urban Development and Housing Act (UDHA) of 1992. 	Continue lobbying for the enactment of priority legislation listed in the short term. Implement new laws and policies toward SCP.	Review and evaluate policy implementation.	National Nutrition Council (NNC), DENR, DSWD, DepEd, DOH, DA, DTI, DOT, DOE, DILG, Congress, LGUs

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	<ul style="list-style-type: none"> • E-waste management that will: <ul style="list-style-type: none"> ◦ Regulate and manage e-waste and provide guidance on its disposal and possible re-use; and ◦ Incorporate urban mining principles in the policy to recover metals from e-waste (e.g., mining gold, silver, copper, and rare earth metals from gadgets and appliances). 			
	<p>Review and amend the following laws:</p> <ul style="list-style-type: none"> • Clean Air Act (RA 8749) to: <ul style="list-style-type: none"> • Institute environmental standards and safeguards for waste-to-energy projects; and • Require creating a network of environmental laboratories and green informatics/ICT network to support air quality real-time monitoring. • Ecological Solid Waste Management Act (RA 9003) to: <ul style="list-style-type: none"> • Enhance financial and technical support for LGUs in setting up appropriate waste management equipment and facilities and services; 	<p>Continue lobbying for the amendment of existing laws listed in the short term.</p> <p>Implement amended laws and policies toward SCP.</p>	<p>Review and evaluate policy implementation.</p>	<p>DENR, Congress, DILG, LGUs</p>

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	<ul style="list-style-type: none"> Implement “choice-editing” strategies (e.g., regulating single-use plastics and other unsustainable packaging); and Streamline ecolabelling processes/systems. 			
	Integrate innovation/green technologies in the updating of the Green Building Code.	Enact local green building ordinances to enforce sustainable building designs for public and private facilities.	Review and evaluate policy implementation.	Department of Public Works and Highways (DPWH), LGUs, CCC
	<p>Implement the Extended Producer Responsibility (EPR) Act for plastic packaging (RA 11898) which incorporates the “polluters pay” principle by obliging large enterprises to conduct EPR programs, and link to companies’ sustainability reports.</p> <p>Develop sustainability reporting (SR) or equivalent guidelines for medium enterprises.</p>	<p>Institutionalize EPR scheme for other waste streams (e.g., e-waste, lighting products).</p> <p>Support industries and startups to develop alternative or substitute products (e.g., gadgets and appliances) with minimal residuals and longer utility.</p> <p>Adopt and implement SR guidelines for medium enterprises.</p> <p>Undertake a third-party audit to monitor and verify sustainability reports of publicly-listed companies.</p>	Review and evaluate implementation.	DTI, SEC, LGUs, Congress, DENR, NSWMC, private sector

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
R&D, Innovation and Technology	<p>Strengthen research and innovation towards SCP and develop a “prototype” of green technologies that:</p> <ul style="list-style-type: none"> • Enhance resource efficiency and minimize waste with appropriate market matching; • Convert wastes/residuals into usable products (e.g., toilet technology that transforms waste into fertilizer, bioenergy using organic wastes); • Scale-up wastewater treatment and reuse (e.g, water reclamation); and • Promote landfill mining. <p>Explore the potential of urban mining to recover metals from e-waste (e.g., mining gold, silver, copper, rare earth metals from gadgets and appliances).</p> <p>Study and develop alternatives to single-use plastics to support phase-out.</p>	Continue R&D, pilot test, and/or fabricate green technologies for potential expansion.	Mass produce green technologies and scale up adoption of innovative systems that promote CE (all sectors-industry and services).	DOST, DTI, DENR, DOE, DA, academe

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	Create business models for: <ul style="list-style-type: none"> • Waste minimization (e.g., refilling stations for fast-moving consumer goods as an alternative to the buy-and-dispose/sachet approach); and • Use of secondary raw materials or recycled materials (e.g., paper, plastics, and glass cullets) for production. 	Scale-up business models for waste minimization and adoption of technology/ processes that utilize secondary raw or recycled materials (e.g., paper, plastics, and glass cullets and other construction and demolition waste).	Transform business models to internalize environmental costs of production and consumption.	DTI, DENR, academe, private sector
	Support transition to clean energy through cost-benefit analysis and Value Engineering/Value Analysis (VEVA) of emerging RE sources (e.g., ocean wave energy, tidal energy, ocean thermal energy).	Pilot test emerging RE sources to support large-scale development and production to achieve grid parity.	Review and evaluate implementation.	DOE, DOST, NEDA, academe
	Assess and forecast green market trends, including Filipino food consumption patterns and food waste.	Conduct an extensive study to understand the behavior of producers and consumers towards environmental sustainability.	Update behavioral assessments.	DTI, NEDA, academe
Infrastructure	Implement sustainable, multi-modal transport/urban mobility solutions to support “choice-influencing” (e.g., car sharing, bike sharing, walkways) to create green and walkable cities/ municipalities.	Scale-up sustainable infrastructure development for key sectors (e.g., transport, tourism, building/construction).	Evaluate the impact and effectiveness of interventions for enhancement and strengthening.	Department of Transportation (DOTr), Department of Human Settlements and Urban Development (DHSUD),

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	Provide support to refurbish and/or construct energy-efficient and green government buildings/public facilities and tourism infrastructure.	Scale-up implementation of modular and prefabricated building solutions for informal settlements.		Philippine Green Building Council (PhilGBC), DPWH, DOT, Tourism Infrastructure and Enterprise Zone Authority (TIEZA)
	<p>Increase public and private investment in storage, collection, treatment, recovery, and disposal facilities of solid and hazardous waste, including clinical/medical waste and e-waste.</p> <p>Establish more rainwater harvesting/ water impounding and wastewater treatment facilities to promote water recycling and reuse.</p>	Scale up the establishment of necessary recovery/reuse, recycling, and repair facilities to facilitate the shift to a CE.		NSWMC, DENR, Metropolitan Waterworks and Sewage System (MWSS), Local Water Utilities Administration (LWUA), Department of Finance (DOF), DBM, LGUs
	Develop SR online platform to facilitate ease of reporting and reduce the complexity of SR.	Roll out SR software/online reporting platform for medium enterprises.		SEC, DTI
	Establish infrastructure requirements to support the scaling up of grid-connected RE systems.	Establish affordable off-grid RE systems for far-flung communities.	Evaluate the impact and effectiveness of interventions for enhancement and strengthening.	DOE, National Grid Corporation of the Philippines (NGCP), DILG

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
Promotion and Education	<p>Develop training and assistance programs for agencies to formulate, implement and monitor their respective GPPs.</p> <p>Cascade and include GPP in the performance assessment of NGAs and LGUs.</p> <p>Intensify promotion of ecolabelling and other green certification schemes to increase the private sector's uptake and influence consumer preference.</p> <p>Implement updated training programs on green technology, waste, and chemical management for technical education and skills development of workers.</p> <p>Design and conduct public information campaigns (maximizing social media) on the need to cut down on food waste and the benefits of healthy eating and environment-friendly dining options.</p>	<p>Develop and promote formal and informal courses on sustainability science and engineering.</p> <p>Encourage companies to green their supply chains and adopt green procurement.</p> <p>Develop an online directory for eco-labeled products.</p>	Continue promotion and education campaigns.	DBM, GPPB, Philippine Center for Environmental Protection and Sustainable Development, Inc. (PCEPSDI), DTI, DENR, DOLE, Technical Education and Skills Development Authority (TESDA)
	Intensify SR Training for PLCs by partnering with industry groups/ associations.	Capacitate medium enterprises to undertake SR.	Review and evaluate SR capacity-building activities and recognition system.	SEC, DTI

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	<p>Disseminate information on available incentives and financing for green technologies.</p> <p>Encourage companies and consumers to implement “trade-in” schemes (e.g., old gadgets, appliances, textiles).</p>	<p>Establish a recognition/awards system for sustainable companies.</p> <p>Provide technical and financial assistance programs for greening and CE initiatives of MSMEs.</p>		
	<p>Develop campaigns and disseminate information on sustainable lifestyles targeting varying age groups and sectors of society through traditional and social media, barangay and community activities, and social development and livelihood (grassroots) programs (e.g., <i>Sangguniang Kabataan</i> [SK], Conditional Cash Transfer [CCT], senior citizen meetings).</p> <p>Strengthen/sustain school SCP/ environmental campaigns, events, and competitions to promote SCP as a “way of life.”</p> <p>Strengthen SCP awareness through non-formal education channels (e.g., Knowledge Channel) and grassroots programs targeting <i>barangays</i>,</p>	<p>Enhance public access to information on green products to influence purchasing decisions.</p> <p>Develop sustainable lifestyle awards and recognition programs targeting specific industries (e.g., fashion community, retailers).</p>	Continue promotion and education campaigns.	DENR, DepEd, CHED, DTI, DILG, LGUs, NEDA, media

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
	communities, overseas Filipino workers (OFW) households, youth, and the self-employed (e.g., jeepney and tricycle drivers, <i>sari-sari</i> store owners).			
Intermediate Outcome 2.2: Sustainable resource allocation and equitable sharing schemes established				
Policy and Regulation	<p>Lobby the enactment of the national land use act for appropriate zoning to ensure sustainable and efficient use of land resources.</p> <p>Strengthen the integration of spatial approach (to include both land and water/marine resources) in national and local development planning.</p> <p>Strengthen implementation of property rights policies to ensure the best use and establish appropriate policies on quota systems to manage the extraction of natural resources based on the precautionary principle.</p> <p>Expand adoption of market-based instruments to support the efficient use of natural resources (e.g., environmental user fees [EUFs]), payment for ecosystem services [PES]).</p>	<p>Develop and implement policy on wealth creation from natural resources (e.g., sovereign wealth fund, access, and benefit-sharing).</p> <p>Develop guidelines on the sustainable use of mined-out areas.</p>	Evaluate policies for updating and enhancement.	NEDA, DOF, DHSUD, DBM, DENR, DA, Congress, Judiciary, DILG, LGUs,

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
R&D, Innovation and Technology	Develop methodology and criteria to determine the best use, limits/maximum sustainable yield, and sustainable allocation of natural resources in view of current and projected per capita natural resource requirements (Refer to Outcomes 1.1 and 1.2).	Assess and develop localized models on wealth creation from NC to ensure intra- and inter-generational equity.	Evaluate policies for updating and enhancement.	NEDA, DENR, PSA, DOF, DBM
	Simulate natural resources use and allocation and analyze potential trade-offs to the economy, environment, and society using NC accounts (Refer to Outcomes 1.1).	Estimate costs of damage from unsustainable practices and unregulated resource use and allocation using NC accounts (Refer to Outcome 1.1).	Update assessments, including coefficients and assumptions.	NEDA, DENR, PSA
	Assess resource use (inflow and outflow) vis-à-vis stock of resources (resource budgeting).	Continue assessment of resource use (inflow and outflow) vis-à-vis stock of resources (resource budgeting).	Incorporate resource budgeting in development planning and programming.	DENR, NEDA
Infrastructure	Increase investment in satellite/remote-sensing equipment to monitor natural resource use (Refer to Outcome 1.1).	Develop software or application to monitor compliance with quota systems.	Evaluate implementation for enhancement.	DBM, DOST, DICT, PhilSA, DENR, NEDA
Promotion and Education	Disseminate information on the importance of property rights and quota systems.	Publish information on compliance with quota systems and their accompanying benefits.	Evaluate implementation for enhancement.	NEDA, DENR, DOF
	Increase awareness of market-based instruments to provide more financial resources for sustainable ENR management.	Promote access to resources arising from wealth creation policy.		

Nodes of Action	Short-term (2022-2023)	Medium-term (2024-2030)	Long-term (2031-2040)	Responsible Agencies/Entities
		Encourage commercial development of products from biodiversity resources aligned with the principles of access and benefit sharing (ABS).		
	Conduct knowledge-sharing sessions on the value of natural resources and disseminate practical and innovative measures for their efficient and equitable use (during festivals, general assembly, senior citizen meetings; among cooperatives, SK, CCT beneficiaries, press).		Continue promotion and education campaigns.	DENR, DILG, LGUs, NGOs, people's organizations (POs)

05

Implementation of the Plan



PART 5:

Implementation of the Plan

Given the cross-cutting scope of the intended interventions, the operationalization of PAP4SCP will require multi-stakeholder participation and commitment to ensure effective and timely implementation of the identified actions. Equally important are the means necessary to implement the Action Plan, such as adequate financing, capacity-building, and availability of appropriate technology, among others. With the government at the forefront of PAP4SCP implementation, financial resources for policy-making and establishing institutional arrangements can come from the national and local budgets. The national budget can be utilized to initiate new programs and projects or integrate SCP with existing ones to support the implementation of the priority thrusts under the Action Plan. On the other hand, given the LGUs' significant role in shaping the country's SCP agenda, the implementation of local SCP actions can be covered by the expected increase in their internal revenue resources in light of the Supreme Court's Mandanas ruling, which will take full effect in 2022. To leverage these expanded financial resources at the local level, LGUs would require assistance in strengthening their capacities to effectively plan, implement and monitor SCP actions, along with other development programs that they will be absorbing from the national government.

In terms of other sources of public sector financing, the following are the available green financing facilities and mechanisms in the Philippines that can be tapped for SCP-related projects:

- a. Renewable Energy Trust Fund (RETF).** The fund was established under the Renewable Energy Act to enhance the development and greater use of renewable energy. The DOE administers it as a special account in any Government Financial Institutions. The RETF shall be exclusively used to finance the research, development, demonstration, and promotion of the widespread and productive use of RE systems for power and non-power applications, as well as to provide funding for R&D institutions engaged in RE studies undertaken jointly through public-private sector partnership. It shall also be utilized to support the development and operation of new RE resources to improve their competitiveness in the market and the conduct of nationwide resource and market assessment studies for the power and non-power applications of RE systems.

b. Energy Regulations (ER) No. 1-94. This mandates Generation Companies and/or energy resource developers to set aside one centavo per kilowatt-hour (PHP0.01/kWh) of the total electricity sales as financial benefits to host communities. A trust account may be established to be tapped by LGUs to fund projects specific to electrification, development and livelihood, reforestation, watershed management, health, and/or environmental enhancement.

c. Air Quality Management Fund. The fund was created under the Clean Air Act and is intended to finance the containment, removal, and clean-up operations of the Government in air pollution cases and guarantee the restoration of ecosystems and rehabilitate areas affected by the acts of violators of the Act. The fund shall also be utilized to support research, enforcement and monitoring activities, and capabilities of the relevant agencies and provide technical assistance to the relevant agencies. The funds are sourced from the fines imposed and damages awarded by the Pollution Adjudication Board, the proceeds of licenses and permits issued by the DENR consistent with the Clean Air Act, emission fees, and donations, endowments, and grants in the form of contributions. Contributions to the fund shall be exempted from donor taxes and all other taxes, charges, or fees imposed by the Government

d. Clean Water Management Fund. This is similar to the Air Quality Management Fund and was created under the Clean Water Act for water pollution cases.

e. DOST Grants-in-Aid (GIA) Program aims to harness the country's scientific and technological capabilities to spur and attain sustainable economic growth and development. The GIA program provides grants for the implementation of R&D initiatives that lead to local and appropriate technologies with socioeconomic benefits for the people. These efforts should be aligned with the priority areas in health; agriculture, aquatic, and natural resources; industry, energy, and emerging technology; and disaster risk reduction and climate change adaptation, identified in the Harmonized National Research and Development Agenda. Priority is given to proposals that forge linkages among industry, the academe, and government to ensure the success of research undertakings and the development of demand-driven technologies. Private sector participation and counterpart funding are strongly encouraged to complement government efforts and resources.

f. Innovation Fund. Pursuant to the provisions of the Philippine Innovation Act (RA 11293), an Innovation Fund was established to strengthen entrepreneurship and enterprises engaged in developing innovative solutions, benefiting the poorest of the poor. This Fund, from which grants will be issued, shall be administered by the National Innovation Council, which shall screen and approve qualified proposals.

Multilateral and bilateral financing can also be tapped to support initiatives on research and innovation. In fact, many pilot projects on SCP in the Philippines were funded through bilateral cooperation with the European Union and Gesellschaft fur Internationale Zusammenarbeit (GIZ), among others. In terms of international funding facilities, the following may be explored for SCP-related programs and projects:

a. Global Environment Facility (GEF). The GEF is the financial mechanism for various multilateral environmental agreements (MEAs).⁸ It provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. The Philippines accessed total funding support of USD570.90 million covering 110 projects since 1991. Of these projects, two projects amounting to USD6.02 million are funded through the Special Climate Change Fund (SCCF).

b. Green Climate Fund (GCF). The GCF is a funding support facility amounting to USD10.30 billion established under the UN Framework Convention on Climate Change (UNFCCC). It intends to help developing countries limit or reduce GHG emissions and adapt to the adverse impacts of climate change by financing low-emission and climate-resilient projects and programs developed by both the public and private sectors. To date, there are 76 approved projects from different countries amounting to USD3.7 billion (43% mitigation, 29% adaptation, and 28% crosscutting). One project from the Philippines has been approved for GCF funding: a “Multihazard Impact-Based Forecasting and Early Warning System for the Philippines.” This will be implemented with DOST -Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) as the lead executing agency with other government agencies. The Land Bank of the Philippines is the Direct Accredited Entity, which facilitates the program implementation and funding management.

c. 10YFP Trust Fund. The 10YFP Trust Fund is the principal means of collecting and allocating financial resources to implement SDG 12. The Trust Fund supports the implementation of the six thematic programs⁹ of the 10YFP and innovative SCP projects that address national and regional priorities of developing countries and countries with economies in transition. The 10YFP Trust Fund has supported projects on the establishment and implementation of Green Public Procurement (GPP) and integration of SCP practices in local government units in the Philippines.

Enabling policies to synergize public and private investments toward green projects have also been adopted. In particular, the government has recently launched the Sustainable Finance Roadmap, which aims to: (a) create a conducive environment for sustainable finance and (b) develop a pipeline of sustainable/green projects. Alongside the Roadmap, the Guiding Principles was also developed to provide the taxonomy for the sustainable finance ecosystem in the Philippines. It is a principle-based guidance to identify the economic activities that contribute to sustainable development and encourage the flow of capital to these activities. Various instruments to strengthen bank confidence and interest in supporting green or sustainable projects while effectively managing related risks (e.g., *Bangko Sentral ng Pilipinas* Circular 1085, s. 2020 [Sustainable Finance Framework] and Circular 1128, s. 2021 [Guidelines for Environmental and Social Risk Management Framework]) have also been adopted. The development of a framework for sustainable bonds, including the proposed sovereign wealth fund, is also underway.

⁸ MEAs include United Nations Convention on Biodiversity (UNCBD), UN Framework Convention on Climate Change (UNFCCC), UN Convention to Combat Desertification and Drought (UNCCD) and Stockholm Convention on Persistent Organic Pollutants, Minamata Convention on Mercury.

⁹ The six programmes of the 10YFP are: (a) sustainable food systems, (b) sustainable lifestyles and education, (c) sustainable buildings and construction, (d) consumer information, (e) sustainable tourism, and (f) sustainable public procurement.

Partners in the private sector can contribute not only by providing seed funds to further develop innovative technologies in the country but also through utilizing environment-friendly and resource-efficient technology and sharing their existing SCP technologies and sustainable business models to the academe, CSOs, and other relevant stakeholders. For instance, the business and industry sectors can pay for the cost of re-engineering their processes to be compliant with the norms and standards to be generated by this Plan. The academe can internalize part of the costs of re-education by mainstreaming SCP into the relevant curricula. Civil society can also contribute to the cost by mainstreaming SCP advocacies into their related programs, projects, and other initiatives.

Timeline of Implementation

Priority policy reforms and actions in the PAP4SCP will be cascaded and implemented starting in 2022 and continuing into the medium- and long-term. A midterm evaluation will be conducted by 2030 to assess the progress of plan implementation towards its outcomes and goal (*Figure 7*).

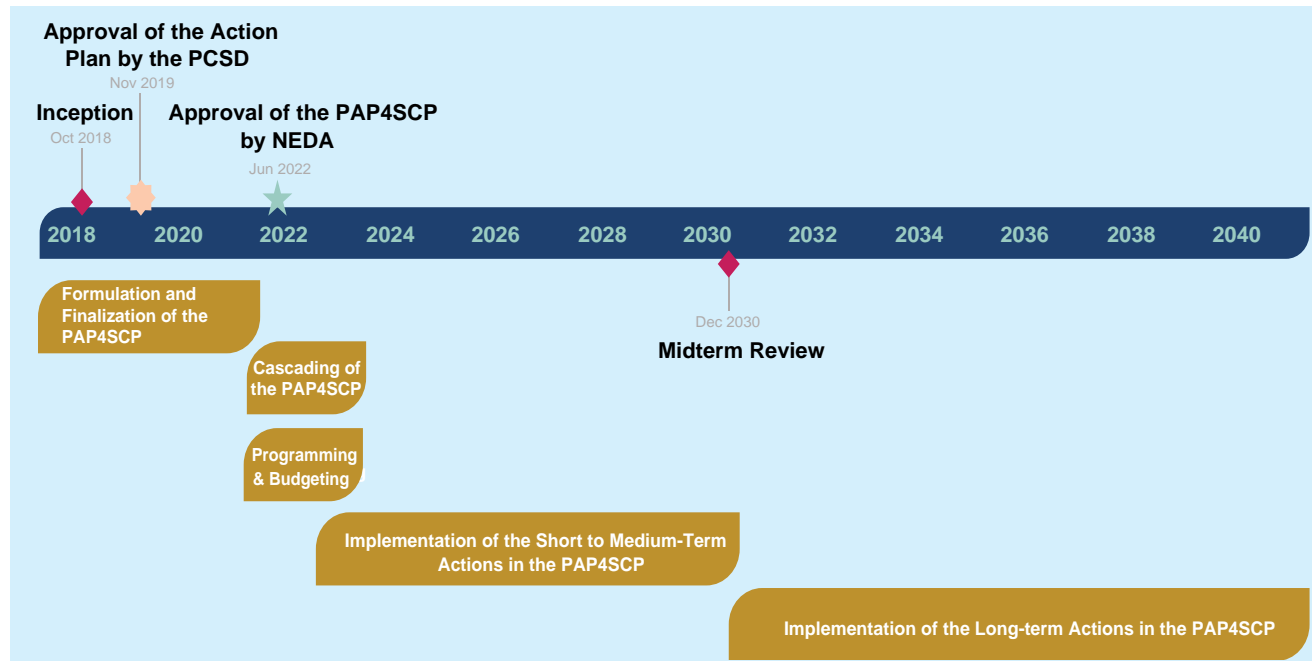


Figure 7. Timeline of Finalization and Implementation of the PAP4SCP

Monitoring and Evaluation

The accompanying results matrix (RM) of the PAP4SCP will be developed during the rollout of the Plan. These indicators can be integrated into the new Philippine Development Plan (PDP) and updating of other sectoral plans. The RM will serve as a guide in tracking the progress – successes, and challenges — of the actions laid out in the Plan. The RM presents the outcome and outputs indicators, baseline, targets per time horizon, means of verification, risks and assumptions, and responsible entities.

References

- Acda, Menandro. n.d. "Production, Regulation, and Standardization of Biofuels: A Philippine Perspective." Elsevier, 553–70.
- Atlas of Philippine Inland Wetlands and Classified Caves. 2016. First Edition. Department of Environment and Natural Resources-Biodiversity Management Bureau (DENR-BMB). <https://www.scribd.com/document/419585292/Atlas-of-Philippine-Inland-Wetlands-and-Classified-Caves-2016-BMB-DENR>.
- "Energy Demand and Supply Outlook." 2019. In Energy Demand and Supply Outlook, 7th Edition, Vol. 2:293–311. Asia Pacific Economic Cooperation (APEC).
- "Greening with Jobs." 2018. International Labour Organization. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf.
- "Material Consumption." 2018. Organisation for Economic Co-operation and Development. <https://data.oecd.org/materials/material-consumption.htm>.
- Martinico-Perez, Marianne Faith, Heinz Schandl, and Hiroki Tanikawa. n.d. "Sustainability Indicators from Resource Flow Trends in the Philippines" 138: 74–86.
- Martinico-Perez, Marianne Faith, Heinz Schandl, Tomer Fishman, and Hiroki Tanikawa. 2018. "The Socio-Economic Metabolism of an Emerging Economy: Monitoring Progress of Decoupling of Economic Growth and Environmental Pressures in the Philippines" 147 (Ecological Economics): 155–66.
- "Ocean Industries Account for 3.6 Percent of GDP in 2018." 2019. Philippine Statistics Authority. <https://psa.gov.ph/content/ocean-industries-account-36-percent-gdp-2018>.
- "Philippine Energy Situationer 2019." 2019. Department of Energy. https://www.doe.gov.ph/sites/default/files/pdf/energy_statistics/2019-energy-situationer.pdf?withshield=1.
- "Philippine Population Density (Based on the 2015 Census of Population)." 2016. Philippine Statistics Authority. <https://psa.gov.ph/content/philippine-population-density-based-2015-census-population>.
- "Philippine Population Surpassed the 100 Million Mark (Results from the 2015 Census of Population)." 2017. Philippines Statistics Authority. <https://psa.gov.ph/population-and-housing/node/120080>.
- Recabar, Sandee, Aimee Evangelista, Alex Kevin Marc Alonzo, and Jan Ralph Ebor. 2019. "Institutionalizing the Philippine Greenhouse Gas Inventory Management and Reporting System." <http://www.psa.gov.ph/sites/default/files/8.4.3%20Institutionalizing%20the%20Philippine%20Greenhouse%20Gas%20Inventory%20Management%20and%20Reporting%20System%20.pdf>.

- Rosellon, Maureen Ane. 2017. "The Renewable Energy Policy Debate in the Philippines." Philippine Institute for Development Studies.
<https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1717.pdf>.
- Schroeder, Patrick. 2020. "Supporting Implementation of Environment Related Sustainable Development Goals in Asia and the Pacific (Philippine Subproject): Circular Economy in the Philippines." Asian Development Bank.
https://www.adb.org/sites/default/files/project-documents/50158/50158-001-tacr-en_0.pdf.
- "SDG Indicators." 2020. United Nations.
<https://unstats.un.org/sdgs/metadata/?Text=&Goal=8&Target=8.4>.
- "Socioeconomic Report." 2018. National Economic and Development Authority.
http://www.neda.gov.ph/wp-content/uploads/2019/09/SER-2018_Posted-Chapters.pdf.
- Suarez, Isabella, and Vince Carlo Garcia. n.d. "Aiming Higher: Benchmarking the Philippine Clean Air Act." Centre for Research on Energy and Clean Air (CREA); Institute for Climate and Sustainable Cities (ICSC). https://icsc.ngo/wp-content/uploads/2021/11/AimingHigherBenchmarkingthePhilippineCleanAirAct_CREA_ICSC_v4_10Nov2021.pdf.
- Tamang, Jesus. 2018. "Promoting Energy Efficiency in Government Buildings." Department of Energy. https://www.eu-asep.ph/wp-content/uploads/2018/05/AM_2_Dir-Tamang_Promoting-Energy-Efficiency-in-Government-Buildings.pdf.
- "The Philippines: Key Issues for Developing Renewable Energy Projects." 2018. Watson Farley & Williams. <https://www.wfw.com/wp-content/uploads/2018/08/WFWBriefing-Renewable-energy-Philippines.pdf>.
- "The Philippines National Context for SCP and Connection to the Global Agenda." n.d. SWITCH-Asia. <https://www.switch-asia.eu/countries/southeast-asia/philippines/>.
- "The World Bank in the Philippines: Overview." 2021. World Bank.
<https://www.worldbank.org/en/country/philippines/overview#1>.
- Tolentino, Maria Paula. 2015. "Mining Recovery Predicted by 2019 with Political Support," 2015.
https://issuu.com/paperlesstrail/docs/philippine_resources_2015_issue_4.
- "Transforming Tourism Value Chains – Activities." 2018. Philippine Center for Environmental Protection and Sustainable Development, INC (PCEPSDI).
<https://pcepsdi.org.ph/projects/transforming-tourism-value-chains/activities/>.
- "Urban Population in the Philippines (Results of the 2015 Census of Population)." 2019. Philippine Statistics Authority. <http://www.psa.gov.ph/content/urban-population-philippines-results-2015-census-population>.

- “Visualisation Map of the Interlinkages between SDG 12 and the Other SDGs.” n.d. United Nations Economic and Social Commission for Asia and the Pacific. https://www.unescap.org/sites/default/files/Visualisation%20of%20interlinkages%20for%20SDG%2012_new.pdf.
- “World Population Prospects: The 2010 Revision (Medium Fertility Variant, 2011-2100).” 2011. United Nations.
- “World Urbanization Prospects: The 2014 Revision, Highlights (ST/ESA/SER.A/352).” 2014. United Nations. <https://population.un.org/wup/Publications/Files/WUP2014-Highlights.pdf>

Annex A. Status of Environment and Natural Resources

Natural Resources

Land resources. Land is critical for sustainable development as it houses crucial resources, such as minerals, water, vegetation, and microorganisms, which support the life of all plants and animals. Land resources are crucial to the population's continuous production and consumption (providing oxygen, wood, food, medicine, fuel, and other raw materials for the survival and socioeconomic development of the country's population). It also assimilates and recycles wastes from human activities.

The Philippines has a total land area of around 300,000 km². This can be divided into two land classifications: forestland and alienable and disposable (A&D) land, accounting for 53 percent and 47 percent of the land area, respectively. Land classified as A&D may be used for agriculture, residential, industrial, commercial, and recreational purposes.

Over the past years, land cover has significantly changed because of urbanization and the increase in human settlements. Based on the land cover data from NAMRIA (*Table A- 1*), built-up areas have doubled from 302,340 ha in 2003 to 692,121 ha in 2010, while the area of closed forest cover decreased by about 26 percent. Agricultural areas also decreased by 11.25 percent during the same period.

Table A- 1. Comparative Matrix of 2003 and 2010 Land Cover of the Philippines

Classification	2003		2010		Change in Percent (2003 to 2010)
	Area (ha)	% to Total	Area (ha)	% to Total	
Annual Crop	7,071,491.21	23.28	6,275,992.16	21.24	-11.25%
Built-up Area	302,339.57	1.00	692,121.17	2.34	128.92%
Closed Forest	2,639,356.85	8.69	1,934,032.47	6.54	-26.72%
Open Forest	4,391,312.25	14.46	4,595,154.32	15.55	4.64%
Mangrove Forest	252,562.28	0.83	310,594.90	1.05	22.98%
Fallow	61,108.45	0.20	7,247.14	0.02	-88.14%
Shrubs	3,745,647.99	12.33	3,355,194.77	11.35	-10.42%

Classification	2003		2010		Change in Percent (2003 to 2010)
	Area (ha)	% to Total	Area (ha)	% to Total	
Wooded Grassland	3,973,790.59	13.08	3,829,045.93	12.96	-3.64%
Perennial Crop	4,968,822.00	16.36	6,168,359.60	20.87	24.14%
Other Land, Fishpond	225,849.87	0.74	244,911.88	0.83	8.44%
Inland Water	308,990.76	1.02	481,340.64	1.63	55.78%
Grassland	2,088,412.75	6.88	1,431,345.57	4.84	-31.46%
Marshland	184,863.40	0.61	131,498.59	0.44	-28.87%
Open/Barren Land	158,622.37	0.52	97,316.57	0.33	-38.65%
TOTAL	30,373,170.34	100.00	29,554,155.71	100.00	-2.70%

Source: NAMRIA 2003 and 2010 Land Cover Map (GIS Files)

Threats to land resources include changing land uses, degradation, and increasing population. Logging, forest fires, slash-and-burn farming, pests and diseases, and other activities like mining are identified as the main drivers of forest depletion. Whether legal or illegal, logging was the single most destructive act affecting the country's forests, including their biodiversity. Large-scale logging is usually followed by *kaingin*, which leads to the permanent loss of the forests because of human interference in the succession process. Surface and strip mining are particularly disruptive, causing soil erosion and tailings pollution. According to the Land and Degradation Neutrality-Target Setting Program (LDN-TSP), about 11.13 million ha of land were degraded in 2018.

Freshwater resources. The country is endowed with adequate freshwater resources with 314 inland wetlands and 2,487 river systems. Out of the 314 inland wetlands, 221 are lakes, 39 are water storage areas, 45 are marshes, swamps, and ponds, and nine percent are peatlands (DENR-BMB, 2016). Groundwater resources are estimated at 260,000 m³/year, with a net groundwater inflow of 33,000 m³/year.

Increasing water demand from the growing population and urbanization cause significant pressure on water resources, thereby affecting the country's water security. With a 107 million population as of 2018, the country's estimated water availability per capita stands at 1,553 m³/year, indicating that the country already falls below the international "water stress" threshold of 1,700m³/ year and is fast approaching the "water scarcity" threshold of 1,000 m³/year (USAID, 2018). Majority of water use has been for power generation and irrigation (*Figure A-1*).

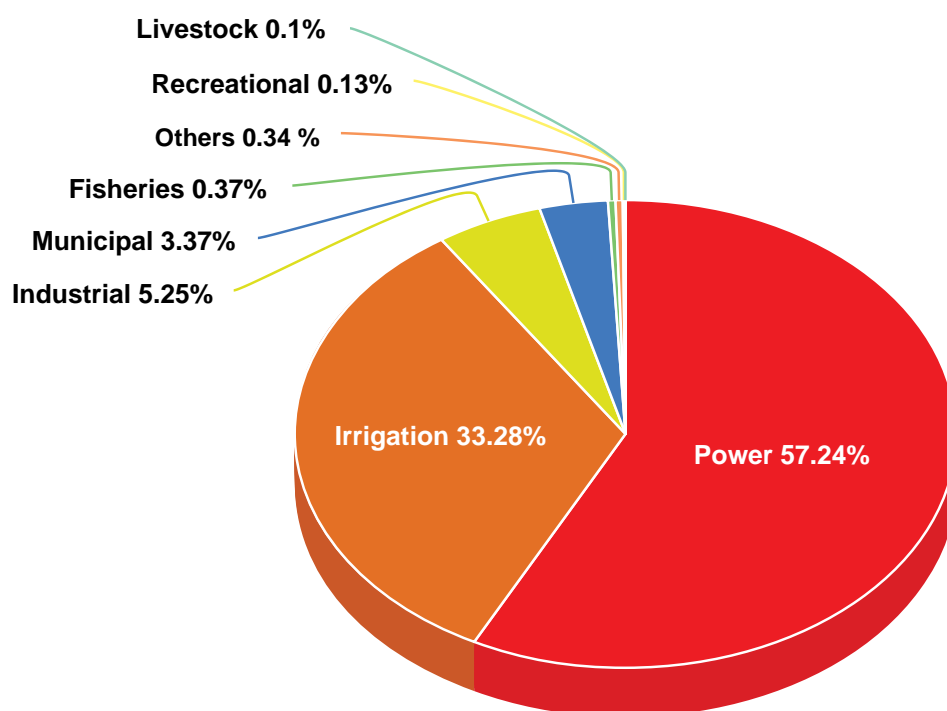


Figure A-1. Volume of Water Allocated by Water Use

Water management in the country will need improvements in the following areas: (a) adoption of an integrated, holistic approach to addressing the interrelated issues of development and management planning; (b) implementation and operation; (c) demand management; (d) pollution control; (e) watershed and groundwater protection; and (f) valuing water as a scarce resource.

Coastal and marine resources. The Philippines is an important ecological zone with the fifth-longest coastline in the world and a maritime area spanning 2.2 million km² – seven times the size of the country’s total land area. Currently, the country has a total of 797,719 ha of coral reef area, 489,006 ha of seagrass beds, and 303,373 ha of mangrove forests (NAMRIA, 2016). It is regarded as the epicenter of marine biodiversity globally, housing a wide variety of ecosystems that serve as critical sources of food and raw materials and other vital services such as carbon sequestration, shoreline protection, nutrient cycling, and nursery to various marine species. Coastal and marine resources contribute 19 to 36 percent of the Philippines’ food supply. Several industries are also directly reliant on the sector, such as food production, tourism, energy, transport, and services.

In 2018, ocean-based industries¹⁰ accounted for 3.6 percent of GDP with a value-added amounting to PHP622.2 billion (**Figure A-2**). Employment in ocean-based industries was at 2.5 million in 2018, accounting for 6.0 percent of the year's total employment (PSA, 2019b).

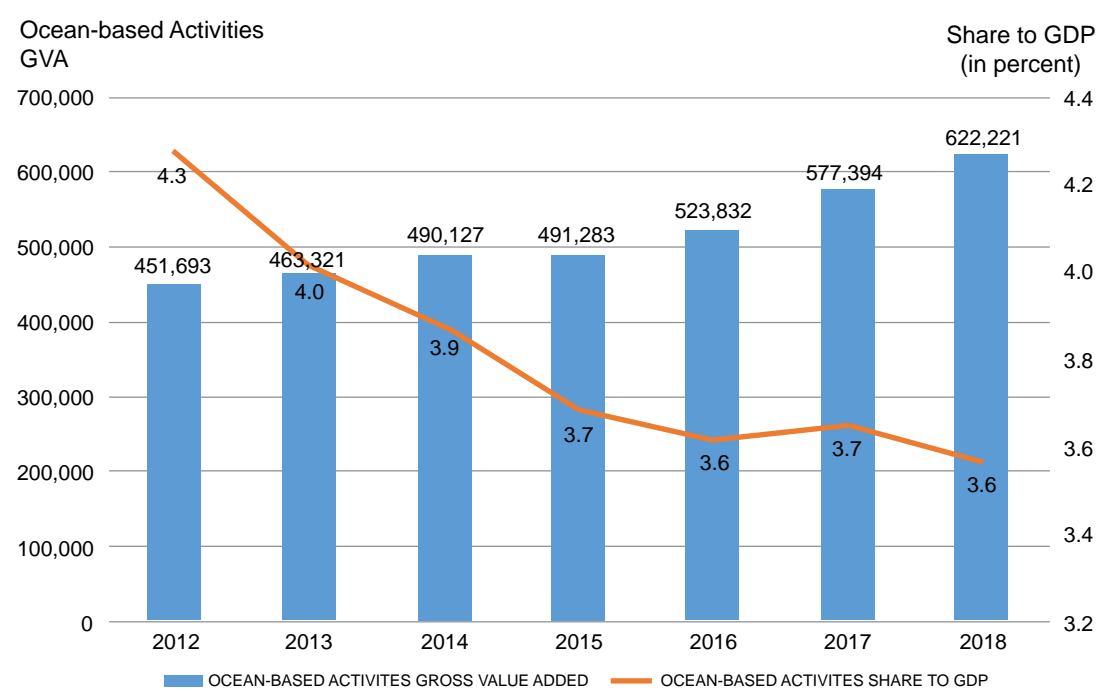


Figure A-2. Share of Ocean-based Industries to GDP at Current Prices, 2012 to 2018 (PSA, 2019b)

While the value of the output of ocean economy grew, its share of total GDP has been declining over time as the share of other industrial and services sectors increased. This can be attributed to the threats that the country’s coastal and marine resources continue to face. Unsustainable coastal development and illegal, unreported, and unregulated (IUU) fishing and overfishing have led to the degradation of coastal and marine resources, as evidenced by the loss of a third of the country’s coral cover and continuing degradation of seagrass beds and mangrove forests. It is also estimated that 10 out of 13 of the country’s fishing grounds show signs of overfishing, while the number of invertebrates and other fish and marine species is declining. Overfishing has resulted in low catch per unit effort and consequently lower income for fishers. In addition, increasing generation and leakage of solid waste, sewage and industrial effluents, mine tailings, oil from shipping, and agricultural run-off has resulted in the decline of coastal and marine water quality. In 2015, the Philippines ranked as the third-largest source of ocean plastics contributing to five percent of all the plastics entering the global marine environment. In 2018, only 39 percent of

¹⁰ Figures in current prices. Ocean-based industries include ocean fishing, off-shore and coastal mining and quarrying, manufacture of ocean-based products, coastal construction, ocean-based power generation, sea-based transportation and storage, marine insurance, marine renting and business activities, maritime safety, surveillance and resource management, maritime education, coastal hotels, and recreation.

the monitored marine water bodies¹¹ passed the water quality standards for Class SB water bodies (i.e., suitable for bathing, contact recreation, commercial propagation of shellfish, and spawning areas of milkfish and other similar species).

Mineral resources. The Philippines is considered a highly-mineralized country. About 30 percent (9 million hectares) of its total land area has high mineral potential. The DENR-Mines and Geosciences Bureau (MGB) shows that, globally, the country ranks 3rd in gold, 4th in copper, 5th in nickel, and 6th in chromite deposits. In 2010, the estimated mineral reserves were 14.5 billion MT for metallic minerals and 67.7 billion MT for non-metallic minerals, valued at an estimated amount of USD1.387 trillion (Tolentino, 2015). As of today, there are 43 large-scale metallic mining operations in the country. However, the contribution of mining to national economic growth is minimal, accounting for less than one percent of the country’s GDP (*Figure A-3*).

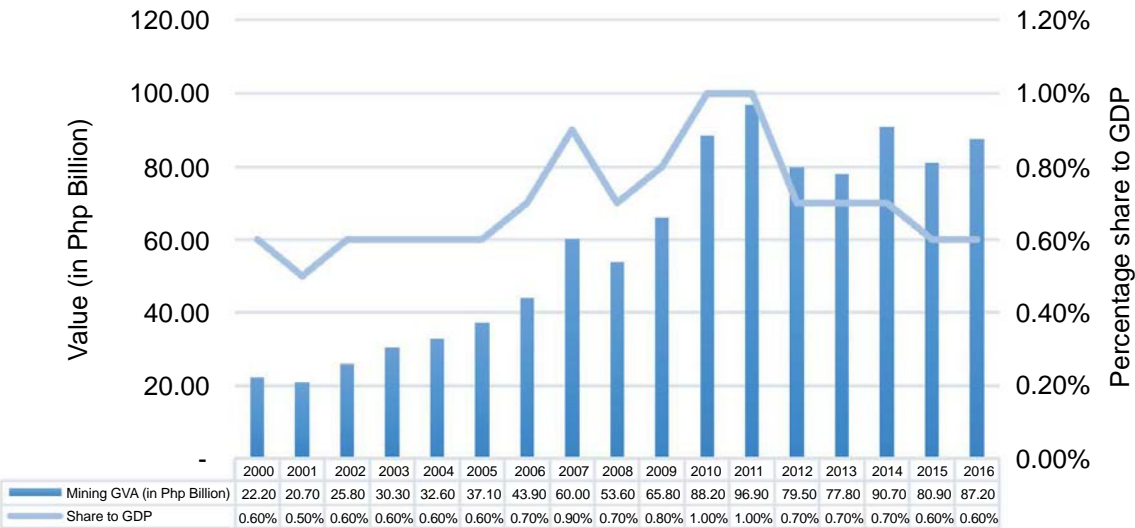


Figure A-3. Contribution of Mining to the Philippine Economy

The employment data on mining showed an average contribution of 0.47 percent to the country’s total employment (DENR-MGB, 2018). The mining sector's potential as a key employment generator can be realized if it can be further integrated into the economy by developing midstream and downstream channels, specifically manufacturing, transport, logistics, and construction (DOLE, 2016). However, mining operations in the country are still under criticism for the purported negative impact on the environment and the community. Hence, to pursue a more responsible mining sector, the Mining Industry Coordinating Council (MICC) commissioned an objective, science-based, and fact-finding mining review. The review aims to (a) identify the needed interventions that would effectively address the issues and concerns of large-scale mining operations and (b) recommend policy measures that will further improve the regulation and management of the sector. Mining operations

¹¹ Fifteen marine water bodies are being monitored by the DENR-EMB and reported in the PDP 2017-2022 Results Matrix.

were assessed on various criteria, particularly their technical, economic, environmental, social, and legal compliance. Phase 1 of the review, completed in 2018, covered the 26 mining operations issued with suspension or closure orders as a result of the DENR mine audit in 2016. Phase 2 of the review, covering 18 other mining operations, was already completed in December 2020.

Energy Resources. In 2019, the country’s TPES reached 60.1 MTOE, a slight increase from the 2018 level of 59.7 MTOE. The total indigenous energy went up by 3.0 percent, while net energy imports dropped by 1.7 percent, resulting in improved energy self-sufficiency from 50.2 percent in 2018 to 51.4 percent in 2019. Fossil fuel accounted for 67.2 percent share of the TPES with oil accounting for about 32.1 percent, followed by coal at 29.1 percent, and natural gas at 6 percent of the TPES. Aggregate supply of RE amounted to 32.8 percent of TPES during the period (DOE, 2019) (*Figure A-4*).

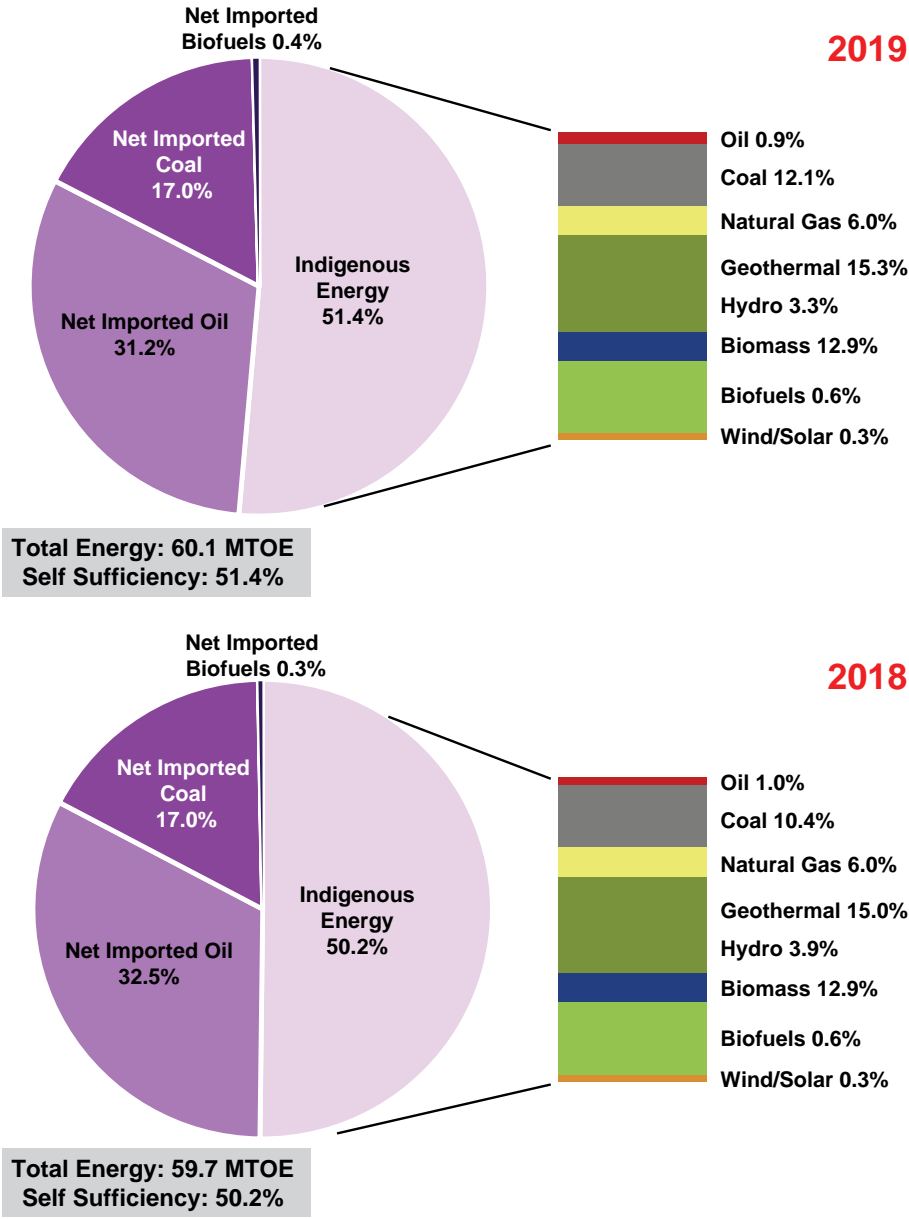


Figure A-4. Total Primary Energy Mix by Fuel Shares (in percent): 2019 vs. 2018

The TFEC went up by 1.6 percent to 36.3 MTOE from its year-ago level of 35.7 MTOE. Transport remains as the most energy-intensive sector at 34.9 percent share to the TFEC, followed by the household sector accounting for 26.7 percent share of the demand mix (*Figure A-5*).

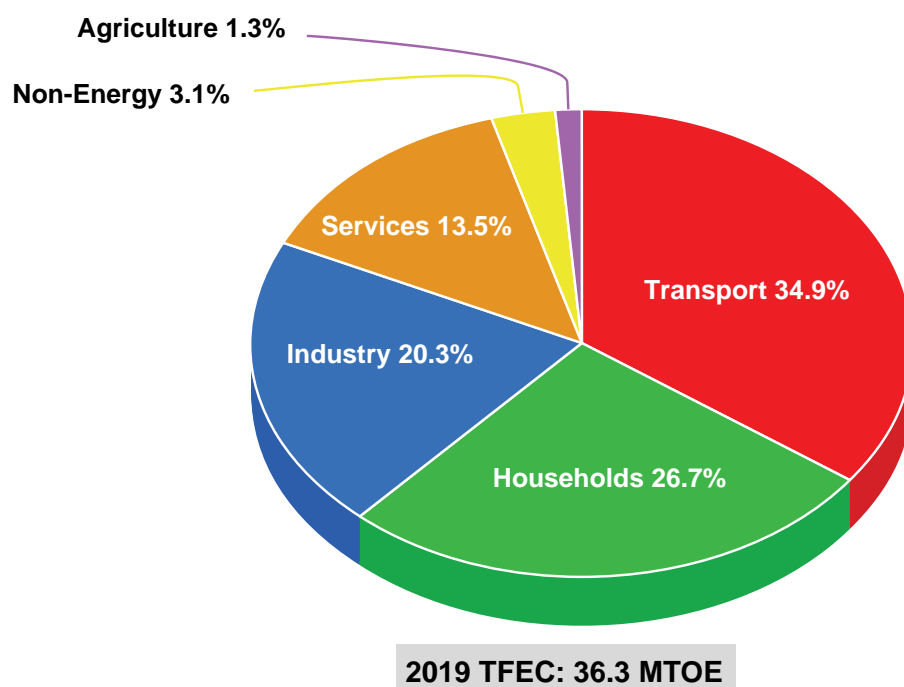


Figure A-5. Total Final Energy Consumption by Sector (in MTOE): 2019 vs. 2018

The country's economy-wide energy intensity level reached 3.1 TOE/MPhp in 2019, lower by 3.6 percent than the 3.2 TOE/MPhp in 2018. Carbon intensity, or the amount of GHG emission per unit of economic output, declined by 0.6 percent to 0.67 tons of CO₂ equivalent (tCO₂e) per PHP100,000, owing to mitigation efforts involving the promotion and use of renewable energy and other low carbon fuels.

Environmental Quality

Solid waste. In 2016, the NSWMC reported that a total of 40,000 tons of waste (equivalent to around 106 swimming pools) is generated in the Philippines per day. This translates to 0.40 kg of waste generated per person per day.

Solid wastes are generated from residential, commercial, industrial, and institutional sources (*Figure A-6*). Residential wastes account for 57 percent of the total solid waste generated, while waste from commercial sources (e.g., commercial establishments and public/private markets) accounts for 27 percent. Wastes from institutional sources (e.g., government offices, educational, and medical institutions) account for around 12 percent, while the remaining four percent are generated by the industrial/manufacturing sector (NSWMC, 2013).

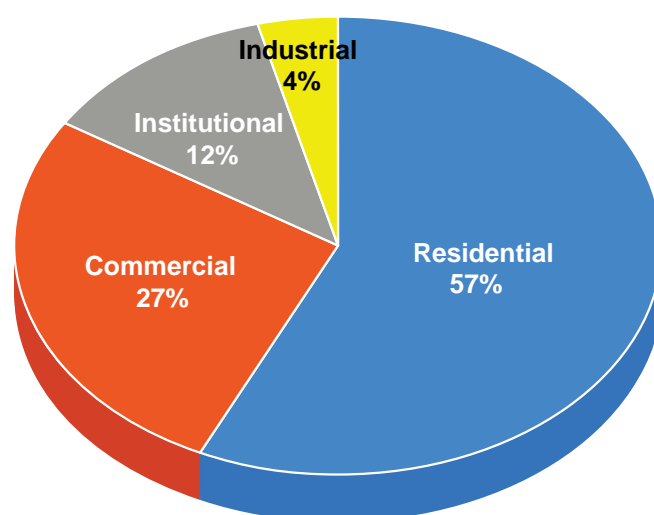


Figure A-6. Sources of Solid Waste (NSWMC, 2013)

The country's solid waste consists of biodegradable, recyclable, residual, and special wastes (**Figure A-7**). Biodegradable wastes (e.g., kitchen or food waste and yard or garden waste) account for 52 percent. Recyclable wastes account for almost 28 percent. This fraction consists of 38 percent plastic packaging materials, 31 percent paper and cardboard waste, and 31 percent metals, glass, textile, leather, and rubber. Special wastes (e.g., household healthcare waste, electric and electronic equipment waste, bulky waste, and other hazardous materials) contribute only two percent, while residuals make up 18 percent of generated solid waste. Most LGUs present these data as a combination of disposable wastes and inert materials, which comprise about 12% of the residual waste (NSWMC, 2013).

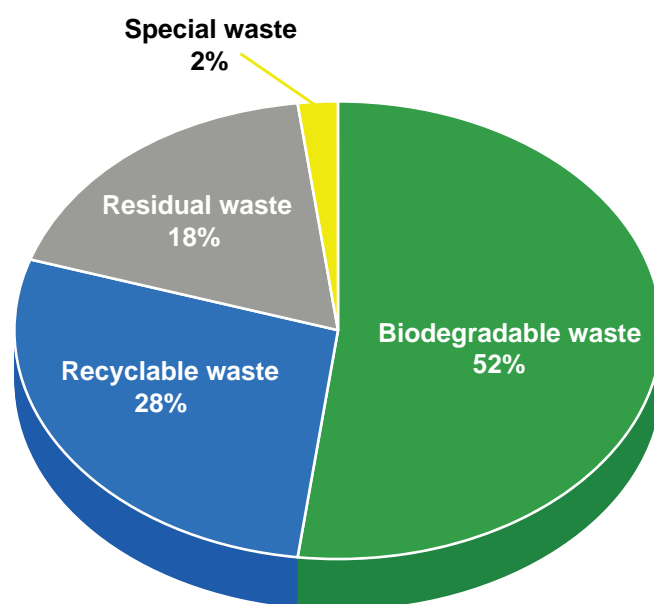


Figure A-7. Solid Waste Composition (NSWMC, 2013).

In terms of waste management facilities, as of 2018, a total of 353 illegal dumpsites are yet to be closed and rehabilitated per RA 9003. On the other hand, there has been a steady increase in the number of sanitary landfills (SLFs) being established and LGUs having access to them—from 33 SLFs that cater to the residual waste of 78 LGUs in 2010 to about 353 LGUs with access to 165 SLFs in December 2018.

Air quality. The quality of air is declining. There is a decrease in the proportion of HUCs and major urban centers that passed the ambient air quality guideline for PM10 and PM2.5—from 47 percent in 2015 (18 out of 38 HUCs), to 45 percent in 2017 (17 out of 38 HUCs), to 32 percent in 2018 (12 out of 38 HUCs) (NEDA, 2018).

Based on the latest National Emissions Inventory conducted in 2018 (**Figure A-8**) around 73 percent of air pollutants came from mobile sources (e.g., cars, motorcycles, trucks, and buses). Almost 16 percent came from stationary sources (e.g., power plants and factories). The remaining 11 percent were from area sources (e.g., construction activities, open burning of solid wastes, and *kaingin* in upland areas).

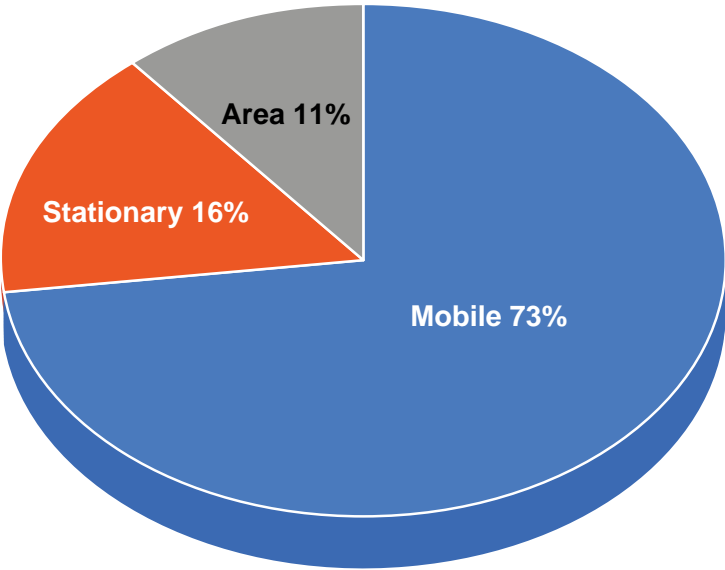


Figure A-8. 2018 National Emission Inventory by Sources

In terms of GHG emissions, preliminary results of the 2010 National GHG Inventory showed that the energy, agriculture, and transport sectors were the biggest GHG emitters, accounting for about 82 percent of the total non-land use change and forestry (LUCF) emissions (**Figure A-9**) (Recabar, et al., 2019).

All values are in million metric tons of CO₂ equivalent (Mt CO₂e).

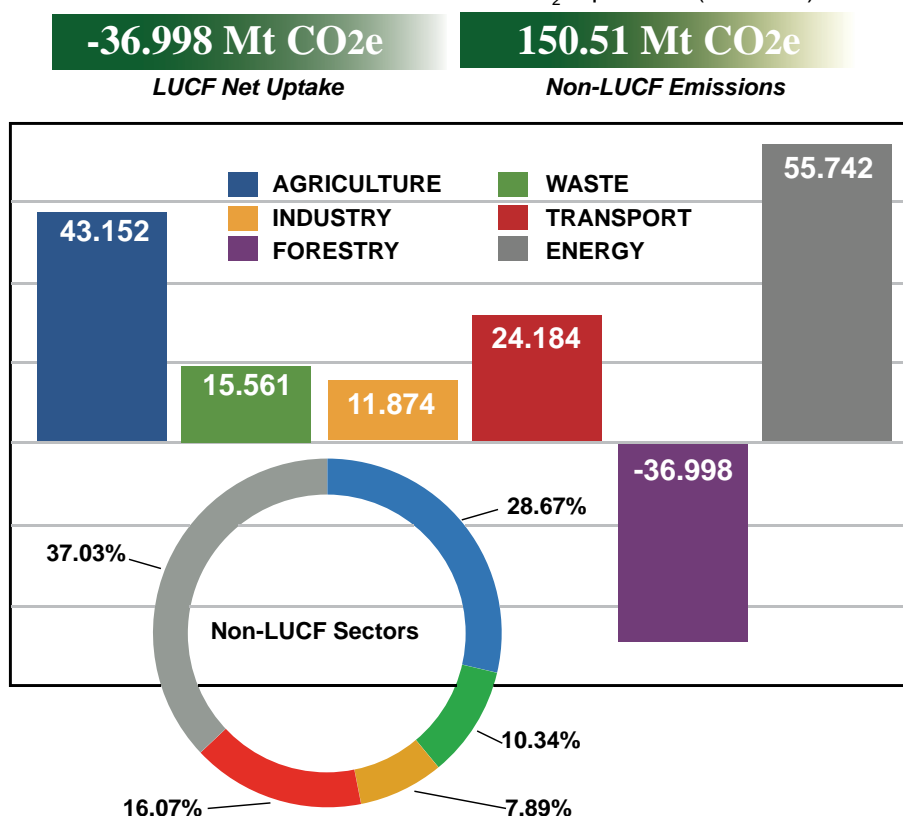


Figure A-9. Preliminary 2010 National Greenhouse Gas Inventory

Water quality. There was an observed decline in the water quality of priority water bodies, making them unfit for their intended uses. When any substance—whether solid, liquid or radioactive—enters a water body, exceeding its allowable limits or concentrations based on the water body’s classification, the resource is considered unfit for its intended beneficial use. These pollutants could come from point sources (e.g., commercial and industrial establishments that discharge effluent from wastewater treatment plants) and non-point sources (e.g., rainwater or runoff from irrigation, carrying water with pollutants from farms and urban areas).

In 2013, the biochemical oxygen demand (BOD) loading from point sources was estimated at 4.5 MMT. Around 45 percent of this was generated by the agriculture sector while approximately 31 and 24 percent were from domestic and industry sources, respectively. These sources generated a BOD loading of 465,595 MT in 2013. Agricultural runoff contributes the highest pollution load at 61 percent, followed by urban runoff at 29 percent, and forest runoff at 10 percent (DENR-EMB, 2014).

Annex B. Plans and Programs Supportive of SCP

The following are some of the plans and programs that are supportive of SCP:

Table B-1. Plans and Programs Supportive of SCP

Plans and Programs	Description	Assessment
Philippine Development Plan (PDP)	This Plan is the blueprint of government where the political leadership priorities are translated into a policy and strategy framework and operationalized through programs and projects. The Updated PDP is now focused on the goal of having a healthy and resilient Philippines. Chapter 20 of the Plan aims to ensure ecological integrity, clean, and healthy environment by prioritizing strategies to (a) sustain biodiversity and the functioning of ecosystem services; (b) improve environmental quality, and (c) increase resilience of communities and their livelihoods.	Midterm assessment of the PDP 2017-2022 revealed that SCP practices are increasingly being implemented by both the public and private sectors (e.g., sustainability reporting of PLCs, investment in energy-efficient and low material intensity buildings, and creation/development of green jobs). However, there is a need to accelerate the implementation of SCP to facilitate the country's shift towards sustainable and climate-smart practices and lifestyles.
Philippine Green Public Procurement (GPP) Roadmap	The Roadmap aims to guide the establishment of GPP program for all departments, bureaus, offices, and agencies of the government, including LGUs. It is driven by the idea that governments need to lead by example in transforming the market. It describes a circumspect approach reflecting issues and concerns such as value for money and suppliers' readiness, capacity, and awareness. It also outlines the strategy of GPP in the Philippines, which is to integrate green criteria/arguments into existing procurement processes.	The Roadmap served as the basis for the mainstreaming of GPP in the procurement of CSEs (e.g., copy papers, toilet paper). However, more detailed product criteria and market research are required to implement GPP in non-common use supplies (e.g., computers and laptops, vehicles, toilets, and urinals). Towards this end, it is critical to address the gap in existing capacities of the GPPB to develop green criteria that will guide the implementation of GPP. Once strengthened, this will also facilitate GPP implementation at the local level.

Plans and Programs	Description	Assessment
National Ecolabeling Program – Green Choice Philippines (NELP-GCP)	NELP-GCP is a voluntary, third-party ecolabelling program that provides criteria for environmentally-preferable products, which can guide consumers and institutions in product selection. The program is critical to the successful adoption of green/sustainable procurement programs since it provides purchasers with a ready basis for identifying green products that have been independently verified, rather than having to screen products themselves or rely only on manufacturers' claims. The NELP is one among about 40 similar country-specific programs in the world.	The voluntary and demand-driven nature of the certification process and pending criteria development for particular product categories pose a challenge to the wider uptake of the initiative.
Government Energy Management Program (GEMP)	GEMP aims to reduce electricity consumption and transport petroleum products in all government departments, NGAs, government-owned and/or controlled corporations (GOCCs), State Universities and Colleges (SUCs), hospitals, and other government instrumentalities except for constitutional bodies. Total energy savings in government offices amounted to PHP78 million in 2017 and PHP82 million in 2018.	<p>The shift to more energy-efficient lighting products in government buildings was facilitated by including light-emitting diode (LED) lights/bulbs in the list of prioritized common-use supplies and equipment (CSE) under GPPB Resolution 25-2017. However, green criteria have yet to be applied for non-CSE, such as air conditioners, refrigerators, copiers, and vehicles, limiting the procurement of more energy-efficient appliances and equipment in government offices.</p> <p>In addition, Energy Services Companies (ESCOs) were initially identified as possible means to ease the implementation of effective energy efficiency improvement projects in government facilities. However, upon further investigation, it was found that the Government Procurement Reform Act only allows for the procurement of pure goods and pure services, disallowing "hybrid" procurement such as ESCO Performance Contracts (DOE, 2018).</p>

Plans and Programs	Description	Assessment
National Renewable Energy Program (NREP)	<p>NREP lays the foundation for developing the country's renewable energy resources, stimulating investments in the RE sector, developing technologies, and providing the impetus for national and local renewable energy planning to help identify the most feasible and least-cost renewable energy development options. It also sets the indicative interim targets for delivering renewable energy within 2011 to 2030.</p> <p>The NREP's overall goal is to increase RE-based capacity for power generation to 15,304 MW by 2030 by institutionalizing a comprehensive approach to address the challenges and gaps that would prevent or delay the wider application of RE technologies in a sustainable manner and outlining the action plans necessary to facilitate and encourage greater private sector investments in RE development (Philippine Institute for Development Studies [PIDS], 2017).</p>	Data suggest that actual installed capacities per RE technology (as of December 2015) did not meet the targeted capacities for 2015 (PIDS, 2017). This may be attributed to the challenges that investors face in developing renewable energy projects in the country (e.g., permitting, foreign ownership, grid connection, feed-in-tariff, and renewable portfolio standards) (Watson Farley & Williams, 2018).
Transforming Tourism Value Chains	This project aims to improve resource efficiency in key tourism sector value chains with high resource use (accommodation, food and beverage, and meetings, incentives, conferences, and events [MICE]) sectors and transform the industry into low carbon, resource-efficient operations. The project will be implemented in two key tourism zones: Metro Manila and Iloilo City.	Initial assessment of the environment to facilitate the adoption of sustainable measures in the tourism value chain identified the need to strengthen policy and guidelines, raise awareness, and provide a business model of sustainable development for both businesses and the community (PCEPSDI, 2018).
Switch-Asia Programme	This is a grant programme funded through the European Union's Development Cooperation Instrument. Since 2007, the Programme has been supporting the promotion of SCP in Asian developing countries	Switch-Asia projects were successfully implemented. However, the following challenges were encountered and hampered further scaling up of initiatives (EU Switch Asia, n.d.):

Plans and Programs	Description	Assessment
	<p>(e.g., Indonesia, Philippines, Thailand, Malaysia, and Sri Lanka). Through the programme, nine SCP-related projects have been implemented from 2009 to 2018. The Philippines also received technical assistance through the National Policy Support Component from 2012 to 2017, focusing on three core areas: (a) clean energy; (b) green procurement and eco-labeling; and (c) cross-cutting SCP matters with focus on Clean Air legislation. During its extension, technical assistance also covered environmental education and information.</p>	<ul style="list-style-type: none"> • Lack of a coordinating framework for SCP. • Lack of consumer awareness of sustainable consumption options and an understanding of life cycle assessment needs to be simplified. • MSMEs, which make up a significant portion of businesses in the Philippines, do not have adequate access to technical and financial assistance to improve sustainable production practices. • Informal settlements make many SCP issues more challenging to address, such as the collection and disposal of waste material. • Natural resource demands continue to increase while sustainable management faces additional threats from climate change impacts.

PHILIPPINE ACTION PLAN FOR SUSTAINABLE CONSUMPTION AND PRODUCTION (PAP4SCP)

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