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Inputs to the Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP)

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Asian Development Bank

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Philippine Action Plan for Sustainable Consumption and Production
(PAP4SCP)**

***Final Report
February 29, 2020***

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to the **National Economic and Development Authority**
and the **Asian Development Bank**

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The views expressed in this paper are those of the team of consultants and all those who contributed to the writing of this report, and do not necessarily reflect the views and policies of the Asian Development Bank (ADB) or its Board of Governors or the governments they represent.

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List of Abbreviations

2TBA	Two-Tier Budget Approach
A&D	Alienable and disposable
ABS	Access and benefit sharing]
ADB	Asian Development Bank
AF	Adaptation Fund
AFF	Agriculture, fisheries, and forestry
AO	Administrative Order
APO	Asian Productivity Organization
ASEAN	Association of Southeast Asian Nations
BOD	Biochemical oxygen demand
BPF	Budget Priorities Framework
BPS	Bureau of Product Standards
CAA	Clean Air Act
CCA	Climate change adaptation
CCC	Climate Change Commission
CCT	Conditional Cash Transfer
CDP	Comprehensive Development Program
CDW	Construction and demolition waste
CE	Circular economy
CHED	Commission on Higher Education
CLUP	Comprehensive Land Use Plan
CO ₂ e	Carbon Dioxide Equivalent
CSE	Common use supplies and equipment
CSO	Civil society organization
CSR	Corporate social responsibility
DA	Department of Agriculture
DBM	Department of Budget and Management
DENR	Department of Environment and Natural Resources
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
DNS	Debt-for-Nature Swap

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
DOST - FNRI	Department of Science and Technology – Food and Research Institute
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
EMB	Environmental Management Bureau
EO	Executive Order
EUF	Environmental users' fees
FMB	Forest Management Bureau
EF	Ecological footprint
EIS	Environmental Impact System
ENR	Environment and natural resources
ENRAP	Environmental and Natural Resources Accounting Project
ER	Energy Regulation
GAA	General Appropriations Act
GCF	Green Climate Fund
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gas
GIA	Grants-in-aid
GPAM	Green Purchasing Alliance Movement
GPP	Green Public Procurement
GPPB	Government Procurement Policy Board
GPPB-TSO	Government Procurement Policy Board – Technical Support Office
GSC	Greening the Supply Chain
GSIS	Government Service Insurance System
HLURB	Housing and Land Use Regulatory Board
IAC-ENRS	Interagency Committee on Environment and Natural Resources Statistics

ICSU	International Council for Science
ICT	Information and communications technology
IEC	Information, education, and communication
IEMSD	Integrated Environmental Management for Sustainable Development
IGES	Institute for Global Environmental Studies
IO	Intermediate Outcome
IPAF	Integrated Protected Area Fund
KM	Knowledge management
LCA	Life cycle assessment / analysis
LDRRMF	Local Disaster Risk Reduction and Management Fund
LGU	Local government unit
LLDA	Laguna Lake Development Authority
LWUA	Local Water Utilities Administration
MBI	Market-based instrument
MCM	Million cubic meters
MEA	Multilateral environmental agreement
MMDA	Metro Manila Development Authority
MPDC	Municipal planning and development coordinator
MRF	Material recovery facility
MT	Metric tons
MTOE	Metric Tons of Oil Equivalent
MSME	Micro, small, and medium enterprise
MSW	Municipal solid waste
MWSS	Metropolitan Waterworks and Sewage System
NC	Natural capital
NCA	Natural capital accounting
NCR	National Capital Region
NDC	Nationally determined contributions
NDRRMF	National Disaster Risk Reduction and Management Fund
NEDA	National Economic and Development Authority
NEEAPSD	National Environmental Education Action Plan for Sustainable Development
NELP	National Ecolabelling Program of the Philippines
NEP	National Expenditure Program
NGA	National government agency
NGCP	National Grid Corporation of the Philippines

NGO	Non-government organization
NIE	National Implementing Entity
NIPAS	National Integrated Protected Area System
NNC	National Nutrition Council
NOAP	National Organized Agricultural Program
NOL	No-objection letter
NSWMC	National Solid Wastes Management Commission
NWRB	National Water Resources Board
OFW	Overseas foreign worker
PA21	Philippine Agenda 21
PAPs	Programs, activities, and projects
PAP4SCP	Philippine Action Plan for Sustainable Consumption and Production
PBE	Philippine Business for the Environment
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
PEPP	Philippine Environment Partnership Program
PES	Payment for ecosystem services
PhilSA	Philippine Space Agency
PhilGBC	Philippine Green Building Council
PIA	Philippine Information Agency
PIDS	Philippine Institute for Development Studies
PISM	Philippine Institute for Supply Management
PLC	Publicly-listed company
PMAP	Personnel Management Association of the Philippines
POPCEN	Census of Population
PPP	Public-private partnership
PRIME	Private Sector Participation in Managing the Environment
PSA	Philippine Statistics Authority
PSF	People's Survival Fund
PTFCF	Philippine Tropical Forest Conservation Foundation
RA	Republic Act
RCECEP	Resource conservation, efficiency, and cleaner production

R&D	Research and development
RE	Renewable energy
RETF	Renewable Energy Trust Fund
ROI	Return on investment
SBL	Sustainable business and lifestyle
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
SME	Small and medium enterprise
SO	Sub-outcome
SR	Sustainability reporting
TESDA	Technical Education and Skills Development Authority
TFEC	Total final energy consumption
TFP	Total factor productivity
TIEZA	Tourism Infrastructure and Enterprise Zone Authority
ToC	Theory of change
TPES	Total primary energy supply
UDHA	Urban Development and Housing Act
UN	United Nations
UNCBD	United Nations Convention on Biodiversity
UNCCD	United Nations Convention to Combat Desertification and Drought
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WAVES	Wealth Accounting and the Valuation of Ecosystem Services
WCM	Waste and chemical management
WWTP	Wastewater treatment plant

Executive Summary

This report is the product of a year's investigation into the state of environment and natural resources (ENR) in the Philippines as they relate to economic activities, with the objective of developing an action plan to promote sustainable consumption and production (SCP). Core to the promotion of SCP is the idea that economic activities, which are often associated ENR-damaging byproducts, can be consistent with the promotion of environmental protection. A complementary concept is that of the circular economy (CE), a closed-loop system where economic activities are oriented towards the efficient use of resources through their re-use, re-cycling, and re-manufacturing, and the minimization of waste residuals. The agenda of the SCP action plan is fundamentally consistent with the CE: the interventions and actions contained in this report are based on principles of the life-cycle, aimed systematically altering the pathways of production and consumption, from its current linear form to a circular one which is restorative and regenerative.

The adoption of an SCP approach to economic activities is meant to achieve the following sub-outcomes identified in this report as: (1) economic, social and environmental costs and benefits of production and consumption processes value; and (2) natural resources efficiently used and equitably allocated. Sub-outcome 1 is further subdivided into two intermediate outcomes (IO), namely: (1.1) national capital accounting institutionalized; and (1.2) ecological limits and negative externalities determined. Sub-outcome 2, likewise is also subdivided into two IOs, which are: (2.1) innovation and investment in green technologies and systems increased; and (2.2) sustainable resource allocation and equitable sharing schemes established. Reaching these sub-outcomes as a result of strict adherence to SCP practices reduces the threats to sustainable living and its pre-requisites such as the quality of natural resources in the Philippines.

The creation of the SCP action plan for the Philippines, dubbed 'PAP4SCP', required the completion of a multistage process, beginning with an identification of the key factors behind the general degradation of the environmental quality of the Philippines, and the decline in the volume (and quality) of country's natural resources. This review became the basis for initiating a formal inquiry and writing of the plan. Consistent with the CE, a methodology was then developed focusing on economic activities leading to the production and consumption of economics, relative to ENR. The fundamental objective was to determine how these economic activities might be modified towards SCP-consistency without sacrificing welfare. Specific focus was given to interventions in three thematic or priority areas. These proposed interventions constitute the main feature of the action plan for SCP. They were classified according to a) thematic or priority area; and b) the node or mechanisms by which they operate. They were also organized into short, medium, and long-term actions. Each intervention proposed aligned with an SCP approach to achieve the four sub-outcomes mentioned previously. Matrices organizing these actions as well as the metrics to be used to evaluate their results are included in the latter part of this report.

The need for economic processes to follow a framework of SCP is urgent as the International Resource Panel in 2017 noted that the rate at which humans conduct economic activities could eventually impair the environment's ability to regenerate itself. A growing body of evidence points to the unsustainability of economic activities, and the creation of risks to long-term national growth and development objectives. This was the same conclusion in the scoping study that was separately written prior to the creation of this action plan, wherein specific data and information were present. As an example, one of our most significant sources of fresh water, the country's stock of groundwater, is in steady decline as, annually, demand for water increases by an average of 5.3%, and up to 210,000 hectares of forests are destroyed. The latter exacerbates the effects of greenhouse gas emission and air pollution secondary to urbanization and population growth.

Closer inspection of the economic and social developments occurring in the country point to four main drivers of resource use in the Philippines, namely: 1) rising national income, which is expected to be sustained in the coming years; 2) a shift from consumption-based growth to investment-based growth that will boost production activities; 3) rising population; and 4) rising population density. The rise in national income along with population growth would increase the demand for natural resources and the environmental services, and an increase in production activities to meet the increase in demand. The increase in economic activities—consumption and production—along with the rise in population density, in turn, increase the generation of residuals and waste, that will put more pressure on the assimilative capacity of the environment to accommodate the rise in volume of waste as well as the mix in the characteristics of these waste residuals.

Based on the findings in the scoping report, five key factors behind environmental degradation in the Philippines have been identified: (1) many of the country's natural resources are nearly impossible to completely protect from exploitation and overharvesting because they share common-pool characteristics; (2) the demand for natural resources is fueled by population growth, and ENR will continue to strain under the demands of a population projected to reach 140 million by 2040; (3) economic activities generate residuals, and in the Philippines more are generated than can be sustainably disposed of or assimilated by the natural environment; (4) there are policy gaps and conflicts, and environmental regulations do not translate into actions due to lack of enforcement, coordination between agencies, and lack of funding; and (5) the lack of information and a monitoring and evaluation system by which to assess the effectiveness of the policies and the systems by which they are applied.

Interventions to address these key factors may be categorized broadly by thematic or priority area, namely: (1) Resource conservation, efficiency and cleaner production (RCECP); (2) waste and chemical management (WCM); and (3) sustainable business and lifestyle (SBL). The RCECP theme examines relevant issues regarding the sustainable harvest of renewable natural resources in the Philippines, the protection of environmental quality, and the transition to environmentally-friendly energy sources. The WCM theme pertains to issues and challenges brought about by waste and residuals from consumption activities of households and individuals, and the production activities of firms. Finally, the SBL theme focuses issues pertaining to the behavior of firms regarding procurement and operational system decisions (among others), and how individual consumers' buying behavior and decisions are shaped by factors such as education, information, and the media.

The interventions and actions contained in this action plan for each of the sub-outcomes fall within a 20-year timeline (between 2020 and 2040) with each proposed activity categorized as short-term (1-2 year timeframe), medium-term (4-9 year timeframe), or long-term (10 years or more timeframe). The proposed SCP actions are further subdivided according to the node or mechanism by which they operate: (1) promotion of sustainable consumption and production; (2) research, technology and innovation to boost the information, data and knowledge base, and to develop new and alternative technologies; (3) infrastructure consistent with green standards that will improve mobility and support efforts for sustainable consumption and production; and (4) policy creation and implementation reforms.

These interventions, organized according to thematic area, time horizon, and node, are meant to complement one another, and so overlaps are intended, with much of the SCP action for SO 1.1 and SO 2.1 being largely the same due to these being heavily related by definition. Many of the interventions proposed in the circular economy assessment report are consistent with the interventions proposed for SO 2.2 as this sub-outcome focuses on the

innovation and adoption of green technologies. This is by design as the CE-assessment was heavily referenced in the creation of this SCP action plan. Finally, while the interventions may be categorized according to thematic area, time horizon, node, and the sub-outcome being targeted, there was careful thought to ensure that not only are they internally consistent, but also that there would be synergistic effects from their implementation. The actionable plans and interventions presented here have all been vetted and discussed with the different sectors in society including national agencies and local government units, and have been carefully designed to collectively lead toward the attainment of SCP in the Philippines.

The latter part of the report provides suggestions for implementation, including strategies for tasking and coordination among government agencies, and with private sector stakeholders. This end section also contains the matrices of action and a set of results matrices which are intended to be used to evaluate and monitor the effectiveness of the action plan. General indicators for monitoring are also suggested and included, although the intent is for presentation and suggestion to the different government agencies that would be involved in the programmatic implementation of the action, which will be in charge of the monitoring and evaluation of the action-projects.

I. Background

Sustainable consumption and production (SCP) are at the forefront of many efforts to create a world where economic activity and environmental protection coexist. The practical idea of SCP is not the complete prevention of some level of environmental degradation – that would be close to impossible to achieve – but a level of use where environmental integrity is steady despite economic activity. As such, the idea of sustainable consumption and production embodies the promotion of sustainable use of natural resources and the efficient use of energy and water; as well as the creation of infrastructure, consumption patterns, and employment trends that create the least (or minimal) environmental footprints. SCP is not about compromising welfare generated from economic activities but rather redirecting how the two basic economic activities – consumption and production – might be conducted in a sustainable manner. This is the objective of SCP, emphasizing the intent to pursue the country’s economic progress and development while restoring and allowing the country’s natural environment and resources to regenerate.

The SCP has fundamental overlaps with the concept of the Circular Economy (CE) which also emphasizes the creation and design of pathways that lead to sustainable consumption and production, and eventually a sustainable economy. While there is no single definition of the CE, it is generally associated with a “cradle-to-cradle” design, and deviates from the current linear economic model where economic activities end with waste disposal and management. The CE model, as with the SCP, stresses a circular system that is regenerative and restorative (Ellen MacArthur Foundation, 2015, as mentioned in Schroeder, 2020). The main idea in a CE-based design is to re-use waste in production, reduce pollution, reduce the generation of greenhouse gases, and minimize, if not completely eliminate, the impacts of pollutants on health, environment, and productive opportunities. The main difference between the SCP and CE lies in the fact that “... [CE] *has more of a focus on technology and business solutions to achieve circularity of materials and resources, whereas SCP tends to focus more on issues of social norms, culture, affluence, aiming to change consumption patterns including both the magnitude of material consumption and shifting preferences toward green goods and services.*”⁵ Like the SCP, the CE’s approach is on collaborative consumption and shifts in consumption behavior, and new business operation models that emphasize recycling, re-use, and the switch to environment-friendly technologies.

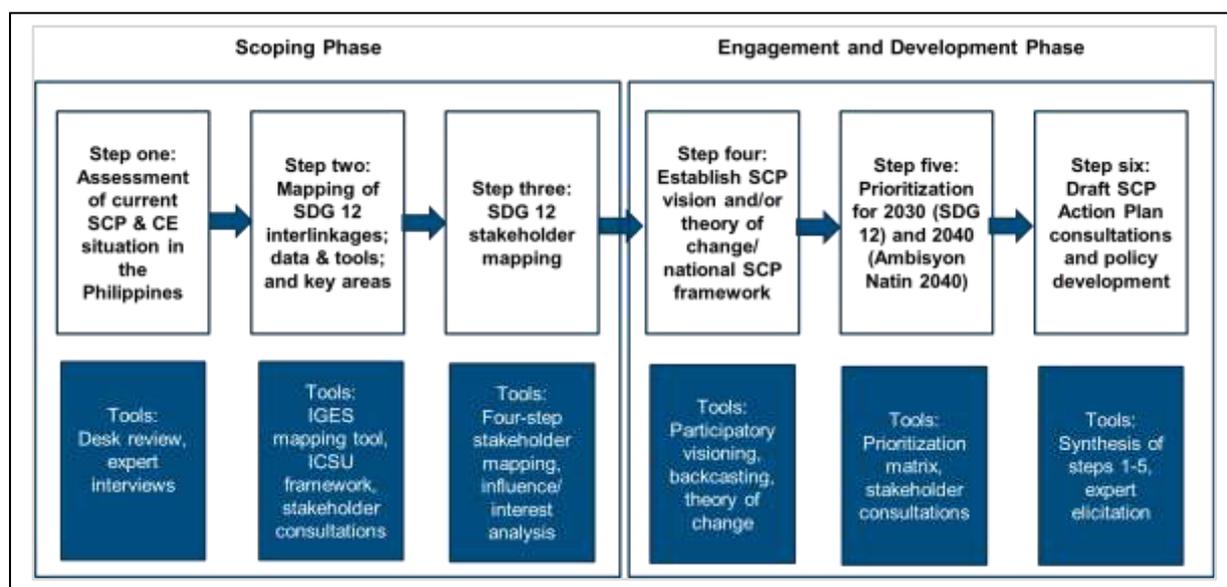
This SCP action plan, the PAP4SCP, is the product of close to a year of research and consultation, to understand the issues in consumption and production, to identify the pathways for intervention, to draft a list of feasible action plan, and to consult civil society, as well as the local government units, to refine the plan and assure its adoptability on the ground. While it is primarily based on the scoping report/desk review, it stands alone as a document that contains the elements of an SCP blueprint in accordance with the objectives of Sustainable Development Goals (SDG) 12. The objective of this action plan is to be a basic document to which policy makers and the country’s development planners – national agencies such as NEDA, and policy-makers in general – could refer, to lead the country towards the attainment of its economic growth and development objectives that would secure human welfare while preserving the quality of the country’s natural assets for generations to come. Ultimately, the objective of this report is to lead the policy direction of the Philippines toward long-term economic growth and development while addressing national and global environmental issues.

⁵ Schröder, Patrick (2020). Circular Economy in the Philippines: An assessment of existing initiatives, policies and identification of potentials to support the Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP)”. Report Submitted to ADB.

II. Methodology and Process Followed

A significant amount of effort and time devoted in the creation of the PAP4SCP is the qualitative review of the issues and problems that the country faces based on the three themes mentioned, namely: resource conservation, efficiency and cleaner production, recycling and waste management, and sustainable business and lifestyle. This was accomplished by reviewing the empirical literature on these topics in the Philippines and examining the most recent data and statistical information that are available. Supplementary activities in the form of key informant interviews and focus group discussions were also conducted to gather insights and specific information regarding the issues and problems in these areas of inquiry, and potential solutions to these challenges. The steps that were followed to create the PAP4SCP action plan are summarized in below, and grouped into two phases: the scoping phase and, the engagement and development phase.

Figure 1. Steps taken towards the crafting of the SCP action plan.



As can be discerned from the diagram above, the process began with a desk assessment of the issues and problems related with environmental management, the degree of circularity of the Philippines, and the trends in sustainable consumption and production in the country. From this assessment, a desk review (a separate report) was written, alongside a mapping of how SDG 12 is connected to other SDGs, and a stakeholder analysis. These tasks were completed during the scoping phase of the project.

From the results and outputs of the scoping phase, the engagement and development phase kicked off with the crafting of a theory of change⁶ that listed the specific

⁶ The theory of change is a tool to help establish the logical connections between target impacts, desired and necessary outcomes to lead to the impact, and the activities and outputs that would lead to the desired and necessary outcomes. The ToC has been described as a "...comprehensive description and illustration of how and why a desired change is expected to happen in a particular context" (<https://www.theoryofchange.org/what-is-theory-of-change/>) under specific assumptions. Users of ToC map out or create diagrams to point out how one factor leads to activities and eventually a change in behavior that then leads to a change in the state of things. ToC is useful because implicit

outcomes and sub-outcomes, with the mapping-out of the logical chain of events and target activities that would lead to the desired outcomes. The outputs were then identified based on many discussions with stakeholders and experts. These outputs were matched with the identified issues and problems related to SCP, and organized according to impact, urgency, and time frame. These were then organized into matrices and vetted among the regional stakeholders through a series of consultations within a span of a few weeks. The final step was drafting of the SCP action plan, that is intended for adoption and basis for the development of policies.

It must be noted that through all the steps and processes undergone to map out the action plan, the Philippine Council for Sustainable Development's (PCSD), the main body that was tasked with advising the team working on the action plan, was consulted for the direction of the project's activities. The PCSD was convened several times to present reports on the progress of the crafting of the action plan, and to solicit comments on the proposed action plan. The PCSD's approval and endorsement of the SCP action plan were required before the plan could be presented to stakeholders, and later on for official adoption by government. The final part of the process was the presentation of the action plan nationally, with the all stakeholders—both local and international—present for comments and for consideration of being adopted in their respective sectors and agencies.

The synergy between the SCP and the CE is apparent in the PAP4SCP as it emphasizes the circular use of resources, and the minimization of waste generation to a point where the natural environment can assimilate the waste harmlessly. Circularity is the fundamental guidance for achieving SCP—adapting life-cycle assessment in production, and in the process, promoting less resource-consuming consumption behavior (and therefore, less generation of less residuals), and leading the country toward the use of energy sources that leave the least environmental footprint. As can be read in the later sections of this report, from the crafting of the strategic action plan framework, to the formulation of the action plans itself, circularity is upheld throughout, and is a sharp contrast to the traditional linear economy where the orientation of economic activities is simply use, production and disposal. The underlying circular economy framework of SCP is represented below (Fig. 2)..

in its use is the creation of indicators that can be used to track the accomplishment of the project or program.

Figure 2. The circular economy framework underlying SCP.



To facilitate better identification of the area for action toward SCP, the action plan focuses on three thematic areas, each one with four action plan nodes which will be explained in the succeeding sections. These three themes are enumerated below:

1. Resource conservation, efficiency and cleaner production (RCECP);
2. Waste and chemical management (WCM);
3. and Sustainable business and lifestyle (SBL).

The RCECP theme examines relevant issues regarding the sustainable harvest of renewable natural resources in the Philippines, the protection of environmental quality, and the transition to environmentally friendly energy sources. The WM theme refers to waste management issues and challenges brought about by households and individuals, as well as firms, resulting from their consumption and production activities. Lastly, the SBL theme focuses on the trends and issues that pertain to the behavior of firms as regards to their decisions on procurement and operations systems (among others), and how individual consumers' buying behavior and decisions are shaped by factors such as education, information, and the media.

To address the SCP-related issues for each of the theme, four action nodes are suggested, namely: (1) promotion; (2) research, technology and innovation; (3) infrastructure, and; (4) policy. Note that the action plan was culled and drafted from the findings and discussion in the scoping study/desk review, which was refined by presenting a matrix of these plans to the different stakeholders and experts for comments and suggestions. These recommendations were then presented to the PCSD for further vetting, evaluation, comments, and endorsement. These vetted recommendations for action are what are presented in this report, in the form of a list of actionable plans that would serve as the basis for different programs and projects of government. This action plan is in line with the development vision of the country as reflected in *AmbisyonNatin2040*, and is expected to be integrated into the Philippine Development Plan, which is the avenue to translate this vision into programs of action.

This report is organized under two main headings:

- I. Context and Background of the Action Plan
- II. The SCP Action Plan for each Thematic Area

The information provided above is heavily based on the Desk Review, and also benefited from inputs from different experts, government technical staff, civil society, local government units, and other stakeholders that were consulted in the process of crafting the action plan. This section provides the rationale and the empirical bases for SCP and the creation of an SCP action plan and discusses the drivers behind sustainable consumption and production. It also explains the process and methodology used to craft the PAP4SCP.

The next part discusses the theoretical and analytical underpinnings of the creation of a strategic action plan. The process begins with the discussion of the economic factors that shape the demand for a good, and the supplier's decision regarding how to produce this good. This forms the theoretical basis to build the analytical framework that was, in turn, used to craft the strategic framework for the PAP4SCP. The priority level of actions are determined by indicating the period that they should be accomplished (i.e., short-term, medium-term, or long-term).

Finally, the action plan itself is presented. This section begins with a discussion of the theoretical and empirical framework used to create the suggested pathway of action and the process by which the specific action points were crafted, and closes with the presentation of the final action plan itself (along with the results matrices found in Annex A).

A. The Analytical Framework

To craft an action plan to initiate and promote SCP in the Philippines, we begin with the creation of an analytical framework to establish the basic and theoretical foundations of the economic agents which, in turn, will be used to build the strategic action framework. The strategic action framework was then used to build brick by brick the strategic action plan that would be shared with policy makers.

We first define what an economic good is, and what it means to have a good that is consistent with sustainable consumption and production. In economics, a good is anything that is either produced or naturally occurring, and that is desired because it increases welfare when it is used or consumed. This economic good, because of the common notion that it has value, can command a price that is based on the marginal cost used to produce the last unit of good – its production characteristics – and the marginal value that is attached to it by those who are able to purchase it – the characteristics related to its consumption. The price of the economic good contains information regarding its relative scarcity and how much it contributes to individual welfare, given the market structure within which the good is traded.

The idea of sustainability in consumption and production of a good refers to this good's characteristics in terms of how it was produced, its resulting physical characteristics, and how these characteristics are desired by its consumers. The good's characteristics also extend to how it is eventually treated as a residual, and how, based on its physical characteristics, how the natural environment from which it originated, could absorb it back in its 'waste' form. These characteristics are relevant to designing policies to shape and re-shape how these goods are produced and used. Based on the desk review, there are three themes to guide in designing policy in terms of directly targeting final goods, which are: (1) conservation of natural resources; (2) waste management, and; (3) sustainable business practices and lifestyle.

From the production side, the general strategy for the utilization of natural resources to produce goods is to ensure that resources will be non-depleting and non-degrading while keeping costs to a minimum. This depends on the available technology as well as the regulatory space within which firms operate. The choice of the technology to produce the good is also part of the characteristics of the good. As an example, two physically identical cars that were made by the same car manufacturer are not the same cars, if one were created using environmentally-friendly technology, while the other was not.

In terms of waste management, the relevant policy should encourage the 5Rs: refuse, reduce, reuse, recycle, rot. Furthermore, there should be a level of technology to sustainably manage disposed waste, and not just settle with landfill and incineration. Lastly, the strategy for the sourcing of energy is to establish an energy mix that will encourage the use of clean or 'non-fossil' based energy.

Aside from the three themes which directly target final goods, policy recommendations may also be directed to households and firms as economic agents. Effective incentives for households and firms to form habits and practices for sustainability are therefore identified. As a premise, the assumption about the market is that agents consume energy and generate residuals in the form of wastes, depending on their level of economic activities.

Economic theory states that households gain utility from consuming final goods. The preferences and income level of households determine what they want in the market, and how much they are willing to pay for such goods. This information is passed to the firms, who are the suppliers of final goods in the market.

On the other hand, firms have distinct combinations of inputs for production (i.e., labor, capital, natural resources), depending on the process and components used for production. Characterizing the type of goods produced is also relevant in the decision-making of firms in terms of production. They are also exposed to the level of technology provided by the government. Firms maximize their profits by providing final goods that are wanted by consumers, and they do so at the least possible cost. It can be assumed that firms also want to minimize their wastes to be able to have a more efficient process of production. However, firms also use inputs that are harmful to the environment, and the cost of the negative externalities may not be captured in the price of the final goods. The firms may not have compensated the damage brought in using such type of input.

Given these entry points for policy, then, the specific strategies can be laid out on a landscape of themes that center on two economic agents – the consumer and the producer – who are linked by the good that contributes to the well-being of the agents by way of consumer welfare for the consumer, and profit for the producer. These themes, can be categorized in terms of: (1) sustainable and efficient use of resources; (2) efficient and sustainable waste management that emphasizes minimal residual generation; (3) and patterns of consumer and individual firm's behavior that favor green goods, and lifestyle that is oriented toward simpler living and less demand for goods. The interrelationships and interdependence of the economic actors and the economic good is the take-off point for the analytical framework used to guide the creation of the action. Additional discussion regarding the factors that shape the economic actors' behavior and interaction with each other is presented in the succeeding sub-sections.

1. The Consumer's Behavior

Basic consumer theory tells us that individuals consume goods because they derive benefit from consumption. While different types of goods elicit different degrees of reaction from consumers, both theorists and empiricists generally agree that consumers are affected

by the following categories of variables: (1) price of the good; (2) prices of other goods; (3) income; and finally, (4) preferences. Economists have compressed this relationship in a simple demand equation which is expressed as follows:

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

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. This makes it more difficult to design policies that can target evenly across these factors. Furthermore, while there is no single factor that determines preferences, it is conceivable that there could be one or two factors that could be targeted in order to change preferences and consumer behavior. This is the reason for the success of marketing campaigns that attempt to shape the patronage and behavioral patterns of consumers in general.

2. The Producer's Behavior

Based on mainstream economic theory, a producer's behavior is also guided by the desire to optimize its 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 could 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 he 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:

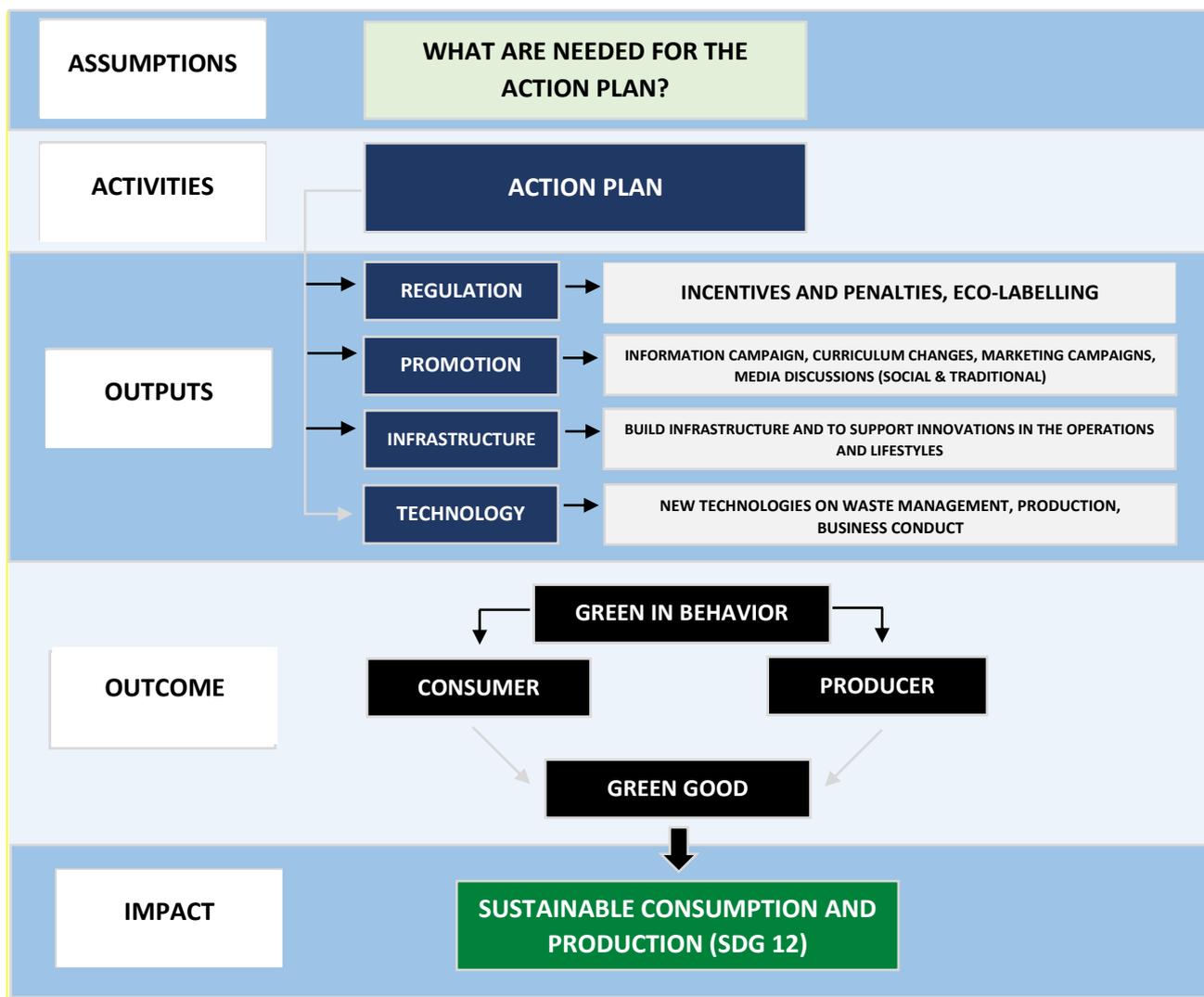
$$\text{Supply of the good} = f(\text{selling price of the good, price of inputs, price of alternative goods, technology, taxes and subsidies, etc.})$$

Based on this, we can expect the producer to be responsive to any action that could minimize his costs and increase his revenue. It is logical to assume that the producer responds to the desire of the market and will adjust his operations accordingly to enhance his revenue potential.

3. Methodological Approach/Framework

A methodological framework (Figure) was created using a modified theory of change. The crafting of the action plan started with the identification of the desired impact, and then backtracking to the necessary change in behavior of consumers and producers to attain this impact, and further moving back to the necessary tangible outputs and projects of government to effect the change in behavior.

Figure 3. Methodological framework



Based on the above, the impacts and features of the SCP action plan are listed as follows:

- Compliant with SDG 12, pushing SCP beyond 2030;
- Consistent with economic growth targets;
- Contributes to economic development of the country;
- Poverty-neutral (does not exacerbate nor improve poverty level), at the very least;
- Will not exacerbate income inequality in the country;
- Consistent with free market, promoting competition and free from interference in market bargaining.

The above impacts are envisioned to be attained if the following broad outcomes are realized:

1. Green Consumption

- Filipino consumers base consumption decisions according to environmental characteristics of goods and not just on prices.
- Filipino's patterns of behavior regarding waste disposal and residual management are oriented towards recycling and reuse.
- Filipino's economic activities leave less environmental footprints than before.

2. Green Production

- Manufacturing and agricultural producers that use more renewable sources of energy, not fossil-based
- Firms that employ production technologies that favor the use of renewable resources, and recycled inputs, less land area
- Firms that engage in business conduct that are consistent with the least carbon footprint
- Firms that segregate more waste
- Firms that consistently conform to international standards with respect to goods production

III. Findings of the Assessment/Scoping of Current SCP Implementation

There is a general agreement (or at the very least, no denial or rejection from any sector) that human activities' impact on the environment is approaching a level where the very system within which the natural environment functions has been fundamentally altered. Consumption and production have led to unsustainable harvesting of resources, land conversion, and pollution. Pressures on the natural environment are further more expected to increase overtime as human populations grow, as world per capita income rises, and as the preferences of the inhabitants of the planet becomes more complex. Unaddressed in many instances, this pattern of human existence and living has created what is now referred to as unsustainable consumption and production, wherein the environmental footprint of economic activities has reached alarming levels.

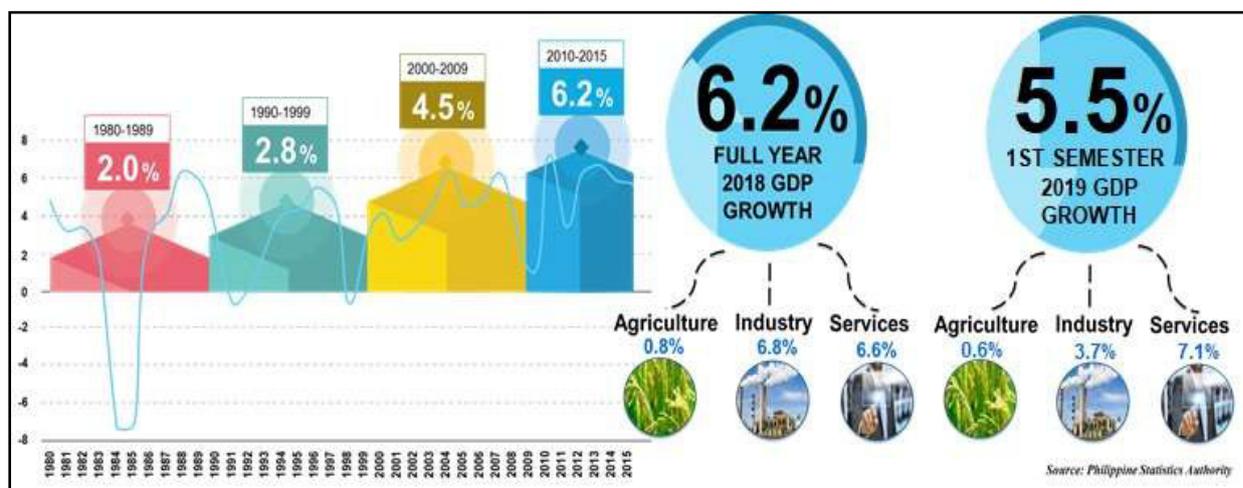
In their 2017 report, the International Resource Panel concluded that the speed of human activities has reached the level of resource use that could very well impair the capacity of the natural environment to regenerate itself. According to this report, several of the nine environmental boundaries have already been breached, increasing the probability of irreversible damage to the planet. Unless concrete and effective action is taken in terms of how humans consume and produce, the possibility of permanently impairing the ability of the natural environment to sustain human existence constitutes a real risk. The situation has highlighted the importance of re-evaluating and changing the way that humans live, specifically in the most basic of human activities: consumption and production.

The international community in general shares the same sentiment, perhaps even on a broader scale and across more areas of concern and has taken clear steps in response. The Paris Agreement of 2015, for instance, has paved the way for new pathways of action to strengthen the global response to the potentially negative impacts of long-term change in temperature. Global goals and international agreements were crafted for the very purpose of uniting efforts to arrest the deterioration of the quality of the planet's physical environment and natural capital. While no country that has pledged support for all these agreements is willing to give up its development goals in order to ease the pressure on the environment, countries, however, have committed to improve resource-use efficiency and alter their consumption and production patterns to make them more environmentally sustainable. These global initiatives can be summarized in three (3) interconnected dimensions: economic growth, social inclusion, and environmental sustainability.

A. Status and Trends (Economy, Social and Environment)

To understand and appreciate the need for SCP in the Philippines, a scoping study was conducted to determine the trend and state of the economy that have implications on the use and state of the Philippines's natural resources. The data showed that in terms of economic performance, the country's economic growth has remained stable, posting 6.2% rise in national income in 2018, which is expected to be the general trajectory for economic growth performance in the coming years, even with an expected slight slowdown of 5.5% growth by the 1st semester of 2019 (see Source: Philippine Statistics **Authority**). This means that we can expect that there will be increasing demand for natural resources in the coming years, and possibly higher environmental footprints as a result of rising consumption and production.

Figure 4. GDP Growth in 2018 and as of 1st semester 2019.



Source: Philippine Statistics Authority.

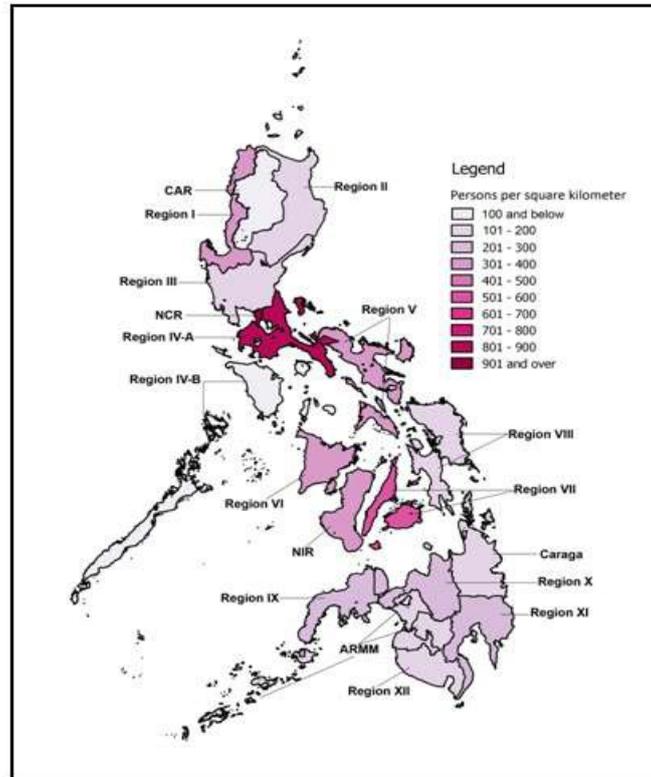
The sources of the country's growth have also broadened, shifting from consumption-based to investment-driven, which is crucial to sustaining growth and generating more stable quality jobs. Improved efficiency in production of goods and services as measured by total factor productivity (TFP) is one evidence of this. The Philippines posted the fastest growth in TFP from 2010-2014 among ASEAN countries according to the Asian Productivity Organization (APO)⁷. Once more, this development will push the demand for natural resources upward, as production activities expand due to a rise in investments.

Population pressure. Based on the 2015 Census of Population (POPCEN 2015), the population of the Philippines as of August 1, 2015 was 100,981,437. It increased by 1.72% annually, on average, during the period 2010 to 2015, which is slightly lower than the rate at which the country's population grew during the period 2000 to 2010 at 1.90%. To date, an estimated 108 million people live in the Philippines, and that number is expected to reach 140 million by 2040, based on projections by the Philippine Statistics Authority (PSA). The demand for natural resources grows with the population, and as population rises, the country's once-abundant resources will struggle to provide food, land, and inputs for production.

With a total land area of approximately 300,000 square kilometers, the population density of the Philippines in 2015 was posted at 337 persons per square kilometer. This represents an increase of 29 persons per square kilometer (9.4%) from the population density of 308 persons per square kilometer in 2010. In 2000, there were 255 persons residing in every square kilometer of land. The most densely populated area was the National Capital Region (NCR), with a population density of 20,785 persons per square kilometer (see Fig. 5, Source: *PSA*). This figure is more than 60 times higher than the population density of 337 persons per square kilometer at the national level. This translates to an additional 1,648 persons per square kilometer (8.6%) from the 19,137 persons per square kilometer in 2010. Needless to say that higher population density translates to congestion, waste concentration, and greater pressure on natural resources such as land and bodies of water for environmental services.

⁷ Source: APO Databook 2017

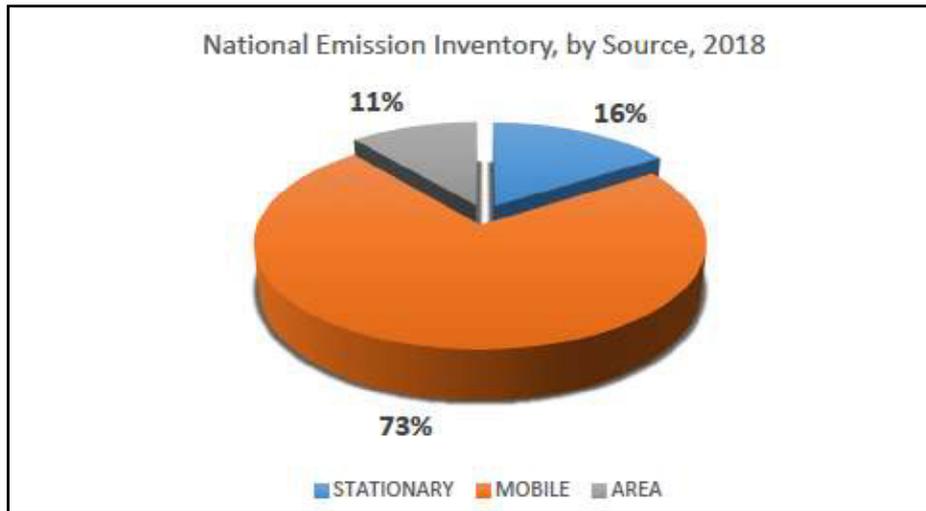
Figure 5. Population density map of the Philippines.



Source: PSA.

Air pollution. Currently, the quality of air remains poor, especially in many highly urbanized cities and major urban centers, due to transport and industry emissions. Based on the latest National Emissions Inventory by source conducted in 2018 and as shown in Figure 6 below, the majority (73%) of air pollutants came from mobile sources such as cars, motorcycles, trucks and buses. Almost 16% were contributed by stationary sources such as power plants and factories. The rest (11%) were from area sources such as construction activities, open burning of solid wastes, and *kaingin* in upland areas.

Figure 6. National emission inventory, by source (EMB, 2018).



In terms of greenhouse gas emissions, the Philippines emitted a total of 91.78 million metric tons (MT) of carbon dioxide equivalents (CO₂e) of greenhouse gases in the year 2010⁸, net of sequestered carbon by Forestry. Sectors of the economy emitted 128.78 million MT CO₂e with the energy sector contributing to 42.95% of emissions, followed by the Transport and Agriculture sectors⁹.

Solid waste and water pollution. In 2010, the total solid wastes generated by the whole country was estimated by the National Solid Wastes Management Commission (NSWMC) at 13.48 million, 14.66 M in 2014 and 18.05 Mtons by 2020 or an average increase of 3.4% annually.¹⁰ Specifically in 2016, the NSWMC reported that a total of 40,000 tons of solid wastes were generated per day, which can fill up around 106 swimming pools. This translates to 0.40 kg of waste generated per person per day. Residential generates 57% of the wastes, while commercial, industrial and institutional areas are the sources for the remaining 43% (see Figure 7, Source: **NSWMC**). It is projected that waste generation per capita per day will increase from 0.40 kilograms in 2016 to 0.54 kilograms in 2020.¹¹

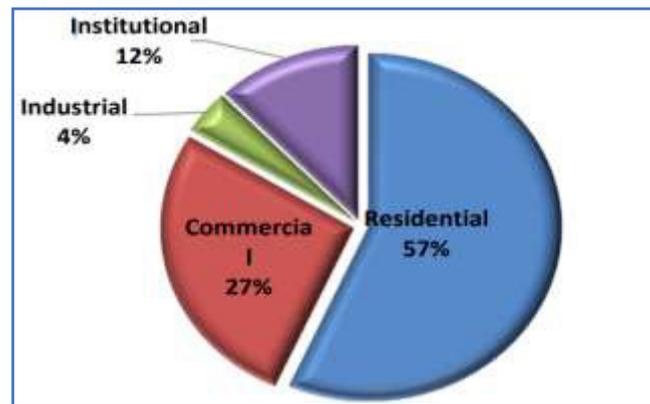
⁸ Reference year for Philippine nationally determined contributions (NDC)

⁹ 2010 Greenhouse Gas Inventory

¹⁰ National Solid Wastes Management Status Report, 2008-2018, DENR,

¹¹ Computed using: NSWMC data on actual waste generated for 2016; DENR-EMB data on projected waste generation for 2018-2020 as of 2019; and PSA projected population for 2018-2020 as of 2015.

Figure 7. Solid waste sources, as of 2013. .



Source: NSWMC

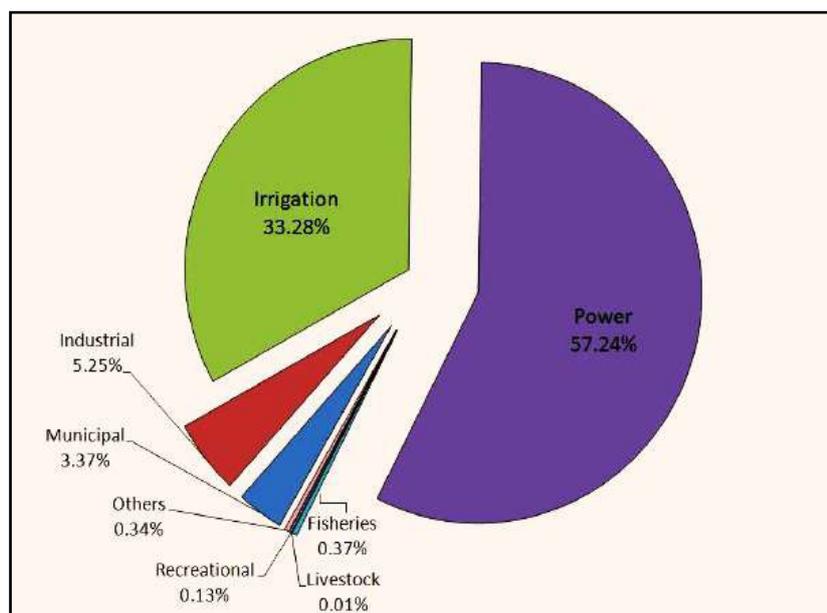
When large amounts of foreign materials are in the water, the resource will be unfit for its intended beneficial usage, also generally known as pollution. There are two general types of pollution sources: point source and non-point source. Point source is any identifiable pollution source with a specific discharge point into a particular water body. Examples include commercial and industrial establishments that discharge wastewater or effluent from Waste Water Treatment Plant (WWTP) or septic tanks. The agriculture sector contributes 45% of biochemical oxygen demand (BOD), followed by domestic at 31% and industry at 24%. Non-point sources, are those with no identifiable source and include rainwater or runoff from irrigation, carrying with it pollutants from farms and urban areas. Agricultural runoff contributes 61%, followed by urban runoff at 29 % and forest runoff at 10%.¹²

Freshwater resources. The Philippines has an abundance of potential freshwater resources, with the total available volume set at 145,990 million cubic meters (MCM) yearly. It has 421 rivers, 79 lakes & around 100,000 hectares of freshwater swamps. Groundwater resources are estimated at 260,000 MCM and a net ground water inflow of 33,000 MCM/year. However, water availability is uneven across the country because of changing climate patterns and varying rainfall distribution, and the country's per capita water availability of 1,907 cubic meters is the second lowest among Southeast Asian countries.¹³ Competing sectoral demands also contribute to a less than ideal water availability situation. Urbanization catalyzes increasing water demand which further aggravates the water supply problem; climate change is expected to additionally affect freshwater availability. As seen in Figure 8, power and irrigation take up much of the available water, leaving the rest with very little of the resource. In general, the main problems in water management include: (1) the absence of an integrated, holistic approach to addressing the interrelated issues of development and management planning; (2) implementation and operation; (3) demand management; (4) pollution control; (5) watershed and groundwater protection, and; (6) undervaluing water as a scarce resource.

¹² Source: DENR (2014). National Water Quality Status Report 2006-2013.

¹³ The Philippines' Second National Communication on Climate Change, 2014

Figure 8. Volume of water allocated, by water use. [CCC]



Fisheries. The Philippines is also regarded as the epicenter of fish diversity and is an important biological area within the coral triangle. Around 60% of the country's population is dependent on coastal and marine resources for livelihood. Sixty-two percent of the country's 81 provinces and 56% of its 1,700 cities and municipalities are coastal. The country's marine-based wealth spans roughly 70% of its internationally and legitimately defined aggregate geographic area. Coastal waters, however, have been rapidly deteriorating due to solid waste pollution, sewage and industrial effluents, mine tailings, oil from shipping and agricultural run-off.

Land resources. Land is another critical resource to achieve social, economic and environmental targets in the context of sustainable development. Being an archipelagic country with an increasing population and intensifying resource dependent economic activities, land and its resources are becoming even more precious for the Philippines as the usable portions are not only limited but more prone to hazards like landslides and erosion. Not only is land becoming more invaluable because of the country's increasing shelter needs, but because it contains important resources like oil, minerals, water and vegetation providing oxygen, wood, food, medicine, fuel and other raw materials for the survival and socioeconomic development of the country's population. It is also the ultimate recycler of reusable resources from the environment and humans' socioeconomic activities.¹⁴

In general, the country's land area can be classified into forestland (53%) and certified alienable and disposable (A&D) land (47%). Forests play a critical role in the country's economy and ecological integrity. Hosting rich and diverse flora and fauna, forests are important sources of food, fuel, fibers, medicine and materials for industrial, aesthetic and scientific purposes. They also conserve soils, regulate water and moderate local climate. However, between 1969 and 1988, forests were depleted at a very fast rate of 210,000 hectares per year. By 2018, only 28% of actual forests were considered closed

¹⁴ Resource Efficiency Scoping Report

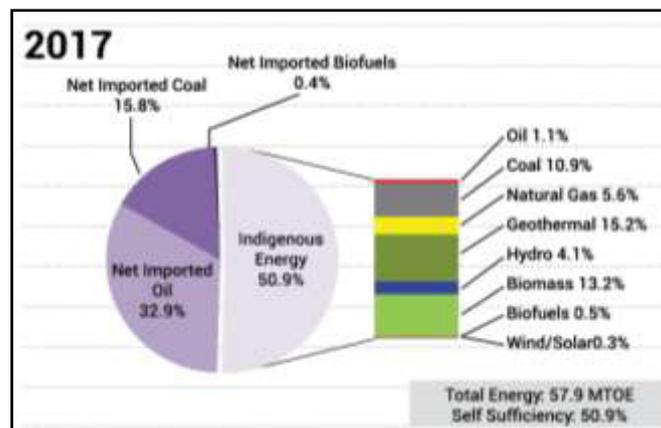
canopied on forest lands, which stood at 15, 805,325 hectares, or just about equal to A&D lands.¹⁵ Today, less than a million hectares of old growth forests remain.

Logging, forest fires, *kaingin* (slash & burn agriculture), pests and diseases, and other activities like mining were tagged as the main drivers of forest depletion. Logging, whether legal or illegal, was the single most destructive cause of the decimation of the country’s forests. Large-scale logging is normally 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.¹⁶

Agricultural land is now defined as “the share of land area that is arable, under permanent crops, and under permanent pastures”. In the early 1980s, croplands comprised 13.1 million hectares or approximately 43% of the country’s total land area. However, starting in the 1990s, agricultural land conversion to other uses took place very rapidly. Threats to land resources include changing land use, degradation and increasing population. By 2016, agricultural lands were estimated at 41.72% of the total land area.¹⁷ Over the past three decades, there has been a steady increase in alienable and disposable lands devoted to agricultural production and subsequently, to urbanization and human settlements.

Energy supplies. In 2017, the country’s total primary energy supply (TPES) reached 57.9 metric tonnes of oil equivalent (MTOE), up by 6.1% from the 2016 level of 54.6 MTOE. Oil continued to be the country’s major energy source, accounting for about one-third of the TPES, followed by coal and geothermal which contributed 26.7 and 15.2 percent share, respectively. Total indigenous resources accounted for 50.9% of the country’s total energy supply in 2017. Production was also higher by 0.4% from the 29.4 MTOE in 2016 to 29.5 MTOE in 2017. In terms of contribution to total domestic production, geothermal accounted for 29.9%, followed by biomass at 25.9%, coal at 21.3% and natural gas at 10.9% (Fig. 9, Sources: NEDA, DOE.).

Figure 9. Energy supply sources, as of 2017.



Sources: NEDA, DOE.

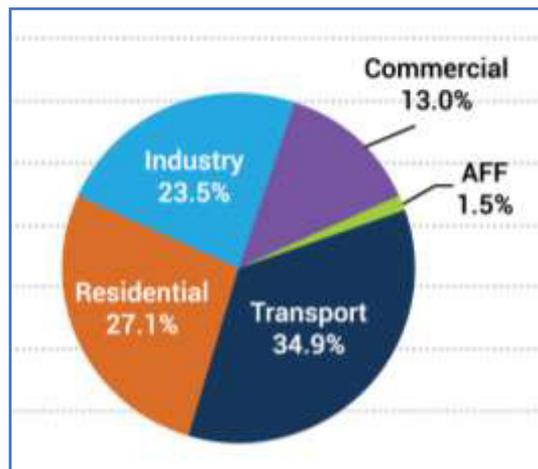
In 2017, the country’s total final energy consumption (TFEC) reached 33.9 MTOE, up by 5.1% from its 2016 level of 32.2 MTOE. Energy consumption of all economic sectors—Transport, Residential, Industry, and Commercial—increased during the period (see Fig. 10, Source: DOE.).

¹⁵ Philippine Forestry Statistics, Forest Management Bureau (FMB) 2018

¹⁶ *ibid.*

¹⁷ World Bank collection of development indicators, compiled from officially recognized sources.

Figure 10. Energy consumption as of 2017.



Source: DOE.

Transport retained its position as the most energy-intensive sector, accounting for 34.9% of total energy consumption. Energy use in the residential sector contributed 27.1% share to the demand mix. Improved production outputs from the industrial sector (e.g. cement, basic metals and machinery manufacturing industries) led to a 6.6% rise in the sector's energy requirements resulting in 23.5% share in TFE. The country's economy-wide energy intensity level was sustained at 6.7 tonnes of oil equivalent per million pesos of real GDP (TOE/MPhp) in 2017. Energy per capita level went up by 4.2% to 0.55 TOE/person in 2017, from last year's 0.53 TOE/person.¹⁸

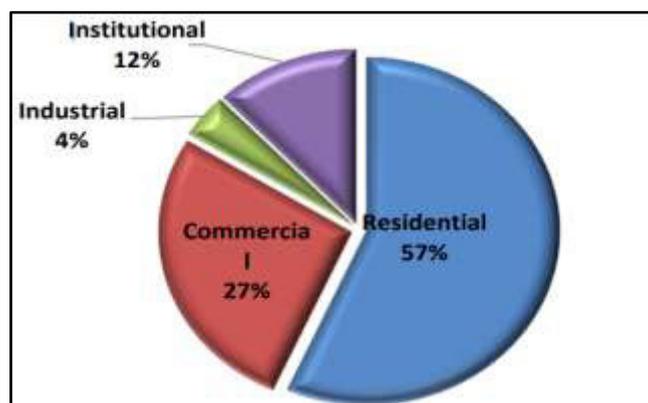
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¹⁸ Department of Energy (2017). 2017 Philippine Energy Situationer

¹⁹ National Solid Wastes Management Status Report, 2008-2018, DENR,

²⁰ Computed using: NSWMC data on actual waste generated for 2016; DENR-EMB data on projected waste generation for 2018-2020 as of 2019; and PSA projected population for 2018-2020 as of 2015.

Figure 11. Solid Waste Sources as of 2013.



Source: NSWMC

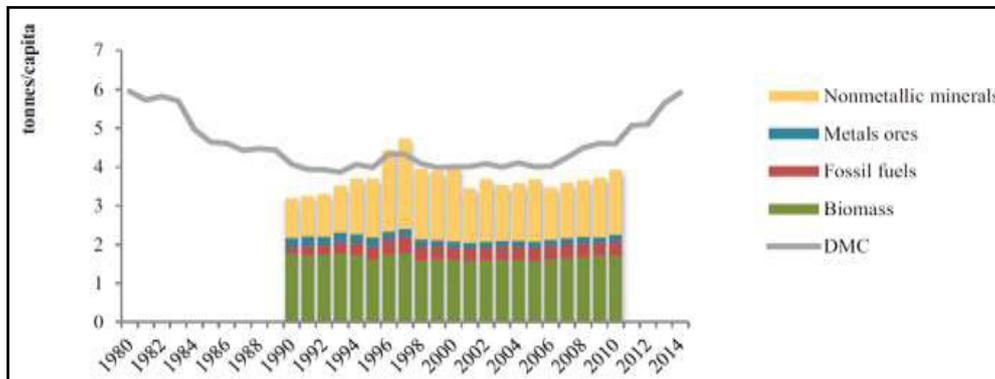
When large amounts of foreign materials are in the water, the resource will be unfit for its intended beneficial usage, also generally known as pollution. There are two general types of pollution sources: point source and non-point source. Point source is any identifiable pollution source with a specific discharge point into a particular water body. Examples include commercial and industrial establishments that discharge wastewater or effluent from Waste Water Treatment Plant (WWTP) or septic tanks. The agriculture sector contributes 45% of biochemical oxygen demand (BOD), followed by domestic at 31% and industry at 24%. Non-point sources, are those with no identifiable source and include rainwater or runoff from irrigation, carrying with it pollutants from farms and urban areas. Agricultural runoff contributes 61%, followed by urban runoff at 29 %) and forest runoff at 10%.²¹

The total material footprint²² of the Philippines increased from 198 Mt in 1990 to 364 Mt in 2010 (see Fig. 12 Source: **DENR**). The material footprint was dominated by biomass, 44% (159 Mt) in 2010, followed by non-metallic minerals at 42% (155 Mt) and fossil fuels at 9% (33 Mt).

²¹ Source: DENR (2014). National Water Quality Status Report 2006-2013.

²² Defined by UNEP as "the attribution of global material extraction to domestic final demand of a country, with its total being the sum of the material footprint for biomass, fossil fuels, metal ores and non-metal ores."

Figure 12. Material Footprint trend per source as of 2010.



Source: DENR

Summary of trends. A closer inspection of threats to the country’s natural resources and environment indicates that they can be grouped broadly into several factors. The first factor is intrinsic to natural resources, arising from the common-pool characteristics of some resources, where any user might access the resource without having to bear a significant cost to access it. This can lead to the overuse and eventual destruction of the resource in a phenomenon often referred to as the “tragedy of the commons”. Many of the country’s natural resources are expansive and thus practically impossible (i.e., extremely costly) to completely protect, allowing any user to exploit and overharvest them.

The second factor is rising demand fueled by population growth. An estimated 108 million people live in the Philippines, and that number is expected to reach 140 million by 2040 based on projections by the Philippine Statistics Authority. The demand for natural resources grows with the population, and as population rises, the country’s once-abundant resources will struggle to provide food, land, and inputs for production. Poverty exacerbates this issue as the poor, who tend to experience a higher population growth rate than any other sector, tend to rely more on the harvest of natural capital for income than any other sector. Left unchecked, the demand rising from a growing population both overall and among the poor will lead to a harvest and extraction rate for natural resources beyond the sustainable level.

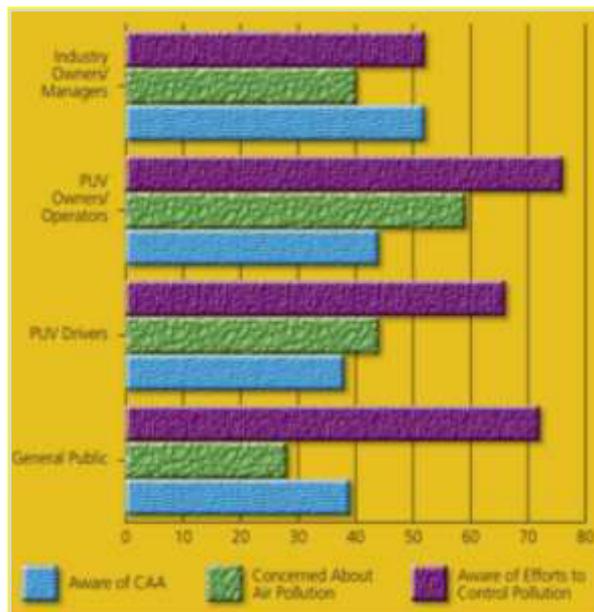
Economic activities also generate residuals, more than what can be sustainably disposed of and managed given the current state of the Philippines’ waste management system. Unregulated waste disposal is considered the third factor contributing to the degradation of natural resources and the environment. As the waste assimilation capacity of the country’s natural environment is pushed to the limit, there will be social damage coming from the inevitable decline in environmental quality.

Policy gaps and conflicts have also resulted in the decline of natural resources in terms of both quantity and quality. For most of its modern history, the Philippines has been struggling with the translation of environmental laws and regulations into actions due to a lack of enforcement, lack of coordination between government institutions, and lack of funding. These have blunted the sharpness of regulations for natural resources, especially those nearing extinction.

The fifth factor leading to environmental degradation is a lack of information and a reliable monitoring system. No natural resource management system is effective and efficient without appropriate and timely monitoring, and no effective monitoring is possible without data. While the international community has institutionalized natural asset and wealth accounting, the Philippines has neither consistently nor regularly collected information and data on its own natural resources, forcing policy makers to create policies and regulations without the guidance of empirical evidence—the very situation that contributes to exploitation and overharvesting.

Lastly, the inspection points to a general apathy and lack of cooperation among Filipinos as another major factor in the degradation of the environment and natural resources. Qualitative evidence from the Mapua Institute of Technology indicates, for example, a distinct lack of interest from property owners to engage in the conservation of heritage sites, which in the Philippines are inherently environmental. This lack of engagement in conservation is in part a valuation problem where Filipinos fail to grasp the value of the services provided by cultural heritages, including ecosystem services. The problem of apathy is sometimes exacerbated by a perceived lack of institutional support as well. In the aforementioned case of heritage conservation, the National Historical Commission of the Philippines (NHCP) has not granted heritage status, and the corresponding institutional protections, to many heritage sites.²³ Similarly, survey data suggest that even Filipino citizens in Metro Manila are apathetic towards environmental degradation: the Department of Environment and Natural Resources (DENR) and Philippine Information Agency (PIA), for example, found in 2001 that while fewer than 40% of the general public in Metro Manila were aware of the Clean Air Act, even fewer were concerned with air pollution at 30% of the general public²⁴ This is indicated in Figure 13 (Source: **World Bank**) below.

Figure 13. Public perception of air pollution in Metro Manila.



Source: World Bank

²³ Cruz, G. R. (2017). The Cultural Heritage-Oriented Approach to Economic Development in the Philippines: A Comparative Study of Vigan, Ilocos Sur and Escolta, Manila. In *10th DLSU Arts Congress*. Retrieved from <https://www.dlsu.edu.ph/wp-content/uploads/pdf/conferences/arts-congress-proceedings/2017/paper-13.pdf>.

²⁴ From the Knowledge, Awareness, and Practice Survey in Metro Manila Airshed conducted by the DENR and Philippine Information Agency in 2001.

Even when there are efforts from government and civil society to raise awareness on the social damages arising from environmental degradation, and even when it is made clear that the bulk of pollution comes from the domestic sector, there is still, however, a general public perception that environmental management and protection are ultimately the responsibility of the government.²⁵ The lacking environmentalism and lack of cooperation and trust between government and the population is proving unhelpful for dealing with the many challenges to proper management of natural resources.

B. Enabling Policies and Programs on SCP

Economic goods are fundamental to the discussion on economic activities and how they are linked to the state of the natural environment. It is the characteristics of these goods that define the impact of economic activities on the environment. To illustrate, a good whose production process entails the use of renewable resources, whose production results in little to no emission of greenhouse gases, and whose residuals can be safely assimilated by the environment, is different from another good that provides the same basic benefits to humans but was created using a production process harmful to the environment. Policy actions must therefore address the increasing environmental impacts of consumption and production.

The Philippine Development Plan (PDP) 2017-2022 describes a vision and aspiration for a life for the average Filipino that are described as *matatag* (strongly-rooted), *maginhawa* (comfortable), and *panatag na buhay* (secure and peaceful life) that would be reality by 2040. The realization of this overall vision alludes to the need for a healthy environment and a sustainable use of this environment in order for this vision to be realized. But the attainment of the healthy environment requires deliberate action that target the following: (1) to sustain biodiversity and the functioning of ecosystem services; (2) to improve environmental quality (under which SCP is mentioned); and (3) to increase the adaptive capacities and resilience of ecosystems.

Indicative SCP-related public policy directives have already begun to emerge. One important example is the implementation of the Philippine Green Public Procurement Roadmap launched on June 7, 2017 by the Government Procurement Policy Board-Technical Support Office (GPPB-TSO). Under Green Public Procurement (GPP), “public authorities procure goods, services and works with a reduced environmental impact throughout their life cycle over other goods, services and works with the same primary function. It is a voluntary instrument that aims to harness the immense purchasing power of the government to convert the market to a greener market with substantial benefits for the environment, and to improve the socio-economy status of the nation.” GPP provides green criteria (for products, equipment, supplies and services secured by government agencies) through technical specifications that reduce environmental impact over conventionally produced goods or services. It supports the PDP 2017-2022’s Strategic Framework to ensure ecological integrity and a healthy environment, and it has a direct bearing on the country’s commitments to the Sustainable Development Goals.

The DENR is the agency tasked with crafting and implementing the country’s environmental policy, while enforcement of some environmental laws has been devolved to local government units (LGUs). This “command and control” regulatory approach at both the national and local levels is combined with the use of market-based instruments (MBIs), also known as market-based approaches, providing economic incentives for businesses to operate efficiently and reduce their negative environmental impacts.

²⁵ Serra, M. T., & von Amsberg, J. (2004). *Philippines Environment Monitor 2004*. World Bank.

MBIs include environmental users' fees (EUFs) and payment for ecosystem services (PES). One example of the former is the case of the Laguna Lake Development Authority (LLDA) which pioneered the use of a water pollution charge system for businesses discharging their wastewater into the lake. Its EUF system levies a fee on companies for the "use" of the lake as a receiving body for their wastewater, which was computed from a formula with a fixed fee (to cover administrative costs) and a variable fee component based on the biochemical oxygen demand (BOD) concentration (regardless of the volume) of water effluents discharged into the Laguna de Bay. The fee, or the desire to avoid paying the fee, has been serving as an incentive for companies to reduce their pollution. Since the implementation of EUFs in 1997, the LLDA observed decreased annual BOD loadings from 5,402 metric tonnes in 1997 to 193 metric tonnes in 2004 generated by 222 firms. The EUF is now an integral part of the LLDA's Environmental Management Program.

Payments for environmental services (PES) is a related system wherein an agent who engages in activities that generate services or benefits from the environment is compensated for their efforts from individuals or sectors that benefit from the environmental service. While there have been some challenges to the complete implementation of PES in the country, there have been successes in using PES to sustainably manage and protect the country's natural resources, especially in the forestry sector where members of rural communities have been engaged to protect, monitor, and manage forested areas in exchange for payments in kind or in cash.

From the implementation of PES, it became apparent that political willingness and support from the local government are important factors for success; that communication between different stakeholders is critical for creating a support base for PES, and that area-based intermediary organizations are instrumental in community mobilization and program sustainability. This highlights the importance of institutions and the cooperation of stakeholders in implementing strategies for environmental sustainability and enforcement of environmental policies.

In April 2016, the Philippines Green Jobs Act was passed into law, to assist in the transition to a green economy and scale up promotion of sustainable growth and decent job creation while building resilience against the impacts of climate change by providing incentives to enterprises generating green jobs. These incentives include a special deduction from the taxable income equivalent to 50% of the total expenses for skills training and research development expenses; and tax- and duty-free importation of capital equipment used in the promotion of green jobs in the enterprise.

The Climate Change Commission (CCC) is tasked with developing and administering appropriate standards for the assessment and certification of green goods, services, technologies, and practices for the purpose of regulating the claiming of incentives and ensuring green jobs. Its integrative strategy targets the development of a National Green Jobs Human Resource Development Plan (led by the DOLE), mainstreams green job concerns in national development plans (with NEDA as lead), promotes a job-rich sustainable tourism industry (through the DOT), optimizes the potential of public transport to foster green growth and job creation, including shifts to more green modes of transportation (c/o the DOTr), promotes green building practices, and provides faculty and curriculum development to support the knowledge and skills requirement of a green economy (with DepEd as lead).

Another set of strategies to help create mindsets for achieving sustainable development is through the use of positive reinforcement in the form of public recognition of environmentally responsible businesses, LGUs and public/academic institutions. Some of the awards given by the DENR in this regard, include the following: (1) World Water Day

Awards, (2) Philippine Environment Partnership Program (PEPP) Awards, (3) DENR Seal of Approval, (4) Likas Yaman Awards, (5) GAWAD EMB awards (for Local Government Units (LGUs)), (6) Environmental Partners and Schools in Western Visayas, (7) Most sustainable and Eco-Friendly Schools awards, and (8) Recognition awards for Eco-Friendly Government Offices. Examples of industry peer recognition in the business sector are: (1) the Excellence in Ecology and Economy (3Es) award of the Philippine Chamber of Commerce and Industry, (2) the Outstanding Corporate Environmental Program given by the Personnel Management Association of the Philippines (PMAP), (3) the Mother Nature Award from the Pollution Control Association of the Philippines, and (4) the Sustainable Business Awards Philippines.

There are also sector-specific awards such as the Presidential Mineral Industry Environmental Awards established through EO 399 in 1997 wherein commendations signed by the President of the Philippines are given out in six categories following a selection process by a Search Committee which is co-chaired by the Secretary of the Environment and Natural Resources and the President of the Philippine Chamber of Mines.²⁶ Clean and Green awards are also organized by local government units in partnership with the DENR and Department of Interior and Local Government (DILG) for municipalities and barangays that are good models of environmental governance.

Serving as a counterpoint is the use of cultural factors such as “*hiya*” (shame) as a strategy to stimulate cooperation. This tactic is occasionally used by both government and environmental watchdog groups especially on erring companies, such as in: the “Dirty Dozen” awards of the DENR (in the 1990s), the mock *Lason sa Ilog* (i.e., National River Poisoning) awards of the environmental NGO *Sagip* Pasig Movement, and the publicly disclosed Industry Compliance Rating system of businesses that discharge their wastewater into the Laguna Bay known as the Industrial Ecowatch System.

Following the launch of the UN Global Agenda 21 at the 1992 Earth Summit and the subsequent formulation of the national Philippine Agenda 21 (PA21) in 1996 to serve as a blueprint for sustainable development, various segments of the Philippine business sector came together to consolidate various medium- and long-term initiatives of the different industry associations into an integrated plan called the Philippine Business Agenda 21. This was orchestrated by Philippine Business for the Environment (PBE) under the UNDP-assisted project of the Philippine government called Private Sector Participation in Managing the Environment (PRIME).

In 2003, the DENR also began introducing and enhancing the capability of establishments and their associations to self-regulate, by developing guidelines for internal environmental management systems which companies may adopt to minimize the negative impacts of their operations on the environment and to comply with all environmental laws.

Concurrently, many Philippine companies and SMEs exporting to other countries started to feel pressure from market forces to seek certification to ISO 14000 standards. In 2012, the Bureau of Product Standards (BPS) of the Department of Trade and Industry, adopted Philippine National Standards on Environment Management intended for use by organizations in the Philippines that have implemented environment management systems according to ISO 14001. In 2016, the DENR central office became the first Philippine government agency to receive ISO 14001:2015, opening the possibility of other government agencies following suit.

²⁶http://www.chanrobles.com/executiveorders/1997/executiveorderno399-1997.html#.XAmSWjFS_IU

To advance SCP in particular, the Philippines is also using an enhanced national Agenda 21 plan as part of the national development strategy. This entails six key actions, some of which are already being implemented in various levels:

- a. Increase economic ecological activities and opportunities for green markets.
- b. Increase awareness of consumer options for sustainable consumption.
- c. Assist businesses in transitioning to better production practices.
- d. Bring life cycle assessment (LCA) to a level the consumer understands.
- e. Accelerate the establishment of a green public procurement system.
- f. Assess policy options for promoting SCP, especially an incentive structure for green production.

C. Circular Economy Assessment for the Philippines

Despite growing awareness of members of government and civil society, the Philippines is yet to have an integrated Circular Economy (CE) strategy or policy framework. A report written by Dr. Patrick Schroeder in 2020 which assessed the current state of the Philippines's current "circularity"²⁷ indicates that while there have been a few pro-CE policies and initiatives in the operations of different industrial sectors in the country, he concludes that the overall degree of Philippines has remained low—less than 9 percent circular, which is less than the average of the global economy²⁸. This is due to the large share of primary materials and minerals used in the construction sector, for infrastructure development and for exports, and the fast urbanization in the country that has led to the accumulation of stock of materials in buildings—materials that could, theoretically, be re-used and circulated in the future. Further, Schroeder found that the limited municipal waste management capacity and large amounts of waste leaking into the environment has been a major contributor to and indicator of the low-level circularity in the Philippines.

This low degree of circularity in the Philippines is the take-off point of the crafting of the PAP4SCP. CE, with its emphasis on identifying "sustainable pathways to sustainable production and consumption (SCP) patterns and thus to a sustainable economy" is envisioned to fast-track the implementation of the overall substance of the action plan for resource conservation, efficiency and cleaner production. The CE aims to lead economic growth away from consumption of finite resources, and adheres to three principles, namely: design-out waste and pollution, re-cycle and re-use materials, and to pave the way for the regeneration of natural systems—the basic principles adopted by the SCP.

The synergies between CE and SCP emanate from the common goals of sustainable consumption lifestyles, circular business and production models, sharing economies, and collaborative consumption and less disposal-based waste management. Like the SCP, the CE embraces the life-cycle framework for economic activities, and aims to systematically change the current linear production and consumption patterns to "circular" which is oriented towards economic activities that are both welfare-generating, and restorative and regenerative as well. The fundamental difference between the SCP and the CE, however, is the fact that the CE has more of a focus on technology and business solutions to achieve circularity of materials and resources, as opposed to SCP which emphasizes more social

²⁷Schröder, Patrick (2020). Circular Economy in the Philippines: An assessment of existing initiatives, policies and identification of potentials to support the Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP)". Report Submitted to ADB.

²⁸ Based on the Circular Economy Assessment by Schroeder (2019).

norms, culture and affluence to change consumption patterns than technology and business approaches.

A SWOT analysis done to gauge the readiness of the Philippines to adopt the CE as a framework for action and policy indicated both preparedness and challenges to the adoption of the CE, and therefore, to an SCP. In broad terms, the challenges to CE adoption in the country are in terms of a) institutional support and preparedness, and b) capability to finance and institute reforms. As far as readiness is concerned, three general factors would be helpful in embracing the CE framework: the existence of strong political will, experience with CE-related initiatives, and funding and technical support from international agencies. A summary of these strengths and challenges to the adoption of CE in the Philippines is shown in Table 1 below:

Table 1: Summary of opportunity analysis for CE in the Philippines.

Strengths	Challenges
<p>Strong political will in the executive leadership.</p> <p>Awareness (albeit limited) familiarity among national and local leaders regarding the CE model.</p> <p>Government policies that are consistent with CE such as the Green Public Procurement Roadmap, fiscal incentives for recycling and the promotion of some green practices, are in place.</p> <p>Familiarity of civil society and the business sector of the CE (and SCP) models.</p> <p>Recognition among economic planners in the country of the link and consistency of the CE and economic growth and development.</p> <p>The availability of funds (although the amount remains unknown) both from the private and government sectors to support CE-related activities, projects, and programs.</p> <p>There is funding support from the multilateral and bilateral agencies that the country can access to finance CE-related projects.</p>	<p>The lack of a comprehensive and integrated policy framework and initiatives for the development and evolution of CE in the country.</p> <p>Sometimes conflicting policies which, in the end, are in conflict with CE especially in power generation.</p> <p>The lack of consistently-collected (and available) data to establish economy-wide circularity rate.</p> <p>The need to beef-up the capacity (technical and financial) of LGUs to implement CE solutions, especially on plastic waste management.</p> <p>Lack of capacity of SMEs (which comprise the largest segment of the manufacturing sector) to adopt business operations practices that are consistent with CE.</p> <p>The general apathy of majority of Filipinos regarding the environment, and the low-level of adoption of CE practices among Filipinos. Most Filipinos have linear habits, and it will be a challenge to change those habits.</p> <p>The lack of CE-consistent technologies that business entities could choose from to replace the technologies they currently use.</p>

The CE report points out the importance of shifting lifestyles and business practices, especially in urban areas, to be more sustainable and circular in nature. Collaborative

consumption and new business models are needed to transform the Philippines and make it lean more toward circularity.

Opportunities and Recommendations Identified by the Circular Economy Assessment Report

The CE paradigm and the SCP are complementary and mutually reinforcing with the CE emphasis on identifying “sustainable pathways to sustainable production and consumption patterns” that lead to a sustainable economy. As mentioned, the degree of circularity of the Philippines is low, but opportunities exist to push CE and SCP forward.

It is known that additional demand for materials, energy and other ecosystem services brought about by increased demand for products and services and acquisition-oriented consumption mindsets, can overwhelm natural systems and outpace eco-efficiency gains, and society must adopt new solutions and models that would lead to more sustainable consumption patterns. The CE paradigm promotes reduced dependence on natural resources and new ways for companies and consumers to create new value through avoided waste, reduced costs and impacts of water and energy use, reduced operating costs (for companies), savings (for households and building residents/ occupants), and reduced pollution. The findings of the CE study for PAP4SCP indicates that the following are general opportunities for CE adoption in the country:

1. The existence of industrial symbiosis among industries in the country, wherein materials are used, re-used and recycled; waste from one product or one company might be used as a resource for more than one other type of product or as input for another production line; and value is retained, for as many players as possible (including suppliers, business partners and consumers) and for as long as possible. This results in the reduction of overall environmental impacts from resource extraction and industrial waste disposal while generating economic returns through the promotion of resource recovery. This would lead to the greening of the supply chain which, with sufficient support from government, would be an opportunity for many Micro, Small and Medium Enterprises (MSMEs) to adopt.
2. Awareness of life cycle thinking can accelerate the shift of business production patterns from one of take/make/waste (i.e., linear production), to closed loop or multiple loop production. It is envisioned that 100% recovery and recycling of raw materials becomes feasible and creates the potential for waste from one product to be re-used as a resource for more than one other type of product.
3. The Filipinos' adoption of collaborative consumption wherein there are sharing models that provide access to services instead of products (e.g. ride sharing; online grocery shopping).
4. The government's adoption of green public procurement that strengthens the markets for eco-labelled/'green' products and services which have less environmental impact and may have significant recycled components.
5. The awareness about CE building design and construction solutions that include climate resilient, energy efficient and smart commercial, office, and residential buildings should be optimized given the increased pace of construction within the urban areas of the country, and mandatory inclusion of similar features in the building code.

6. The growing support for circular smart cities and urban mobility, such as mobility services facilitated through digital devices (e.g. ridesharing and app – based transactions) and living/ working spaces that promote convenience, proximity, productivity and cost – efficient space

Some specific recommended actions and opportunities mentioned in the CE report are discussed below:

1. Upgrade and modernize the plastic collection systems, improving junk shops and modernize recycling facilities across the country

In 2000, a solution to the perennial and growing municipal waste problem was presented in the form of the Republic Act 9003, also known as the Ecological Solid Waste Management Act of 2000. The challenge, however, has been the local implementation of the law as most cities and municipalities. In addition, most recycling facilities are insufficient, and cannot match the growing volume of waste

It has been observed that it is the informal sector that plays an important role in waste management and recycling in many communities. With the more “formal” waste management already being addressed with more funding resources, the informal waste management sector needs support. It is important to improve working conditions and improve socio-economic situation of informal sector workers. Furthermore, local government and *barangay* level activity requires attention through financial support and upgrades of equipment for collection, separation, transport, storage and recycling.

2. Organic and food waste/biological fraction of municipal solid waste (MSW) and biogas generation

Proper segregation of biodegradable and non-biodegradable waste is a pre-condition for a CE and making use of the biodegradable fraction of MSW. In the Philippines, biodegradable waste is the largest share of MSW with 52 percent, followed by recyclable waste which accounts for 28 percent and residuals at 18 percent. Much of the 50 percent of organic waste is food waste generated in the homes, restaurants, hotels and wet markets that are scattered throughout the city. This portion of generated waste could be converted into alternative value chains that would reduce it so that it is both manageable and adds value.

The traditional approach to managing food waste – which is either through landfill or incineration – has been costly and has not been truly effective. An alternative solution is anaerobic digestion, a promising CE technology to turn food waste into biogas, which can recover nutrients for agricultural systems and produce energy. However, this has not yet been fully applied due to technical and social challenges. Recent advances in organic waste recycling with value addition (e.g. through biogas) are possibilities that need to be explored, but would need financial and legislative support. In addition, capacity building programs on the technical side of waste management and infrastructure to transport waste need to be created and enhanced.

In addition, the appropriateness and applicability of large-scale anaerobic digestion systems for the Philippines needs to be assessed, to reduce implementation risks and improve economic viability associated with large-scale anaerobic digestion projects. The CE report recommends that an in-depth study to ascertain the suitable feedstock requirements, biogas generation rates, and digestate storage be undertaken prior to its inclusion in the SCP Action Plan.

3. Practice and promotion of agroecology in the agricultural sector

Significant potential exists for CE approaches for sustainability and security of food supply. The CE concept can be applied at multiple levels in agro-industrial systems to reduce food losses and reduce environmental impacts through precision agriculture and small-scale farming, and is therefore relevant for ensuring food security and nutrition goals of the Philippines.

There are several options for applying CE approaches to the Philippines' agriculture sector according to the CE report. One is agro-ecology, which is defined as 'the application of ecological concepts and principles to the design and management of sustainable agro-ecosystems. With an agro-ecological approach, "the agro-ecosystem is regarded as one, and its health as a whole is valued more than the productivity of single crops". Agro-ecology uses ecological concepts and principles to design and manage sustainable agro-ecosystems, offering benefits for productivity; food security; environmental sustainability; and important ecosystem services, such as climate-change mitigation.

In general, agricultural policies that incentivize recycling of biomass within the agro-ecosystem are in line with the CE concept. The experience leading to the enactment of Republic Act 10068 offers a concrete example of the political and substantive factors involved in advocacy for agroecology. The law provides for the promotion, propagation and further development of the practice of organic farming in the Philippines. It also establishes a comprehensive National Organized Agricultural Program (NOAP) which will promote, commercialize, and cultivate organic farming methods through farmers' and consumers' education.

4. Electronic Waste

E-waste is the world's fastest growing waste stream. In most developing countries, no sustainable practices for e-waste handling, dismantling and recycling exist at this point, and the Philippines is no exception. In the 10-year period from 1995 to 2005, approximately 25 million units of electrical appliances became obsolete (Peralta and Fontanos, 2006). According to the Global E-waste Monitor, in 2016, the Philippines generated 290,000 tons of e-waste, or 2.8 kg per inhabitant (Baldé, 2017).

The importation of second-hand electric products for reuse requires a permit or importation clearance from DENR, and the Philippines require pre-shipment procedures for the trade of used electronics. There is evidence, however, that trading of e-waste in the country is insufficiently regulated under legislation. In addition, proper collection system and treatment methods are needed for e-waste to increase formal waste collection rates. Although the Philippines only has a small, formal e-waste recycling industry, the country faces challenges in managing the e-waste sector because a significant part of the collection and dismantling effort of appliances and other sources of e-waste still occurs in informal channels.

5. Buildings, infrastructure and construction: The reuse and recycling of construction and demolition waste, circular building solutions low-cost housing and improving informal settlements

The CE reports stresses that the construction sector in the Philippines should become a priority sector for the CE because of the fact that many resources are accumulating in the country's growing building stock. A large share of mineral resources are currently going into infrastructure where they are important stocks which can be "mined" in the future; and the growth in mining of non-metallic minerals is directly related to growth in

infrastructure and construction. The Philippines' construction sector is very active, and the growing activity will increase demand for materials. With consideration of CE principles, infrastructure can enhance connectivity and mobility, provide employment, and boost economic growth. Improved infrastructure is also necessary for improved waste management and recovery of materials. In addition, there are significant untapped opportunities to scale-up reuse and recycling of construction and demolition waste (CDW), not only to reduce environmental impacts, but also to address resource shortages.

6. Smart cities and CE-based urban mobility

The emerging concept of circular cities is closely related to existing smart city concepts and a sharing economy, which are consistent with CE. CE concepts can be applied not just for the company level, but also to provide mobility services and living spaces where people and firms value proximity, convenience, clean urban environment and a workplace conducive to productivity and cost-efficient space. This would reduce the pressure on resources and promote collaborative consumption such as ride-sharing and use of mass-transport instead of single-use transport systems. This would facilitate high vehicle use-efficiency and reduce structural waste of parked vehicles taking up space in already dense urban settings.

7. CE in Philippine manufacturing sector and circular supply chain management

The CE reports that many multinational companies in the Philippines have been integrating sustainable procurement in their operations, as part of greening their supply chains and green supply chain programs. Through these, manufacturing firms ensure that their suppliers meet environmental standards while operating efficiently and in compliance with environmental laws. Many micro, small, and medium enterprise (MSME) suppliers in the Philippines benefit from such initiatives of large company clients, who regard them as genuine business partners with shared stakes in the satisfaction of customers and the public image and impact of their final products and services. Some of these companies provide their business partners with guidance and technical assistance for the adoption of environmental management systems as a strategy for strengthening their own operations through improved efficiency, cost savings (e.g. from energy efficiency, water efficiency and waste reduction; and environmental compliance). At the same time, this generates more secure employment for the employees of suppliers and retailers. Consistent with these initiatives, the Securities and Exchange Commission (SEC) issued the Sustainability Reporting Guidelines for Publicly-listed Companies (PLCs) in 2019. These guidelines provide a set of rules to help corporations manage their long-term economic, environmental, moral, and social responsibilities to their stakeholders and society.

III. SCP Framework and Action Plan

The information and insights gathered from the desk review indicates that the issues and problems that need to be addressed in order to formulate a strategy and identify specific strategic action are varied. The first step in crafting an action plan, therefore, must be to formulate a guiding framework that would be followed to reach the ultimate objective of an economy that is characterized by sustainable consumption and production. The framework should highlight the synergies among the activities and actions so that implementors from different sectors could translate a list of actions into specific programs and projects that are consistent with each other. In addition, the framework should be able to demonstrate a logical pathway between the PAP4SCP and the target SCP objective for the country.

We begin the task of creating the SCP framework and the action plan by defining SCP in terms of the characteristic of the two basic economic activities, which are consumption and production. In basic economic theory, consumption and production of a good generates welfare. The objective is not to compromise consumption and production, but merely reshape these activities into a form that minimizes the harm to the natural environment, and does not compromise the health and quality of natural resources. This allows us to attach SCP to economic growth and development: promoting and uplifting the human and social well-being of the country's citizens through activities that do not compromise the quality and ability of the natural environment to regenerate.

A. SCP Strategic Framework

It is envisioned that the fundamental objective of a government that adopts SCP is to create policies and implement actions that successfully harmonize its growth objectives—lower unemployment, higher income, improvement in the level of social-equality, etc.—through economic activities and proper use and management of the natural environment.

Conceptually, sustainable consumption can be defined in terms of “green consumerism” or the type of consumption pattern that increases human welfare by consuming goods that have been produced with the minimal impact to the environment and quality of natural resources. Similarly, sustainable production refers to the production of goods that have minimal environmental footprint. While consumption and production are two separate economic activities pursued by the two of the three economic players²⁹, these activities are bound by one common variable: the economic good. In a nutshell, the pursuit of sustainable consumption and production centers around the creation of economic goods that are “green” in characteristics in terms of how they were produced and how benefits were derived from consuming these goods. Since, normally, firms’ production activities to create a good respond to the demand from consumers, it is the good that binds the producers and consumers, and it is the good that is the linchpin for sustainable consumption and production.

With this relationship at the forefront, the general objective of the national policy on SCP could be termed as green capitalism wherein the pursuit of profit is preserved but within the backdrop of the proper and efficient use of the natural environment. From the perspective of government green capitalism would be compatible with social welfare because both the free market and proper use and management of the natural environment successfully co-exist. This implies that policymakers that adopt SCP seek to lead the economy toward the promotion of economic activities that result in the supply and trade of final goods which are produced with the least possible negative impact on the natural environment. It must be pointed out, however, that as with countries like the Philippines which face economic struggles, successful SCPs should not stunt economic growth and development, and should be poverty-neutral and in harmony with the rest of the SDGs.

1. Vision and Goals

The proposed national policy for SCP is aligned with *Ambisyon Nation 2040* wherein the vision is to see improved living conditions of current and future generations of Filipinos towards a life that is strongly rooted, comfortable, and secure.

²⁹ The third one is government.

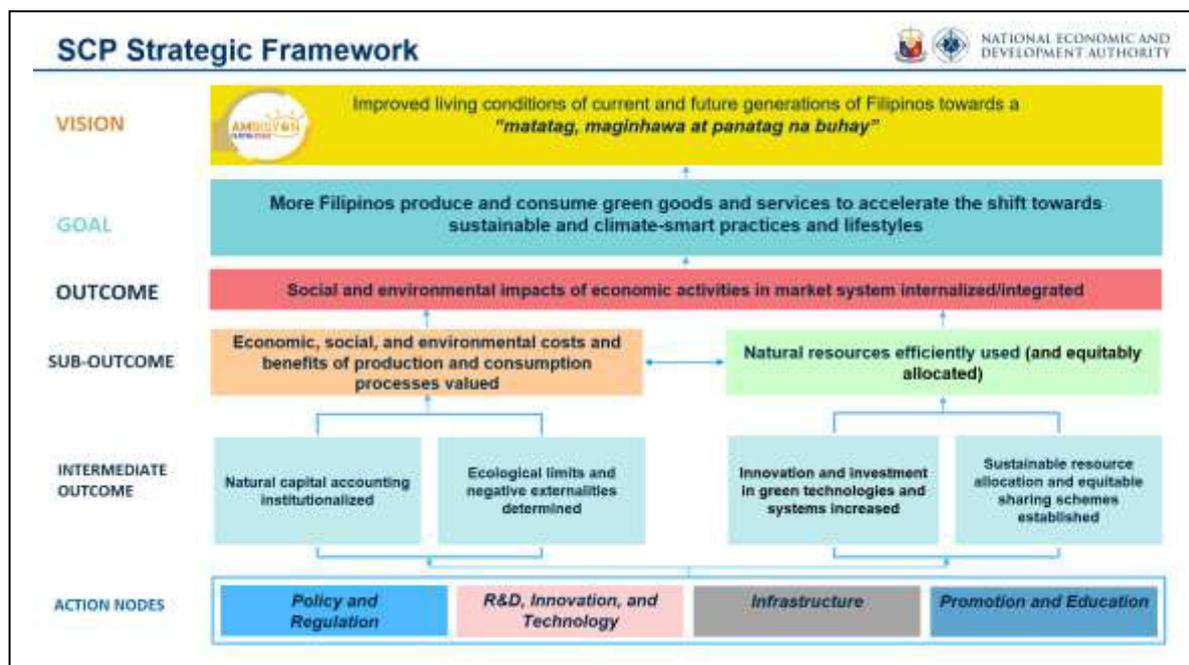
The vision for a strongly rooted (*matatag*) society is that Filipinos can achieve work-life balance through improved mobility and interconnectivity that will reduce the time needed for travel and free up more opportunities for productive endeavors, as well as time spent with family and community. Through enhanced public awareness about SCP acquired from both their formal education and non-formal learning programs, Filipinos will strengthen their sense of community, particularly when it comes to protecting their environment, keeping their surroundings clean; avoiding food waste and other forms of waste, and adopting sustainable lifestyles and mind sets.

Standards of living should improve as a result of job creation, including green jobs, not only within companies but also within upstream and downstream value chains populated by MSMEs and community-based enterprises. A stronger Filipino green consumer segment will also open new market opportunities, providing more sustainable product and service choices that will give consumers the opportunity to participate actively in the transition to a more sustainable society through individual purchase decisions and lifestyle choices. “Living well” will not be associated with how much material possessions one has, but by being able to fulfill aspirations for a meaningful life through alternative choices made possible by collaborative consumption schemes (e.g. ride – sharing), a reliable transport network that will allow one to easily get to their destination or to conduct their daily activities; and low impact/sustainable vacation options. Available, affordable and widespread green finance facilities and programs for homes & building retrofits will allow Filipinos to enjoy more energy efficient homes and workplaces.

In relation to the vision for a secure future, Filipinos can expect to live longer, healthier lives amidst clean and pollution-free surroundings, as a result of reduced negative environmental impacts of industry, improved environmental compliance and sustainability reporting by companies. There is also lessened threat of natural resources depletion upon which a secure living depends (such as water, timber) as a result of enhanced resource efficiency. This effect would be particularly strong in production supply chains, since companies are better able to understand, manage and report on the impacts throughout their entire value chain. Filipinos who reside and/or work in cities will be able to rely on their national leaders and local officials for the adoption of sustainable solutions to urban development, which includes transport and mobility, buildings and construction. Filipinos will also be able to look to their government for sustainability leadership, through greening of public procurement, “greener” / more energy/ water – efficient public buildings for which they are held accountable since it is taxpayer money, after all that is used to pay for these. Savings from such initiatives can be used for improving delivery of other public services.

In essence, the SCP Action Plan (PAP4SCP) Strategic Framework points to one outcome: the integration of the social and environmental impacts of economic activities into the benefits and costs to engage in these activities. Under this main outcome are two sub-outcomes that, if both are attained, would lead to the above-mentioned full internalization of social and environmental costs and benefits. These two sub-outcomes are: 1) the economic valuation of the economic costs and benefits of all production processes and consumption activities; and (2) efficient and equitable resource use of firms, households, and individuals enhanced. To layout the specifics of the action plan that will lead to these two sub-outcomes, each of these were subdivided into two intermediate outcomes. The conceptual connections between the intermediate outcomes per thematic area, and the target sub-outcomes are discussed in the following sections on the specific action plans for the outcome. Based on these visions, goals and outcomes, the SCP Strategic Framework was crafted, as illustrated in Figure 14 below:

Figure 14: SCP Action Plan (PAP4SCP) Strategic Framework



The above framework was used as the basis for crafting the more detailed action plan based on the different nodes of action. This initial strategic action framework is modified and expanded later to reflect the specific areas where action is recommended for SCP in the Philippines.

2. SCP Outcome, Sub-outcomes and Intermediate Outcomes

To achieve the overall objective of sustainable consumption and production which is the spirit behind PAP4SCP, it was envisioned that changes in behavior, as captured in two sub-outcomes, would come into fruition, namely: (1) economic, social, and environmental impacts of production and consumption processes are valued; and (2) efficient and equitable resource use of firms, households, and individuals are enhanced.

Sub-outcome 1 refers to the need for internalization of the economic, social, and environmental costs and benefits from consumption and production processes, in order to truly reflect the value of the impacts—both costs and benefits—of these economic activities on society and the environment. In order to successfully reach Sub-outcome 1, it is envisioned that the following intermediate outcomes (IO) must be attained: (1.1) Natural capital accounting institutionalized, and (1.2) Ecological limits and negative externalities are determined.

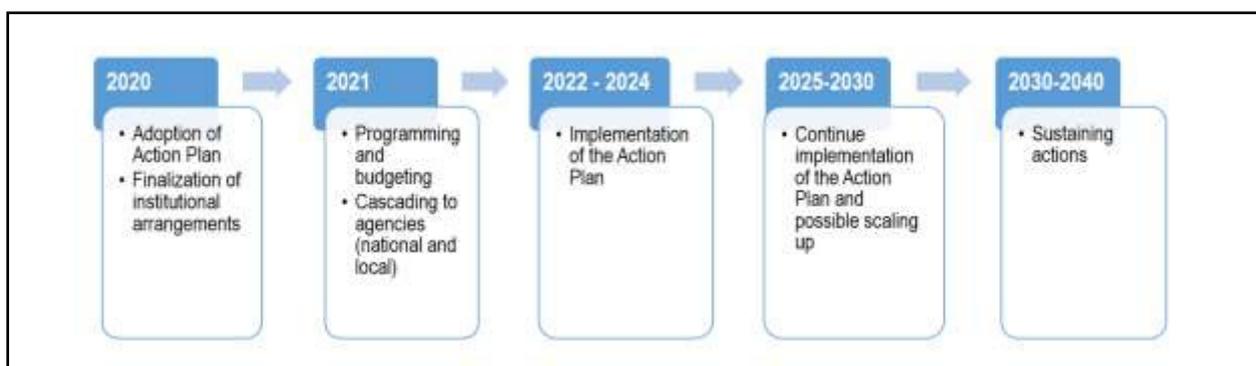
For Sub-outcome 2, the intent is to initiate and enhance current efforts to promote the efficient and equitable use of resources by the different stakeholders in Philippine society, particularly, individuals, firms and households. By efficient use of resources, it is meant that the country's natural resources will be used per unit as optimally as possible, with the least emissions and environmental footprint, and least residuals, or no residuals whenever possible. The equity dimension of Sub-outcome 2 pertains to the fair access to resources with just and equitable sharing of benefits that could be derived from the country's natural resources. In order to attain Sub-outcome 2, it is broken down into two sub-outcomes as

follows: (2.1) increase in innovation and investment in green technologies and systems; and (2.2) establishment of sustainable resource allocation and equitable sharing schemes.

B. SCP Action Plan

This section covers the specific action plans for each outcome by node and by thematic area, starting with Sub-outcome 1: Economic, social, and environmental impacts of production and consumption processes are valued. The action plans per thematic area are further subdivided into action plans by sub-outcomes: (1.1) natural capital accounting institutionalized, and (1.2) ecological limits and negative externalities determined. In terms of timeline, the rolling-out of the SCP Action Plan is laid out in Figure 15 below:

Figure 15: Timeline for SCP Action Plan Implementation



The SCP Matrices of Action – Projects and Programs of Action

This section lists the specific action plans that are envisioned to lead to the target outcomes which, in turn, will lead toward the institutionalization of sustainable consumption and production in the Philippines. These are presented in matrix form below, with as much detail as possible in terms of time frames, institutions that could be tapped for action, and the financial and material resources implications. Activities are grouped according to the action nodes—policy and regulation, research, technology, and innovation, infrastructure, and education and promotion—that were discussed in the earlier sections. Each of these activities was also vetted and extensively discussed with various stakeholders—both national and regional— and experts in the three thematic areas.

Table 2. SCP Action Matrix, Sub-outcome 1, “Economic, social, and environmental costs and benefits of production and consumption processes valued”

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
Sub-outcome 1: Economic, social, and environmental costs and benefits of production and consumption processes valued				
Intermediate Outcome 1.1: Natural Capital Accounting Institutionalized				
Policy and Regulation¹	Adopt and implement natural capital accounting (NCA) institutionalization roadmap based on UN SEEA Framework Update adjusted macroeconomic indicators to account for waste accumulation, pollution and emission	Incorporate NCA in the PEISS System (Refer to IO 1.2) Integrate NCA in national and subnational development plans and programs and private sector processes	Continue evaluation and impact assessments for further strengthening and enhancement	PSA, DENR, NEDA, LGUs, Congress
R&D, Innovation and Technology²	Develop localized methodology for all natural capital (NC) accounts (physical and monetary ecosystem valuation) Map genetic resources and develop methodology for accounting	Scale-up valuation of ecosystem services including genetic resources in critical watersheds and ecosystems Undertake nationwide and periodic assessment and updating of NC accounts	Continued updating of NC accounts	PSA, Academe, NEDA, DTI, DENR
Infrastructure³	Set up ICT infrastructure and use “green informatics” to process remotely-sensed & lab-based environmental data and statistics (e.g. from satellite or aircraft-based sensors) for NCA and real-time estimation of pollution/damages	Operationalize ICT infrastructure to generate up-to-date information on the state of environment and natural resources and estimate value of damages /pollution (downscaled at the municipality/city level)	Upgrade ICT infrastructure as needed	DICT, DENR, DILG, PhilSA, Academe

¹ These are required actions to set and instruct the conduct of accounting and valuation of ENR to provide basis for issuing appropriate policy measure and regulation on the utilization and extraction of our ENR for producing outputs/products.

² Specific actions necessary to continue quest for data and methodology to generate needed information to have more robust accounting and valuation.

³ These refer to actions necessary to facilitate ease of doing accounting and valuation that will support behavioral change to institutionalize accounting of our natural assets and damages accrued by consumption and production.

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
		Establish an interoperable database and ICT network system on environmental data and statistics		
Promotion and Education⁴	Scale-up information dissemination and capacitate national government agencies, LGUs, and private sector on NCA	<p>Publish NC Accounts, adjusted macroeconomic indicators, policy briefs, and IEC materials</p> <p>Apply NCA in the reporting of 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 community, LGUs, academic institutions, and private sector in NCA</p>	PSA, NEDA, DENR, DepEd, CHED, DOST
Intermediate Outcome 1.2: Ecological limits and negative externalities determined				
Policy and Regulation	<p>Review and amend Presidential Decree 1586 or the Philippine Environmental Impact Statement System (PEISS) to include:</p> <ul style="list-style-type: none"> • <i>principles of NCA (to emphasize environmental accounting and valuation);</i> • <i>strategic environmental assessment (SEA) covering policies, plans, and programs; and</i> • <i>methodology on the conduct of carrying capacity and assimilating capacity assessment</i> 	Rollout and implement the revised PEISS policy	Monitor and evaluate the implementation of revised PEISS policy	DENR, DILG, PSA, NEDA

⁴ These are required actions to continuously increase awareness of various stakeholders to gather support and contribute in changing behavior in the medium to long term.

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	Develop Guideline for the conduct of Strategic Environmental Assessment (SEA) process	Adopt SEA in development planning & 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, Congress
	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, PPP Center
	Develop policy and guidelines for damage compensation and penalties for activities polluting major natural resources (water bodies and land resources) due to economic activity	Implement policy on damage compensation	Review and evaluate implementation	DENR, Congress, Supreme Court, local courts, green courts, DOJ
R&D, Innovation and Technology	<p>Conduct carrying capacity assessments to ensure sustainable development in major tourism/ecotourism areas, growth and highly urbanized areas (air, water quality, solid waste, ground subsidence), and critical watersheds/ecosystems</p> <p>Conduct assimilating capacity assessments to determine thresholds on the stock and flow of natural resources, including absorptive</p>	<p>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</p> <p>Continue conduct of assimilating capacity assessment</p>	<p>Update carrying capacity assessments</p> <p>Update assimilating capacity assessments</p>	Academe, DENR, DA, DOT, DILG, LGUs

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	capacity for economic use (i.e., forestry, fisheries, genetic resources, productive land resources, priority water bodies /surface water and groundwater)			
	Collate and complete baseline information on: <ul style="list-style-type: none"> • generation of solid, toxic substances and hazardous wastes; • marine litter; and • electronic waste. 	Regular updating of information on wastes	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 implementation of LCA program	Industry Groups, DTI, DOST, Academe
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 implementation and upgrade software as necessary	DICT, DENR, DILG, LGUs, PSA, NEDA
	Develop web-/mobile-based applications that provide ready information on environmental impact of daily activities to influence "conscientious consumption and production" (e.g. health, carbon footprint calculator, <i>pasabay</i> app(ride-sharing scheme))	Develop and implement LCA knowledge management (KM) platform	Review and evaluate implementation	DICT, DOST, DTI CCC

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
Promotion and Education	<p>Build capacity of national and local governments and academic institutions on conduct of carrying capacity and assimilating capacity assessments</p> <p>Disseminate information on carrying capacity and assimilating capacity assessments and encourage exposure of youth to demonstration sites</p>	<p>Integrate carrying capacity and assimilating capacity concepts in secondary and higher education curriculum</p>	<p>Review and evaluate implementation</p>	<p>DENR, DILG, LGUs, DepEd, CHED, DOST, PIA</p>
	<p>Disseminate information on environmental cases to increase awareness on legal and judicial remedies and penalties against unsustainable practices</p>	<p>Capacitate green courts on tools to inform damage, compensation, and penalties</p>	<p>Continue promotion and education campaigns</p>	<p>Supreme Court, local courts, DOJ</p>
	<p>Institute citizen ENR reporting</p>	<p>Promote use of the web-/mobile-based applications and the LCA knowledge platform</p>	<p>Review and evaluate implementation</p>	<p>DICT, DOST, PIA</p>

Table 3: SCP Action Matrix: Sub-outcome 2, “Natural resources efficiently used and equitably allocated”

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	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	<p>Strengthen and legislate Green Public Procurement (Executive Order 301)</p> <ul style="list-style-type: none"> • enhance compliance by procuring entities • clarify LGU involvement in GPP <p>☐integrate green criteria in the procurement guidelines, bidding documents and technical specifications</p>	<p>Strengthen ecolabelling program and other green certification schemes (e.g. green jobs, green hotels/resorts, green buildings, sustainable agriculture and fisheries)</p>	<p>Review and evaluate policy implementation</p>	<p>GPPB, DBM, NELP Board, DTI, DOST, DOLE, CCC, Congress, private sector</p>
	<p>Enact new laws on:</p> <p>1. Food waste management, food donation and redistribution to adopt a system to promote, facilitate, and ensure the reduction of food waste across different sectors of the society (e.g. household, food establishments, food distributors, supermarkets) through redistribution</p> <p>2. Promote 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</p> <p>3. E-waste management that will:</p>	<p>Continue lobbying for the enactment and amendment of priority legislation listed in the short-term</p> <p>Implement new and amended laws and policies towards SCP</p>	<p>Review and evaluate policy implementation</p>	<p>NNC, DENR, DSWD, DepEd, DOH, DA, DTI, DOT, DOE, DILG, Congress, LGUs</p>

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	<ul style="list-style-type: none"> • Regulate and manage e-waste and provide guidance on its disposal and possible re-use • Incorporate principles of urban mining in the policy to recover metals from e-waste (e.g., mining gold, silver, copper, rare earth metals from gadgets & appliances) <p>Review and amend the following laws:</p> <p>1. Clean Air Act (RA8749)</p> <p>a. Institute environmental standards and safeguards for waste-to-energy Require creation of network of environmental laboratories and green informatics/ICT network to support real-time monitoring of air quality</p> <p>2. Ecological Solid Waste Management Act (RA 9003)to:</p> <p>a. enhance financial and technical support for LGUs in setting up appropriate waste management equipment and facilities and services, and</p> <p>Implement “choice-editing” strategies (e.g. regulating single-use plastics and other unsustainable products/packaging)</p> <p>Streamline ecolabelling processes/systems</p>			

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	<p>Integrate innovation/green technologies in the updating of the Green Building Code</p> <p>Institutionalize Extended Producer Responsibility incorporating polluter's pay principle and linking sustainability reports of companies</p> <p>Develop sustainability reporting (SR) or equivalent guidelines for medium enterprises</p>	<p>Enact local green building ordinances to enforce sustainable building designs, for public and private facilities</p> <p>Support industries/startups to develop alternative/substitute products (e.g. gadgets and appliances) with minimal residuals & longer utility)</p> <p>Adopt and implement SR guidelines for medium enterprises</p> <p>Undertake third-party audit to monitor and verify sustainability reports of publicly-listed companies</p>	<p>Review and evaluate policy implementation</p> <p>Review and evaluate implementation</p>	<p>DPWH, LGUs, CCC</p> <p>DTI, LGUs, SEC, Congress, private sector</p>
R&D, Innovation and Technology	<p>Strengthen research and innovation towards SCP and develop 'prototype' 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 w/o water/sewer, bioenergy (using organic wastes) • Wastewater treatment and reuse (water reclamation) • Landfill mining <p>Explore potential of urban mining to recover metals from e-waste (e.g.,</p>	<p>Continue R&D, pilot-test and/or fabricate green technologies/systems for potential expansion</p>	<p>Mass produce green technologies and scale up adoption of innovative systems that promote CE (all sectors-industry and services)</p>	<p>DOST, DTI, DENR, DOE, DA, academe, industries</p>

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	<p>mining gold, silver, copper, rare earth metals from gadgets & appliances)</p> <p>Study and develop alternatives to single-use plastics to support phase-out</p>			
	<p>Create business models for:</p> <ul style="list-style-type: none"> waste minimization (e.g. refilling stations for fast moving consumer goods as alternative than buy-and-dispose/sachet approach) use of secondary raw or recycled materials (e.g. paper, plastics, and glass cullets) for production 	<p>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)</p>	<p>Transform business models to internalize environmental costs of production and consumption</p>	<p>DTI, DENR, industries, academe</p>
	<p>Support transition to clean energy through conduct of cost-benefit analysis and VEVA on emerging RE sources (e.g. ocean wave energy, tidal energy, ocean thermal energy)</p>	<p>Pilot-test emerging RE sources to support large-scale development & production to achieve grid parity</p>	<p>Review and evaluate implementation</p>	<p>NEDA, DOE, DOST, Academe, private sector</p>
	<p>Assess and forecast green market trends, including Filipino food consumption patterns and food waste</p>	<p>Conduct an extensive study to understand behavior of producers and consumers towards environmental sustainability</p>	<p>Update behavioral assessments</p>	<p>NEDA, DTI, Academe</p>
<p>Infrastructure</p>	<p>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</p> <p>Provide support to refurbish and/or construct energy efficient and green government buildings/public facilities and tourism infrastructure</p>	<p>Scale up sustainable infrastructure development for key sectors (e.g. transport, tourism, building/construction)</p> <p>Scale-up implementation of modular and pre-fabricated building solutions for informal settlements</p>	<p>Evaluate the impacts and effectiveness of interventions for enhancement & strengthening</p>	<p>DOTr, DHSUD, PhilGBC, DPWH, TIEZA, DOT</p>

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	<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>	<p>Scale up establishment of necessary recovery/reuse, recycling and repair facilities to facilitate the shift to circular economy</p>		<p>NSWMC, MWSS, LWUA, DOF, DBM, LGUs, private sector</p>
	<p>Develop sustainability reporting (SR) online platform to facilitate ease of reporting and reduce complexity of SR</p>	<p>Rollout SR software/online reporting platform for medium enterprises</p>		<p>SEC, DTI, Industry Groups</p>
	<p>Establish infrastructure requirements to support scaling up of grid-connected renewable energy systems</p>	<p>Establish affordable off-grid RE systems for far-flung communities</p>	<p>Evaluate the impacts and effectiveness of interventions for enhancement & strengthening</p>	<p>DOE, NGCP, DILG</p>
<p>Promotion and Education</p>	<p>Develop training and assistance programs for agencies to develop, implement and monitor their respective GPPs</p> <p>Cascade and include GPP in the performance assessment of national government agencies and local government units</p> <p>Intensify promotion of ecolabelling and other green certification schemes to increase uptake by the private sector and influence consumer preference</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>Continue promotion and education campaigns</p>	<p>DBM, PCEPSDI, DTI, GPPB, DOLE, TESDA</p>

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	<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 info campaigns on the need to cut down on food waste, and the benefits of healthy eating and environment – friendly dining options especially in social media</p>	<p>Develop online directory for ecolabelled product</p>		
	<p>Intensify SR Training for publicly listed companies (PLCs) by partnering with industry groups/ associations 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, textile)</p>	<p>Capacitate medium enterprises to undertake SR</p> <p>Establish recognition/awards system for sustainable companies Provide technical and financial assistance programs for greening and CE initiatives of MSMEs</p>	<p>Review and evaluate SR capacity building activities and recognition system</p>	<p>SEC, DTI, industry associations</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. SK, CCT, senior citizen meetings)</p> <p>Strengthen/sustain school SCP/ environmental campaigns, events, competitions to promote SCP as a “way of life”</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 industry (e.g. fashion community; retailers)</p>	<p>Continue promotion and education campaigns</p>	<p>NEDA, DILG, DTI, DepEd, DENR, LGUs, private sector, media</p>

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	Strengthen SCP awareness through non-formal education channels (e.g. Knowledge Channel) and grassroots programs targeting barangays, communities, OFW households, youth and the self – employed (e.g. jeepney and tricycle drivers, sari-sari store owners)			
<i>Intermediate Outcome 2.2: Sustainable resource allocation and equitable sharing schemes established</i>				
Policy and Regulation	<p>Lobby the enactment of national land use act for appropriate zoning to ensure sustainable and efficient use of land resources</p> <p>Strengthen 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 best use and establish appropriate policies on quota systems to manage extraction of natural resources based on precautionary principle</p> <p>Expand adoption of market-based instruments to support efficient use of natural resources (e.g., user-fees, payment for ecosystem services)</p>	<p>Develop and implement policy on wealth creation from use of natural resources (e.g. sovereign wealth fund, Access 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, LGUs,

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
R&D, Innovation and Technology	Develop methodology and criteria to determine 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 natural capital 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-off to economy, environment, and society using NC accounts (Refer to Outcomes 1.1)	Estimate costs of damage of unsustainable practices and unregulated resource use and allocation using NC accounts (Refer to Outcome 1.1)	Update assessments including coefficients & assumptions	NEDA, DENR, PSA
	Assess resource use (inflow and outflow) vis-a-vis stock of resources (<i>resource budgeting</i>)	Continue assessment of resource use (inflow and outflow) vis-a-vis stock of resources (<i>resource budgeting</i>)	Incorporation of resource budgeting in development planning and programming	DENR, NEDA
Infrastructure	Increase investment in satellite/remote-sensing equipment to monitor natural resource use and track implementation of market-based instruments in (Refer to Outcome 1.1)	Develop software/application to monitor compliance to quota systems	Evaluate implementation for enhancement	DBM, NEDA, DENR, PhilSA
Promotion and Education	<p>Disseminate information on the importance of property rights and quota systems</p> <p>Increase awareness on market-based instruments to provide more financial resources for sustainable ENR management</p>	<p>Publish information on compliance to quota systems and their accompanying benefits</p> <p>Promote access to resources arising from wealth creation policy</p> <p>Encourage commercial development of products from biodiversity resources aligned with ABS principle</p>	Evaluate implementation for enhancement	NEDA, DOF, DENR,

Nodes of Action	Short-term (2020-2022)	Medium-term (2022-2030)	Long-term (2030-2040)	Responsible Agencies/Entities
	Conduct knowledge sharing 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, coops, SK, CCT beneficiaries, press)		Continue promotion and education campaigns	LGUs, NGOs, POs

IV. Monitoring and Evaluation/Results Matrices

While specific measurable indicators would have to be created as each actionable activity is adopted and implemented by the different institutions, this report suggests the use of the Results Matrices below for each thematic area, with identified indicators to be used as the guide for tracking the progress, successes, and challenges of the potential projects and programs that coincide with the action plan. Several indicators/metrics are classified by thematic area and outcome of interest. The results matrix also includes the baseline, targets per time horizon (2020-2021, 2022-2024, 2025-2030, and 2031-2040), means of verification, risks and assumptions, responsible entities, and contribution to other SDG targets. The matrices should also be helpful in systematically identifying the accountable groups to monitor, and the appropriate indicator. It must be noted, however, that it is suggested that the different government agencies undertaking and implementing the specific action be consulted in identifying the specific targets and indicators to be used in monitoring and evaluating the programs and projects. This should be based on ground assessments of the government agency and LGUs, and the information that could be feasibly generated to populate the indicator.

Table 4: PAP4SCP Results Matrix: Intermediate outcome 1.1, “Natural capital accounting institutionalized”

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
Intermediate Outcome 1.1 Natural capital accounting institutionalized							
Macroeconomic indicators adjusted and regularly published	Pilots in progress; NCA institutionalization roadmap available.				Agency Reports; Independent Evaluation Reports	NEDA, PSA	Required data regularly generated & available to enable adjustment
Aggregate Outputs							
No. of policies adopted	Policies on conduct of physical inventory in place but none for valuation.				Agency Reports; Independent Evaluation Reports	NEDA; Sectoral Agencies- DENR, DOT	Critical mass of empirical data available to formulate & adopt relevant policies.
No. of NC accounts increased (cumulative) <ul style="list-style-type: none"> National asset accounts 	Minerals, mangroves, ecosystem accounts available in some provinces/ecosystems, e.g., Palawan, Laguna Lake				Agency Reports; Independent Evaluation Reports	NEDA, DENR, PSA	Build up of relevant data proceeds unimpeded

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
<ul style="list-style-type: none"> Site-specific ecosystem accounts (ecosystem extent, ecosystem condition, and ecosystem service) increased 	Some provinces, LGUs with ecosystems/commodities accounts; e.g. Palawan; Laguna Lake				Agency Reports; Independent Evaluation Reports	NEDA, DENR, PSA, DILG	Build up of relevant data proceeds unimpeded; policy mainstreaming NCA up to local levels is issued.
ICT network established and programmed for environmental accounting and damage estimation	Network concept available				Agency Reports; Independent Evaluation Reports	PSA, NEDA, DENR	Inter-operability of data bases materializes allowing calculation of relevant/desired indicators /indices
No. of LGUs (environmental officer/MPDC) capacitated on integrating NCA in local development planning (CDP and CLUP) increased	To be determined				Agency Reports; Independent Evaluation Reports	HLURB; DILG	A plan has been adopted and resourced to execute regular NCA training programs for LGUs.
No. of IACENRS member agencies (data producers and environmental account managers trained on NCA concepts, frameworks and methods	4 IACENRS member agencies (DENR, NEDA, PSA, DOT)				Agency Reports; Independent Evaluation Reports	DENR, NEDA; Other Concerned NGAs	A government wide policy on training on NCA is issued and taken up in the concerned

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
							agencies' plans.
No. of plans that mainstreamed NCA	To be determined				Agency Reports; Independent Evaluation Reports	NEDA; Concerned NGAs	A national policy is issued on mainstreaming NCA in plans.

Table 5: PAP4SCP Results Matrix: Intermediate outcome 1.2, “Ecological limits and negative externalities determined”

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
Intermediate Outcome 1.2 Ecological limits and negative externalities determined							
Carrying and assimilating capacities across sector and ecosystems identified	Policy in place for new projects/ programs thru DENR AO 2000-05 Series of 1994 on Revised Programmatic Compliance Procedure within the EIS				Agency Reports; Independent Evaluation Reports	DENR	
Aggregate Outputs							
No. of studies on carrying and assimilation capacities to be updated every 5 years (with management plan) in the following areas: a. Tourism/ecotourism b. growth areas (air, water, solid waste, ground subsidence) c. critical watersheds (L, V, M)	To be determined				Agency Reports; Independent Evaluation Reports	DENR; Sectoral NGA in charge, e.g. DOT for Tourism	
No. of LGUs (environmental officer) capacitated on the	To be determined				Agency Reports; Independent	DILG, DENR	

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
conduct of carrying/assimilating capacity studies					Evaluation Reports		
Policy instrument to incentivize or penalize pollution load (businesses, consumers, LGUs) established	DENR A.O. # 2005-10 on Implementing Rules & Regulations of the Phil. Clean Water Act of 2004 (RA 9275) issued & applied.				Agency Reports; Independent Evaluation Reports	DENR	
No. of policy review to assess the economic and social impacts of development projects	To be determined				Agency Reports; Independent Evaluation Reports	NEDA	
No. of research/study that will develop methodology, criteria and indicators for SEA process	3 (ENRAP, IEMSD, WAVES)				Agency Reports; Independent Evaluation Reports	NEDA, DENR	
No. policy instrument developed and approved to support implementation of SEA	SNA uses a framework incorporating satellite environmental data & concerns				Agency Reports; Independent Evaluation Reports	NEDA, DENR	

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
No. of research studies on natural resource stock report specifically on forestry, water supply, marine resource, terrestrial resource to determine sustainable harvest	To be determined				Agency Reports; Independent Evaluation Reports	DENR	
No. of studies on ecological footprint (EF) to assess the impacts of population, income, tourism, urbanization/transport, population (air, water, noise)	To be determined				Agency Reports; Independent Evaluation Reports	NEDA, DENR	
No. of policies crafted to support EF data generation and integration in relevant plans	None				Agency Reports; Independent Evaluation Reports	NEDA, DENR	
Methodology/toolkit/ apps in place to calculate EF adopted companies	To be determined				Agency Reports; Independent Evaluation Reports	DENR	
No. of behavioral study to assess the impact of socio-econ factors and exposure on the quantity and quality of waste generated by households and firms	To be determined				Agency Reports; Independent Evaluation Reports	DENR, DSWD	
Baseline study to determine per capita resource use and waste	To be determined				Agency Reports; Independent	DENR	

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
generation (at LGU level) thru survey/model. (income bracket, types of waste, urban/rural) conducted					Evaluation Reports		
No. of baseline study to determine resource use and waste generation at firm level by business type (e.g. manufacturing, services) thru survey/model. (diversion, composting, recycling rate)	To be determined				Agency Reports; Independent Evaluation Reports	DENR	
Database of environmental resource stocks established (creation of knowledge management (KM) portal for public use and access)- content data and relevant studies	DENR, PSA data bases with selected ENR, e.g. forests				Agency Reports; Independent Evaluation Reports	DENR, PSA	
No. of monitoring stations and environmental laboratories increased ³⁰	To be determined				Agency Reports; Independent Evaluation Reports	DENR; DOST	
%Increased access to the technical data collected by govt and other sectors (biocapacity, resource stocks) for free	To be determined				Agency Reports; Independent Evaluation Reports	DENR	

³⁰ Strategically established in terms of spatial coverage and ease in access

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
%increase in capacity of staff and personnel of national agencies, LGUS on biocapacity, carrying capacity assessments	To be determined				Agency Reports; Independent Evaluation Reports	DILG	
No. of curriculum created on environment capacity building for the Youth (college and HS)	To be determined				Agency Reports; Independent Evaluation Reports	DepEd; CHED; DENR	
No. of training course on calculation of penalties and compensation for environmental damages	To be determined				Agency Reports; Independent Evaluation Reports	DENR	
No. of training modules for LGUs and volunteers to collect and record waste generation and diversion information among households	To be determined				Agency Reports; Independent Evaluation Reports	DENR, DILG	
Creation of TESDA skills building program (waste management) for local environment officers/waste management officers	To be determined				Agency Reports; Independent Evaluation Reports	DENR, TESDA	

Table 6: PAP4SCP Results Matrix: Intermediate outcome 2.1, “Innovation and investment in green technologies and systems increased”

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
Intermediate Outcome 2.1 Innovation and investment in green technologies and systems increased							
Adoption of green technologies increased	To be determined				Agency / Sectoral reports Monitoring & Evaluation reports	DOST, DTI, CCC, Other Concerned Sectoral Agencies	Compendium of applicable GT to the Philippines are available and promoted by the NDC and other relevant plan instruments
Reduced energy-related greenhouse gas emissions and reduced water footprint from buildings; increased use of construction materials with recycled content as against current levels	Current industry contribution to national GHG emissions				DENR Air Emissions Inventory	All major industry sectors	Inadequate resources or capacities for GHG accounting and GHG emissions reduction, esp. for MSMEs
Increased resource efficiency attributable to GSC practices in different industry sectors (e.g. manufacturing and services sector)	To be determined, per industry sector				National Footprint Accounts	DTI, CCC, Business groups & GSC early adopters	Material consumption for the country may increase due to population growth & rising

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
							incomes even as material consumption per capita may decrease
Market share of products and services that fulfill a wide range of environmental considerations (i.e. so – called “green” and/ or ecolabeled products and services) against the total volume of similarly purchased products/ services; Economies of scale established and market share expanded over baseline	To be determined				DTI / industry reports	DTI; Business sector	Business struggle to get to scale & to compete with established traditional offerings Proliferation of “fake” green products in the market Resistance from / economic impacts on suppliers of traditional products & services Country adherence w/ trade agreements

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
Aggregate Outputs							
Relevant existing laws/policies reviewed and updated	To be determined				Agency / Legislature reports Monitoring & Evaluation reports	Legislature, Concerned NGAs	Sustainability policy promulgated & available as locus for rationalization/ harmonization
Procurement guidelines revised to integrate green criteria	Number of companies with GSC & Green Procurement policies & programs (to be determined/ inventoried)				Program/ project reports of GSC assistance programs & benefits to the supply chain (govt, private sector & foreign assisted)	No immediate financial benefit / ROI of GSC/ Green procurement to companies Supplier companies may not be able to adapt to standards of buyer companies	DTI, Business groups (e.g. Green Purchasing Alliance Movement/ GPAM & Philippine Institute for Supply Management /PISM
Percent share of GPP over current levels reflected in percentage of total amount of procurement contracts for	To be determined				DBM Report	DENR, DBM - GPPB-TSO	Continued low levels of compliance because of

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
Common-Use and Non-Common use Supplies and Equipment (CSEs)							<p>lack of central authority</p> <p>Conflicts in govt purchasing criteria / priorities</p> <p>Readiness of govt suppliers to meet GPP specifications</p>
Percentage of cities with green building ordinances increased	To be determined				<p>Resistance from bldg. owners & developers</p> <p>Funding availability</p>		<p>DOE & Phil Green Bldg. Council (for technical assistance/ training programs on green building standards & criteria)</p>

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
							Construction industry
Green finance facilities/ incentives increased for developers/homeowners/building owners to shift to more energy efficient commercial and residential buildings	To be determined				Effects of economy fluctuation on market demand for green finance; Affordability of green technologies for homeowners & building owners		DOF; Public and private banks/ lending institutions; Home-owner associations
No. of industry-led Greening the Supply Chain (GSC) roadmap established (reflecting greening” programs for small – scale, community – based suppliers and livelihood programs, cooperatives, women’s groups, indigenous peoples, etc. in the supply chain	To be determined				DBM	DBM	Resistance from suppliers of traditional products & services
No. of GSC models, guidelines & assistance programs established, w/ particular focus on small – scale /community – based	To be determined				LGU Reports & Case studies	DILG, LGUs	Changes in LGU leadership

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
suppliers							
No. of industry-level/association-level groups adopting local or international green certification for their members/sector	Current industry compliance levels				DENR status reports; LGU reports	DENR, LGUs, all major industry sectors	Uneven enforcement Manpower limitations for enforcement
No. of startups established and assisted to foster an innovative entrepreneurial culture for the delivery of public services, programs, and projects	To be determined				Market surveys	Govt (e.g. PIDS), academe & private research groups	Proliferation of “fake” green products & services Effects of economy fluctuation on consumer confidence & market demand for green products & services
No. of green jobs developed in tourism industry and tourism value chain compared to current levels	To be determined				DOLE & LGU reports	DOLE, LGUs, TESDA	Local resistance due to perceived

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
							threats to current unsustainable livelihoods
New industries created from recovered residuals transformed into other uses supporting a circular economy	No data				Accreditation and permitting system	NEDA / DOF	Presence of fly by night companies
Percentage of population living in sustainable cities that integrate SCP in their urban development plans	To be determined				Case studies & sustainability awards ; Sustainability city index	LGUs, urban planners	Political barriers that hinder coordination & implementation Changes in local leadership Financing for infra development & capacity development
Percentage of population with convenient access to public transport	To be determined				Global Infrastructure Competitiveness Ranking (World	DICT; Private sector	Financing for e-Mobility infra support & capacity

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
					Economic Forum)		development
Travel time, trip distances reduced for commuters & travellers, especially in major urban areas compared to current levels	To be determined				DOTr / MMDA Impact Studies & Reports; Global Infrastructure Competitiveness Ranking (World Economic Forum)	DOTr, MMDA	govt policies not consistent with promotion of sustainable transport/ mobility Financing for infra development & capacity development
Percentage of private sector workers who telecommute	To be determined				DOLE/ TESDA reports/ studies	Limited training capacity for green jobs – related skills	DOLE/ TESDA
Percentage of LGUs with access to material recovery facilities (MRFs) and sanitary landfills (SLFs) increased					Random audits for data	DENR / NSWMC / DILG / LGU	Data integrity
Proportion of population with access to safe water supply and sanitation facilities					Random audits for data	DENR / EMB	Data integrity

Indicator	Baseline	Targets			Means of Verification	Responsible Agency/Entities	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
Percentage of population connected to sewerage and septage Facilities	2009 – 70%				Random audits for data	DPWH / DENR / NWRB	Data integrity
Proportion of LGUs connected to grid using clean energy					Random audits for data	DOE	Data integrity
Public awareness of products and services that fulfil a wide range of environmental considerations. (e.g. “green” and/ or ecolabeled products and services) increased compared to present levels	To be determined				Consumer awareness surveys	DTI; DOST, DENR	Misleading advertising Gap between people’s awareness, attitudes and their actual behavior/ choices

Table 7: PAP4SCP Results Matrix: Intermediate outcome 2.2 “Sustainable resource allocation and equitable sharing schemes established”

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
Intermediate Outcome 2.2 Sustainable resource allocation and equitable sharing schemes established							
Per capita access ³¹ and consumption of natural resources for individual, household, and firm uses within ecological limits	To be determined				National Footprints Accounts (DOST – FNRI) SCP awareness surveys; stocktaking study on SCP integration in education & training programs	DENR, DTI, DILG, DepEd, CHED, Civil Society groups	Shifts towards a culture of consumerism which exerts pressure on people to maintain lifestyles characterized by high spending patterns and displays of wealth. Resistance from some sectors/agencies
Aggregate Outputs							
No. of policies on sustainable resource allocation and equitable sharing adopted	To be determined				Agency / Legislature/Sectoral reports Monitoring &	Legislature, Concerned NGAs	Sustainability policy promulgated & available as locus for rationalization/ harmonization

³¹ Includes affordability and equitable sharing of cost.

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
					Evaluation reports		
No. of financing modalities on the use of natural resources established and adopted	To be determined				Reports of lending institutions	Public and private banks/ lending institutions; Green venture investors	Financial risks; Effects of economy fluctuation & govt policies on investor confidence
No. of resource maps and inventory reports issued	No clear information on accessible data				Monitoring of data uploaded	DENR / PIA / PSA	Would need internet access to all LGUs
Competency development program on sustainable resource allocation and equitable sharing for LGUs established	Current industry compliance levels				DENR status reports; LGU reports	DENR, LGUs, all major industry sectors	Uneven enforcement Manpower limitations for enforcement
Knowledge sharing activities conducted	Status of implementation of the National Environmental Education Action				Research study on NEEAPSD status and SCP integration in formal and non-formal education;	DepEd, CHED, academe	Coordination difficulty among various key actors/agencies/ organizations

Indicator	Baseline	Targets			Means of Verification	Responsible Agency	Risks and Assumptions
		Short-term (2020-2022)	Medium-Term (2022-2030)	Long-term (2030-2040)			
	Plan for Sustainable Development (NEEAPSD)				School reports		

V. Financing for the Environment and Natural Resources Sector

Finance, including for the technology acquisition and capacity building for this plan will have to be obtained from various sources. Given that primary actions are at the level of national government, financial resources can come from the national budget for policymaking and establishment of the necessary institutional arrangements. The national budget can also be utilized for the initial advocacy and capacity building to generate the primary competencies within the government in overseeing the action plan. Partners in the private sector can also contribute by providing technology for capacity building, and contributing to the seed funding of new innovations to the country, like the proposed sovereign wealth fund. The business and industry sector 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. The civil society can contribute to the cost by mainstreaming SCP advocacies into their related programs, projects and other initiatives.

The Department of Budget and Management (DBM) is mandated to manage the government's national budget, and the current practice following the Two-Tier Budget Approach (2TBA)³². This approach sets separate discussions and deliberations for existing activities and projects (Tier 1) from consideration of entirely new spending proposals, including proposals for the expansion of existing activities (Tier 2).

Generally, the budget process follows the Public Financial Management Cycle, beginning with planning and priority setting by individual agencies. This is based on each agency's departmental mandate, and the administration's priorities and ongoing business to citizens. This is followed by planning and priority setting by the administration, a top-down approach that is guided by the medium-term fiscal strategy linked to the PDP, Investment Plan, and Budget Priorities Framework (BPF). The third step is budget preparation, a bottom-up approach where agencies link their strategic plan with their operational plan in drafting their budget proposal. Once finished, the process proceeds with budget execution and service delivery to citizens. This is followed by the reporting, monitoring and evaluation review and internal & external audit to provide verification of results. Expecting a cycle, then, the last step should aid the following fiscal years' planning and priority setting.

For every annual budget, planning and preparation of agencies begins two years prior in the month of August (e.g., for the 2020 Budget, agencies should have the planning stage by August 2018), and is expected to be done by December. The budget submission process for Tier 1 would run from January to March the following year, while it would be from April to June for Tier 2. The activities for the budget submission process include a set of budget for a, technical budget hearings, and final budget review in preparation of the National Expenditure Program (NEP). From July to December, the budget proposal would be reviewed by the Congress through Congressional Budget Hearings upon the finalization of the General Appropriations Act (GAA) for the budget year.

To fit in the budget process, the agencies responsible for SCP must be able to include the SCP in their program priorities, and as such, would initially qualify under the Tier 2 schedule. Note that a major limitation on the financing for this national policy is the duration of budget process, such that the implementation by 4th quarter of 2019 would indicate that in the regular process, the earliest that the SCP may be included is in the budget for 2022. Unless special considerations are made, an alternative source of funding from the government is by determining existing budget items that can be used for the SCP.

³² Source: "Guide to the Two-Tier Budget Approach (2TBA): A Tool for Agencies", Department of Budget and Management (DBM) for Budget 2017. Link to file: <https://www.dbm.gov.ph/images/pdf/files/GUIDETOTHETWOTIERBUDGETPROCESS.pdf>

As a starting point, in the 2019 proposed national budget of DBM by sector, the share of Environmental Protection is 0.7%, or PhP24.6 billion³³. This amount could be used for wastewater management, protection of biodiversity and landscape, pollution abatement, and R&D environmental protection. Once the SCP national plan takes place, however, it is imperative that there be higher budget allocation for environmental protection that will go to government agencies concerned with direct effects on regulation and enforcement (i.e., DENR, Climate Change Commission (CCC) as well as agencies with indirect effects concerning infrastructure, technology, and R&D (i.e., DOST for R&D projects). Special projects on SCP may be supported in Tier 2 of the budget approach of DBM.

In terms of existing programs, the following are the available green finance facilities and mechanisms in the Philippines that can be tapped for the SCP:

1. National ENR Projects and R&D Funding Facility and Earmarked Funds

- a. Department of Science and Technology (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 which have been 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 development of demand-driven technologies. Private sector participation and counterpart funding are strongly encouraged to complement government efforts and resources.
- b. The Integrated Protected Area Fund (IPAF)** is a GoP trust fund set up under the provisions of the 1992 NIPAS Act (Sec. 16) to: (a) receive donations, endowments and revenues generated within protected areas, and (b) disburse the same to finance projects of the National Integrated Protected Area System. The recently enacted E-NIPAS law provides for the retention of the 75% of the revenues generated from the protected areas which shall be used to support its operation and management. The remaining twenty-five percent (25%) of revenues shall be deposited as a special account in the general funding the National Treasury for purposes of financing the projects of the System.
- c. People's Survival Fund (PSF)** was established under RA 10174³⁴ as a special fund with an annual ₱1B allocation from the General Appropriation Act (GAA) to augment financial support for climate change adaptation (CCA) programs, activities, and projects (PAPs) of LGUs and community organizations. At present, a total of PhP332.31 million has been released/committed from the 2016 GAA³⁵ to fund six (6) approved projects in Surigao del Sur, Surigao del Norte, Tarlac, Cebu, Sarangani, and Agusan del Norte.

³³ Source: Technical Notes on the 2019 Proposed National Budget. Link to file: <https://www.dbm.gov.ph/wp-content/uploads/Our%20Budget/2019/Technical-Notes-on-the-2019-Proposed-National-Budget.pdf>.

³⁴ RA 10174: An Act Establishing the People's Survival Fund to provide long-term finance streams to enable the government to effectively address the problem of climate change, amending for the purpose Republic Act No. 9729, otherwise known as the "Climate Change Act of 2009", and for other purposes

³⁵ The unutilized 2014 (₱500M) and 2015 (₱1B) PSF budget allocations were reverted back to the Treasury. While included in the National Expenditure Program, the Congress did not provide budget allocations to PSF in the 2017 and 2018 GAA. This may be attributed to the non-utilization of the funds since 2014. In the 2019 NEP, no budget was appropriated for the PSF.

- d. **National Disaster Risk Reduction and Management Fund (NDRRMF)** is an annual appropriation under the GAA to fund post-disaster (relief, rehabilitation and recovery) programs/projects, pre-disaster (mitigation, prevention and preparedness) programs/projects for LGUs, and disaster risk insurance coverage of government facilities with the GSIS. In the 2018 GAA, a total of ₱19.6M was appropriated to the NDRRMF.
- e. The Local Calamity Fund, currently referred to as the **Local Disaster Risk Reduction and Management Fund (LDRRMF)** is a fund set aside to support disaster risk management activities of LGUs such as, but not limited to: (a) pre-disaster preparedness programs- training, purchasing life-saving rescue equipment, supplies and medicines; (b) post-disaster activities; and (c) payment of premiums on calamity insurance. LDRRF is equivalent to less than 5 percent of the LGUs estimated revenue from regular sources.
- f. **Renewable Energy Trust Fund (RETF)**. It was established under the Renewable Energy Act to enhance the development and greater use of RE. It shall be administered by the DOE as a special account in any of the Government Financial Institutions. The RETF shall be exclusively used to: (i) 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; (ii) support the development and operation of new RE resources to improve their competitiveness in the market; (iii) conduct nationwide resource and market assessment studies for the power and non-power applications of RE systems; and (iv) propagate RE knowledge by accrediting, tapping, training, and providing benefits to institutions, entities and organizations which can extend the promotion and dissemination of RE benefits to the national and local levels.
- g. The **Energy Regulations (ER) No. 1-94** mandate Generation Companies and/or energy resource developers to set aside one centavo per kilowatt hour (P0.01/kWh) of the total electricity sales as financial benefits to host communities. A trust account could be established which could be tapped by local government units to fund projects specific to electrification, development and livelihood, and re-forestation, watershed management, health and/or environment enhancement.
- h. **Air Quality Management Fund**. As created by the Clean Air Act, this fund is intended to: (i) finance containment, removal, and clean-up operations of the Government in air pollution cases; (ii) guarantee restoration of ecosystems and rehabilitate areas affected by the acts of violators of this Act; (iii) support research, enforcement and monitoring activities and capabilities of the relevant agencies; and (iv) provide technical assistance to the relevant agencies. It is sourced from the fines imposed and damages awarded by the Pollution Adjudication Board, the proceeds of licenses and permits issued by the department under this Act, emission fees, and from donations, endowments and grants in the forms of contributions. Contributions to the fund shall be exempted from donor taxes and all other taxes, charges or fees imposed by the Government
- i. **Clean Water Management Fund**. It is similar to the Air Quality Management Fund and was created under the Clean Water Act for water pollution cases.

2. *International green funding facilities*

- a. **Global Environment Facility (GEF)** serves as the financial mechanism for various multilateral environmental agreements (MEAs)³⁶ and provides grants for projects

³⁶ 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.

related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. The **Philippines accessed a total funding support of \$570.90M** covering 110 projects since 1991. Of these projects, 2 projects amounting to \$6.02M are funded through the Special Climate Change Fund (SCCF)³⁷.

- b. Green Climate Fund (GCF)** is a funding support facility amounting to \$10.3B established under the UN Framework Convention on Climate Change (UNFCCC). It intends to assist developing countries to limit or reduce greenhouse gas (GHG) emissions and adapt to the adverse impacts of climate change by financing low-emission and climate-resilient projects and programs developed by both 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). At present, the **Philippines³⁸ is still in the process of accessing the GCF**. There are three project proposals on climate change mitigation and adaptation, which have undergone NEDA review and already been submitted by the CCC to the GCF for approval last June 2019 while a number of pipeline projects are being developed or enhanced by the proponents to secure No Objection Letter (NOL) from the CCC.
- c. Adaptation Fund (AF)** is intended to finance concrete adaptation projects and programmes in developing countries which are particularly vulnerable to the adverse effects of climate change. In the Philippines, the DENR (Usec. Teh) serves as the Designated Authority (focal point) of AF. The **Philippines has not yet accessed the AF** as the DOF is still in the process of complying with the requirements to become a National Implementing Entity (NIE) to be able to access the maximum allocation of USD 10M.

3. Debt for Nature Swap

Debt-for-nature swaps (DNS) are financial transactions in which a portion of a developing nation's foreign debt is written-off in exchange for local investments in environmental conservation measures. The two most recent DNSs for the Philippines includes the Philippines-Italy Debt for Development Swap Program and the Philippine Tropical Forest Conservation Foundation program.

- a. The Philippines-Italy Debt for Development Swap Program** was signed on 29 May 2013 and entered into force on 24 October 2012, allowing conversion of the Philippines' debt obligation amounting to EUR2,916,919.45 (about US\$3.75 million or PhP160 million). The Program was established to implement environmental and poverty alleviation projects, being managed collaboratively by the Philippine Government through the Department of Finance and the Italian Government through the Italian Embassy in Manila. A total of 6 projects – 2 small (maximum of PhP10million each), 2 medium (maximum of PhP25million each), and 2 large (maximum of PhP35M each) – are currently being funded under the Program. By type of intervention, 4 of the 6 projects focus on forest conservation and reforestation, 1 on sustainable and integrated agriculture, and 1 on coastal resource management.

The Program has a designated Management Committee, composed of the Secretary of Finance or his/her representative and the Ambassador of Italy in Manila or his/her representative, which provides guidance and policy direction for the implementation of the Program. The management committee is being assisted by a Technical Committee, composed of the Italian Cooperation representative and their Advisers, and representatives from the DOF, DENR DSWD, NEDA, and Philippine and Italian Civil

³⁷ SCCF is operated by the GEF/WB. The SCCF was established under the UNFCCC in 2001 to finance projects relating to: adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification.

³⁸The Climate Change Commission (CCC) serves as the National Designated Authority (NDA) for GCF.

Society Organizations (CSOs). The Technical Committee and the advisers are tasked to evaluate proposals based on established evaluation criteria. The Technical Committee shall shortlist the proposed projects for final selection and approval by the Management Committee.

b. Philippine Tropical Forest Conservation Foundation (PTFCF) is a recipient of two DNSs, the first one running from 2002 to 2016 amounting to US\$8.25 million while the second DNS was allocated in 2013, amounting to US\$32 million to scale up forest protection activities from 2017 to 2027. Access to this fund is by application, subject to evaluation and approval based on the process set by the Foundation. The PTFCF has supported over 450 projects which resulted to the following:

- improved the management of approximately 1.5 million hectares of forest lands
- restored approximately 4,200 hectares of forests through the re-introduction of appropriate native tree species
- established over 40 community-conserved areas and
- built over 60 community-level enterprises

Other than government funding, the drive for a national policy can also encourage private organizations for funding support. It may also influence the demand side, or the consumer behavior of citizens by promoting sustainable lifestyles. The corporate sector is an important source of wealth providing 90% of jobs and 60% of the country's GDP thus being an inherent source of funding. Corporate social responsibility (CSR) activities are generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives (“Triple-Bottom-Line- Approach”), while at the same time addressing the expectations of shareholders and stakeholders. Companies usually target sites where their operations are situated. However, there is no law governing CSR fund deployment, although several bills have been previously filed in both houses of Congress.

There can also be multilateral and bilateral financing from different organizations to implement initiatives for research projects on exploring for innovations, as well as the monitoring and evaluation of existing policies. SCP is, in fact, a global concern, which needs the drive from major authorities globally present. There is an understanding that positive spill-overs would occur for all peoples if sustainability becomes a norm, and that sustainability would help in poverty mitigation, which is also a mandate of several organizations. For example, the World Bank Group launched its Environment Strategy 2012-2022 to support “green, clean, resilient” paths for developing countries in pursuing poverty reduction and development³⁹. The United Nations Environment Programme (UNEP), being the primary promoter of SDG’s, aims to achieve goals for sustainability by 2030 through several programs with different countries.

A summary of the possible financing strategies per sector and policy area is presented in Table 8: Financing strategies per sector and policy area. below:

Table 8: Financing strategies per sector and policy area.

General Areas	Government	Private sector	Multilateral/bilateral groups
Regulation and enforcement	Capacity building and additional budget for more efficient enforcement of environment protection programs.	Programs to push for advocacy on sustainable practices	Support and initiative for research projects on monitoring and evaluation of regulation processes
Infrastructure and technology	Capacity building and additional budget for programs and projects	Provision of technology in capacity building and contributing to the seed	Support and initiative for research and evaluation of projects on feasible

³⁹ Source: <https://www.worldbank.org/en/topic/environment/publication/environment-strategy-toward-clean-green-resilient-world>

	related to green practices	funding of new innovations to the country	innovations.
Research and development	Higher priority on evidence-based policy, resulting in capacity building and more budget allocation for public R&D groups (e.g., DOST)	Initiatives for research projects to support evidence-based policies.	Support and initiative for research projects on sustainable practices.

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