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2020

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The 2020 Cordillera Administrative Region (CAR) Regional Compendium of Environment Statistics (RCES) is a publication prepared by by the Statistical Operations and Coordination Division of the Philippine Statistics Authority – Regional Statistical Services Office Cordillera Administrative Region (PSA – RSSO CAR). This edition is the first and is planned to be updated every two years.

The Cordillera Administrative Region (CAR)
Regional Compendium of Environment Statistics (RCES)
is available for purchase in printed and electronic format
(PDF in CD ROM).

For details, please contact us at (6374) 442-7449 or at
socd_psacar@yahoo.com.

Foreword

The *2020 Cordillera Administrative Region (CAR) Regional Compendium of Environment Statistics (2020 RCES)* aims to provide policymakers, program implementers and regional stakeholders with information for strategic planning, policy, program and project formulation for the management and protection of the environment and responding to environment-related issues.

The 2020 RCES is a compilation of statistics gathered from various agencies and from different statistical publications. The statistics presented in this publication are organized using the Framework for the Development of Environment Statistics (FDES) approved by the United Nations Statistical Commission in 2013 (UN FDES 2013). The framework is focused on the core set of environment statistics categorized into six components, namely: (1) environmental conditions and quality; (2) environmental resources and their use; (3) residuals; (4) extreme events and disasters; (5) human settlements and environmental health; and (6) environment protection, management and engagement.

The PSA expresses its gratitude to the Technical Working Group on Environment Statistics created by the Regional Statistics Committee (RSC), and all the data source agencies for the assistance and cooperation in the preparation of this publication. We hope our collaboration continues in our future efforts to provide timely and relevant statistics on the environment for our clients and stakeholders.

CLAIRE DENNIS S. MAPA, Ph.D.
Undersecretary
National Statistician and Civil Registrar General
Philippine Statistics Authority

Message

The *2020 Cordillera Administrative Region (CAR) Regional Compendium of Environment Statistics (RCES)* is a publication prepared by the Philippine Statistics Authority – Regional Statistical Services Office CAR (PSA-RSSO CAR) based on the United Nations Framework for the Development of Environment Statistics (FDES) 2013.

The UN FDES 2013 is a flexible, multi-purpose conceptual and statistical framework that provides systematic approach in the collection and compilation of environment statistics. RSSO CAR continues to be responsive and commit to deliver relevant and reliable statistics on environmental accounts and statistics. This effort is another milestone for RSSO CAR and the Cordillera region.

We commend Regional Director Villafe P. Alibuyog of PSA-RSSO CAR for releasing another developmental output. We thank the Technical Working Group on Environment Statistics of the CAR Regional Statistics Committee (RSC) for the unwavering support to come up with this publication.

It is hoped that this document will serve as a valuable reference in the formulation and evaluation of environmental, as well as the socioeconomic programs and policies of the Cordillera region.

ROSALINDA P. BAUTISTA
Assistant Secretary
Deputy National Statistician
Philippine Statistics Authority

Message

The Philippine Statistics Authority presents the *2020 Cordillera Administrative Region (CAR) Regional Compendium of Environment Statistics (RCES)*, the compilation of environment statistics in CAR following the United Nations Framework for the Development of Environment Statistics (FDES) 2013.

This publication provides information on the issues and aspects of environment that are relevant for policy analysis, decision-making and mainstreaming environmental concerns and cross-cutting issues such as climate change. It is focused on the discussion on the status of the environment; stocks and inventories of environmental resources; impacts of the daily activities of humans to the environment; disasters and other extreme events; the environment where we live in; and the initiatives to preserve, maintain, enhance and/or protect the environment.

Congratulations to Regional Director Villafe P. Alibuyog of PSA-RSSO CAR, and the staff of the Statistical Operations and Coordination Division (SOCD) for another output that is a result of their developmental programs in the region. This is a fruit of their firm commitment to deliver statistical products that clients and stakeholders will use for development planning not only for the environment but also for elevating the quality of life of Cordillerans as a whole.

Our sincerest gratitude to all the members of the Technical Working Group on Environment Statistics of the CAR Regional Statistics Committee (RSC) for providing assistance to the technical staff of RSSO CAR and supplying the required data for the compendium. With the strong support of our colleagues from different agencies and institutions in the region, we are expecting more fruits of our collaboration ahead.

VIVIAN R. ILARINA
Assistant National Statistician
Macroeconomic Accounts Services
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Acknowledgment

The 2020 Cordillera Administrative Region (CAR) Regional Compendium of Environment Statistics was prepared by the Statistical Operations and Coordination Division (SOCD) of Philippine Statistics Authority – Regional Statistical Services Office Cordillera Administrative Region (PSA-RSSO CAR).

The SOCD headed by Aldrin Federico R. Bahit, Jr. provided the legwork in the compilation of the compendium of environment statistics. The SOCD Technical Staff who provided technical support to the completion of the project were Camille Carla U. Beltran, Jocelyn O. Tayaban, Ma. Gina V. De Guzman, Betina Joy V. Bermillo, Warren B. Mamanteo, Brozybroz Y. Mateo, Cherry K. Dionisio, Jezl R. Boado, Kay Angelika M. Castro and Stephen Dale C. Estigoy. Jeanniel I. Barcayan led the compilation of statistics and the preparation of the publication manuscript. Winsky B. Salisa designed the cover and the graphics for the publication and led the typesetting process.

The Regional Technical Working Group (TWG) on Environment Statistics was chaired by Department of Environment and Natural Resources (DENR) represented by Cirilo M. Gali. The members of the TWG were: Myla Amogan and Mclister A. Abellera of Environmental Management Bureau (EMB); Vivian T. Romero of Mines and Geosciences Bureau (MGB); Minda S. Odsey and Winston P. Manongyao of Watershed and Water Resources Research Development and Extension Center (WWRRDEC); Charles A. Picpican and Ryan Raville of Department of Agriculture (DA); Hezel Lalugay, Laura Marie Benigno, Hector M. de Guzman, and Mary P. Tauli of Bureau of Fisheries and Aquatic Resources (BFAR); Dr. Jennifer Joyce R. Pira and Jarvis Solano of Department of Health (DOH); Department of Science and Technology- Philippine Atmospheric, Geophysical and Astronomical Services Administration (DOST-PAGASA); Jeanette R. Baldemor of Department of Transportation–Land Transportation Office (DOTr-LTO); Leonarda B. Lingayo of the National Economic and Development Authority (NEDA); Franckie Cortez and Romeo A. Jacaban Jr. of Office of Civil Defense (OCD); Georgina S. Saldo and Bernadette N. Brillantes of Baguio City Planning and Development Office; and, Rosemary G. Badival of Benguet Provincial Planning and Development Office.

This publication could not have been prepared without the support of our National Statistician and Civil Registry General, Undersecretary Claire Dennis S. Mapa; former Undersecretary, Dr. Lisa Grace S. Bersales; Assistant Secretary and Deputy National Statistician Rosalinda P. Bautista; and the full confidence given by Assistant National Statistician Vivian R. Ilarina of the Macroeconomic Accounts Service (MAS). The staff of Environment and Natural Resource Accounts Division (ENRAD) of MAS led by Virginia M. Bathan also offered their technical expertise. We extend our appreciation to all involved.

VILLAFE P. ALIBUYOG
Vice-chairperson, CAR Regional Statistics Committee
Regional Director, PSA-RSSO CAR

LIST OF DATA SOURCES

City Environment and Parks Management Office, Baguio City

Department of Environment and Natural Resources

- Department of Environment and Natural Resources - Cordillera Administrative Region
- Environmental Management Bureau
- Forest Management Bureau
- Mines and Geosciences Bureau
- National Mapping and Resource Information Authority

Department of Health - Cordillera Administrative Region

Department of Science and Technology

- Philippine Atmospheric, Geophysical and Astronomical Services Administration

Department of Transportation - Cordillera Administrative Region

Office of Civil Defense - Cordillera Administrative Region

Philippine Statistics Authority

- Philippine Statistics Authority - Cordillera Administrative Region

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List of Acronyms and Abbreviations

BOD	Biochemical Oxygen Demand
CAR	Cordillera Administrative Region
CO	carbon monoxide
CO_2	carbon dioxide
cu. m.	cubic meter
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DO	dissolved oxygen
DOE	Department of Energy
DOH	Department of Health
DOST	Department of Science and Technology
DOTr	Department of Transportation
DPWH	Department of Public Works and Highways
EMB	Environmental Management Bureau
ENRA	Environment and Natural Resources Accounting
ENRAP	Environmental and Natural Resources Accounting Project
FAO	Food and Agriculture Organization
FMB	Forest Management Bureau
GWh	gigawatt-hour
ha	hectares
IRR	Implementing Rules and Regulations
kg	kilogram
km^2	square kilometer
LGU	Local Government Unit
lps	liters per second
LTO	Land Transportation Office
mcm	million cubic meters
mg/L	milligrams per liter
mg-N/L	milligrams-Nitrogen per liter
MGB	Mines and Geosciences Bureau
mm	millimeters
MT	metric tons
NAMRIA	National Mapping and Resource Information Authority
NEDA	National Economic and Development Authority
NIA	National Irrigation Authority
NIPAS	National Integrated Protected Area System
NO_x	nitrogen oxide
NO_2	nitrogen dioxide
NSCB	National Statistical Coordination Board
NSWMC	National Solid Waste Management Commission
NWRB	National Water Resources Board
O_3	ozone

OCD	Office of Civil Defense
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PEENRA	Philippine Economic-Environment and Natural Resources Accounting
PM_{10}	particulate matter 10
$PM_{2.5}$	particulate matter 2.5
ppm	parts per million
PSA	Philippine Statistics Authority
R.A.	Republic Act
SEEA	System of Environmental-Economic Accounting
SNA	System of National Accounts
SO_x	sulfur oxide
sq.m.	square meter
ug/ncm	microgram per normal cubic meter
UN	United Nations
UNDP	United Nations Development Programme
UNFDES	United Nations Framework for the Development of Environment Statistics
UNSD	United Nations Statistics Division

Introduction

The history of the compilation of environment statistics and environment accounts in the Cordillera Administrative Region (CAR) started with the initiative of the former National Statistical Coordination Board (NSCB) to compile environmental accounts through the Environment and Natural Resource Accounting Project (ENRAP) II in 1998. The "Environmental and Natural Resource Accounting: The Cordillera Experience" was published in 2001 as an output of the project with five chapters focusing on the following asset accounts: (a) forest resources; (b) mineral resources; (c) land and soil resources; (d) water resources; and a chapter on activity purpose accounts on (e) environmental degradation due to cabbage production.

The ENRAP Phase II: Institutionalization of Philippine Economic-Environment and Natural Resource Accounting (PEENRA) System implemented by the then NSCB was under the United Nations Development Programme's (UNDP) Country Programme on Integrated Environmental Management for Sustainable Development (IEMSD). The Environmental and Natural Resources Accounting (ENRA) component of the programme adopted the UN System of Integrated Environmental and Economic Accounting (1993 SEEA) framework, a satellite accounting framework of the System of National Accounts (SNA).

The environmental accounting projects of the NSCB with close collaboration of the Department of Environment and Natural Resources (DENR) paved way for the establishment of databank for environmental accounts and other environmental-related statistics as result of the compilation process.

In 2016, the Philippine Statistics Authority – Regional Statistical Services Office (RSSO) CAR attended a training on the System of Environmental-Economic Accounting (SEEA) 2012 – Central Framework. As a result of the training, RSSO CAR pursued the compilation of Asset Accounts for Land and Timber Resources during the same year covering the period 1999 to 2015. The project was followed by the preparation of Asset Accounts for Mineral Resources which began in the latter part of 2017 until December 2018 when the results of the study were disseminated. The Land and Timber Accounts were also updated in 2018 incorporating the 2015 land cover of the region released by the National Mapping and Resource Information Authority (NAMRIA).

The Training on the United Nations Framework for the Development of Environment Statistics (UN FDES) 2013 was also conducted in the region in February 2018 with resource persons from the Macroeconomic Accounts Service (MAS) – Environment and Natural Resources Accounts Division (ENRAD). Having produced the outputs on mineral accounts and the updates on land and timber accounts, this 2019, the region programmed the preparation of the Regional Compendium of Environment Statistics (RCES) following the UN FDES 2013 and the compilation of Physical Asset and Flow Accounts for Water Resources as developmental projects.

In line with this, the Regional Statistics Committee – CAR passed a resolution on its 2019 first quarter meeting entitled "Creation of the Regional Technical Working Group (TWG) on Environment Statistics" to assist the implementation and adoption of the UN FDES 2013 in the region. This will also facilitate the collection of environment statistics and the preparation of the compendium. Despite the difficulty in the data collection and standardization of terminologies, the region was able to establish the coordinating mechanism for the completion of the project. The compendium is the first of its kind in the region.

The UN FDES 2013 provides a systematic approach in the collection and compilation of environment statistics. It serves as an integration framework for data collectors and providers to optimize the utilization of their statistics in the formulation and evaluation of socioeconomic and environmental programs and policies. FDES brings to the fore the discussion on the status of the environment, stocks and inventories of resources, impact of daily activities of humans to the environment, disasters and other extreme events, the environment where we live and the initiatives to preserve, maintain, enhance and/or protect the environment.

This compendium is a compilation of the core set of environment statistics and other environment indicators based on the Basic Set of Environment Statistics of the UN FDES 2013. The Basic Set of Environment Statistics were organized into six components, namely: (1) environmental conditions and quality; (2)

environmental resourses and their use; (3) residuals; (4) extreme events and disasters; (5) human settlements and environmental health; and (6) environment protection, management and engagement. The Core Set is limited set of environment statistics that are considered high priority and are relevant to most countries.

There are 100 core set statistics identified in the FDES spread over the six components. Component 1 has 32; Component 2, 30; Component 3, 19; Component 4, four; Component 5, 12; and Component 6, three. Due to limited data, RSSO CAR compiled only 50 core set statistics. Fifteen core statistics were compiled for Component 1; fifteen for Component 2; nine for Component 3; two for Component 4; seven for Component 5; and two for Component 6.

This publication includes a glossary of terms to guide the users of this document in understanding environmental concepts and terminologies. As work on the improvement and institutionalization of FDES continues in the region, it is aimed that the coverage in upcoming editions will be expanded to compile the statistics in tiers 2 and 3, and that the publication will use terminologies that conform with internationally-accepted definitions but are still relevant to the local situation.

Table 1: Tier 1, 2 and 3 Statistics in FDES and RCES by Component

	Tier	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6
FDES	Tier 1	32	30	19	4	12	3
	Tier 2	55	53	34	11	22	24
	Tier 3	54	41	5	16	20	23
RCES	Tier 1	15	15	9	2	7	2
	Tier 2	4	1	0	2	0	0
	Tier 3	2	0	0	0	0	0

Source: FDES 2013 and RCES 2020

The 2013 Framework for the Development of Environment Statistics (FDES)[1]

The Framework for the Development of Environment Statistics (FDES) was first published in 1984 by the United Nations Statistics Division (UNSD). The 1984 FDES has been a useful framework for guiding countries in the development of their environment statistics programmes. It relates the components of the environment (Flora, Fauna, Atmosphere, Water Land and Soil, Mineral and Energy Resources and Human Settlements) to four information categories namely: (1) Social and economic activities and natural events; (2) Environmental impacts of activities and events; (3) Responses to environmental impacts; and, (4) Stocks and inventories.

Since its publication, there have been many scientific, political, technological, statistical, experience-based developments and more particularly environmental concerns which suggested for the revision of the FDES. As a consequence, the United Nations Statistical Commission, at its 41st session (23-26 February 2010), endorsed a work programme and the establishment of an Expert Group for the revision of the FDES and the development of a Core Set of Environment Statistics. The forty fourth (44th) session of the Statistical Commission endorsed the revised FDES as a useful tool to adequately respond to the increasing demand for information in the follow-up to Rio+20 and the post 2015 development agenda (including Sustainable Development Goals).

The FDES is based on a conceptual foundation that considers people and their demographic, social and economic activities (the human sub-system) as integral parts of, and interacting with, the environment.

FDES 2013 is a flexible, multi-purpose conceptual and statistical framework that is comprehensive and integrative in nature and marks out the scope of environment statistics. It provides an organizing structure to guide the collection and compilation of environment statistics at the national level, bringing together data from the various relevant subject areas and sources. It is broad, comprehensive and integrative. It covers the issues and aspects of the environment that are relevant for policy analysis and decision making and it can be applied to inform about cross-cutting issues such as climate change.

It is expected to contribute significantly to improve monitoring and measurement of the environmental dimension of sustainable development and to the post-2015 development agenda. The use of the FDES 2013 in national statistical systems will enhance developments in this field of statistics, as it is both a multi-purpose and flexible tool that can be tailored to specific environmental policy concerns and priorities of the countries, as well as accommodate different levels of statistical development.

The FDES 2013 covers issues and aspects of the environment that are relevant for analysis, policy and decision making. It is designed to assist countries in the formulation of environment statistics programmes by: (i) delineating the scope of environment statistics and identifying its constituents; (ii) contributing to the assessment of data requirements, sources, availability and gaps; (iii) guiding the development of multipurpose data collection processes and databases; and (iv) assisting in the co-ordination and organization of environment statistics, given the inter-institutional nature of the domain.

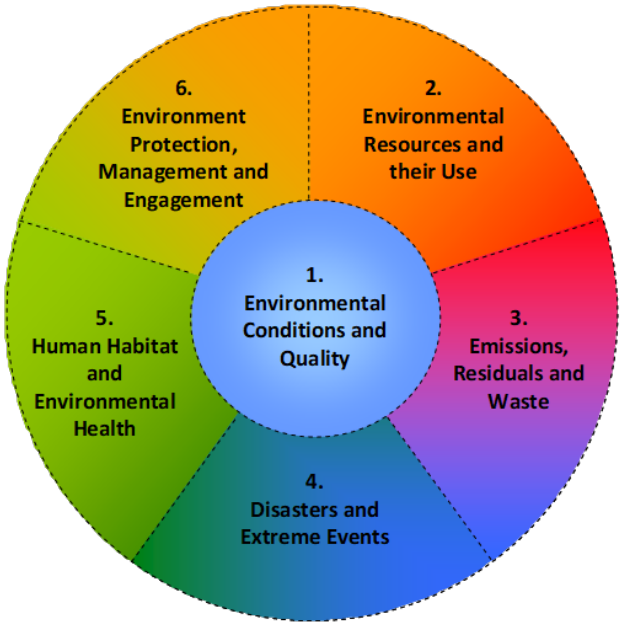
It organizes environment statistics into a structure of six components (see Figure 1). The first component brings together statistics related to the conditions and quality of the environment and their change. The second component groups together statistics related to environmental resources and their use (ecosystem provisioning services, land and subsoil resources). The third component includes statistics related to the use of regulating services of the environment for the discharge of residuals from production and consumption processes. Statistics related to extreme events and disasters (both natural and technological) and their impacts are covered by the fourth component. The fifth component consists of statistics related to human settlements and environmental health. The sixth component groups statistics relevant to societal responses and economic measures aimed at protecting the environment and managing environmental resources. Environmental

[1] Lifted from United Nations 2013 Framework for the Development of Environment Statistics (FDES)

conditions and quality (Component 1) is at the center of the FDES. The other five components have been set up based on their relationship with the central Component 1.

Each of the components is broken down into subcomponents that in turn contain relevant statistical topics. The statistical topics represent the measurable aspects of the components of the FDES taking into account the types and sources of the data needed for their description. The final level contains the actual individual environment statistics.

Figure 1. Structure of FDES 2013



The FDES lists the most important environment statistics to describe the statistical topics thus providing guidance to countries developing national environment statistics programs. The statistics included in the Basic Set are comprehensive but neither are exhaustive nor the only possible ones for assessment of the statistical topics. They should be considered a set of statistics which can assist in making decisions on priorities for statistical development. In order to do so, the Basic Set of Environment Statistics has been set up following a progression of three tiers, based on the level of relevance, availability and methodological development of the statistics.

Tier 1 is the Core Set of Environment Statistics which represents a broad consensus of opinion on the pertinence and feasibility of these statistics; as such, it is intended to foster collection, coordination and harmonization of environment statistics at the national, regional and international levels. The objective of the Core Set is to serve as an agreed, limited set of environment statistics that are of high priority and relevance to most countries.

Tier 2 includes environment statistics which are of priority and relevance to most countries but need more significant investment in time, resources or methodological development, so countries are recommended to consider producing them in the medium-term.

Tier 3 includes environment statistics which are either of less priority or require significant methodological development, so countries are recommended to consider producing them in the long-term.

The statistical topics in the FDES, and the underlying environment statistics in the Core Set of Environment Statistics and the Basic Set of Environment Statistics, can be combined and reorganized in different ways according to specific analytical needs and policy requirements e.g., climate change, energy and the environment, agriculture and environment, sustainable management of natural resources or environmental impacts of specific activities, i.e., tourism, poverty, manufacturing, etc. This is an inherent aspect of the design of the FDES as a flexible multi-purpose framework.

Compilation of environment statistics focused on a particular cross-cutting issue should commence with the understanding of the scientific background, underlying processes and cause-effect relationships. Furthermore, it is necessary to analyze and understand its relevance to the country and to particular sub-national areas, productive sectors and social groups, its national policy implications and commitments, as well as the institutional aspects and the international context. The statistics for describing the selected cross-cutting issues should be organized based on a logical sequence of events that illustrate the relevant related processes. These sequences resemble the occurrence of events, according to the nature of the issue itself. In each case, the correspondence of these sequences with the FDES structure is described.

Mystical Lake
Kabayan, Benguet
Photo by: Winsky Salisa

ENVIRONMENTAL CONDITIONS AND QUALITY

The Cordillera Administrative Region is known to be the Watershed Cradle of North Luzon. The region has rich biodiversity and abounds with natural resources that provide services to the community. The national and subnational policymakers, program implementers and environmental managers have all been working together to preserve, sustain and further enhance the state of environment. However, the increasing demand for agricultural and industrial development and other economic activities pose a threat on the region's environment and natural resources if left unchecked and unmanaged.

Component one presents the condition and quality of environment and natural resources of the region. It includes statistics on the meteorological, hydrographical, geological, geographical, biological, and physical and chemical characteristics of the environment, and their changes over time.

The compiled statistics for Component One can be used to monitor the Sustainable Development Goals (SDGs) indicators. These include the following: Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture; Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; Goal 13: Take urgent action to combat climate change and its impacts; and Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (Sustainable Development Knowledge Platform).

There are 32 core statistics in Component 1 of FDES. However, this publication only compiled 15 core statistics as availability is limited. Data on major ecosystems and biodiversity in the region were still unavailable in the region. Moreover, indicators used to measure air quality and waste are some of the statistics that were not yet included due to irregularity of the data collection and/or only recently adopted.

1.1. Physical conditions

This subcomponent captures the physical aspect of the environment focusing on statistics on meteorological, hydrophysical, geological and geographical conditions, and soil characteristics. The compiled data in this subcomponent suggests the status of the region's environment. These statistics provide information to program planners and policymakers on specific measures on effective and efficient environment-related programs and/or policies.

The main sources of data for this subcomponent were the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the Department of Environment and Natural Resources (DENR).

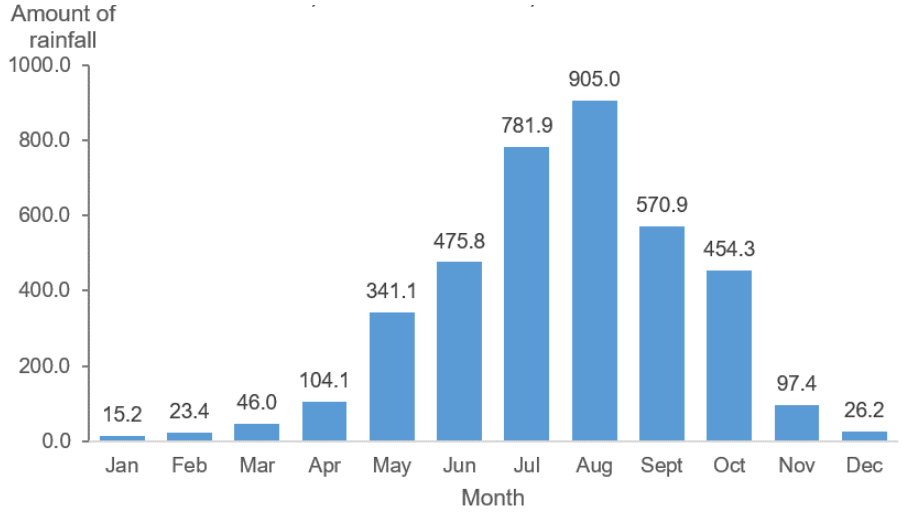
1.1.1. Atmosphere, climate and weather

The region is known for its cool climate due to its high mean elevation. The provinces of Abra and Benguet fall within the first climatic type characterized by two distinct seasons; dry season from November to April and wet season for the rest of the year. The provinces of Apayao, Mt. Province, Ifugao and Kalinga are within the third climatic type where seasons are not pronounced but are relatively dry from November to April and wet for the rest of the year. Some parts of Apayao is covered under the second and fourth climatic type where climate has no dry season but is marked with maximum rainfall

in November and December and where climate has an even distribution of rainfall throughout the year.

The average monthly rainfall based on the 1981 to 2010 data of PAGASA revealed that during the month of August received the largest amount of rainwater. Third quarter had the highest combined amount of rainfall at 2,257.8 mm, while first quarter had the lowest at 84.6 mm.

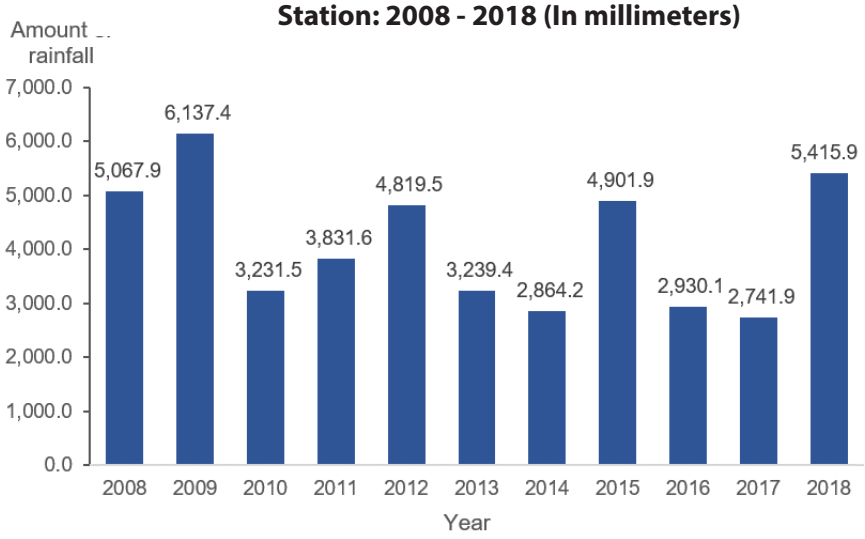
Figure 1.1 Average Monthly Rainfall, Baguio City Monitoring Station: 1981 - 2010 (In millimeters)



Source of basic data: : Philippine Atmospheric, Geophysical and Astronomical Services Administration

From 2008 to 2018, the trend of the annual average rainfall data exhibited an erratic movement. The highest amount of rainfall was recorded in 2009 at 6,137.4 mm. The lowest amount of rainfall was recorded in 2017 at 2,741.9 mm with a sharp increase in rainfall in 2018 (5,415.9 mm) with almost twice than the previous year.

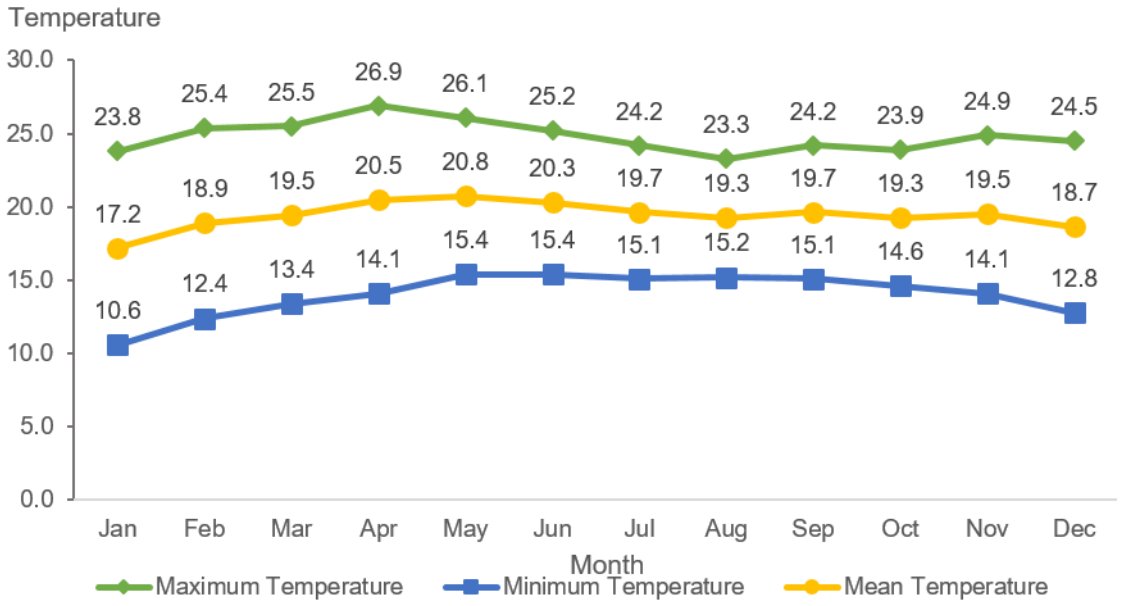
Figure 1.2 Annual Average Rainfall, Baguio Monitoring Station: 2008 - 2018 (In millimeters)



Source of basic data: : Philippine Atmospheric, Geophysical and Astronomical Services Administration

Maximum monthly temperature data ranges from 23.3 degrees Celsius to 26.9 degrees Celsius. Based on the maximum temperature, the hottest months were March, April and May. On the other hand, the minimum monthly temperature ranges from 10.6 degrees Celsius to 15.4 degrees Celsius. The coldest months were in December, January and February.

Figure 1.3 Monthly Maximum, Minimum and Mean Temperature, Baguio City Monitoring Station: 2008-2018, (In degrees Celsius)



Source of basic data: : Philippine Atmospheric, Geophysical and Astronomical Services Administration

1.1.2. Hydrographical characteristics

Cordillera is the only land-locked region in the Philippines and it hosts 13 major river basins with an estimated drainage area of 18,293 square kilometers; and home to 46 major proclaimed forests and watersheds. These river systems and watersheds are the sources of water for irrigating agricultural lands, for generating electricity, for the needs of various industry and other economic purposes including household activities.

1.1.3. Geological and geographical information

The region has six provinces – Abra, Apayao, Benguet, Ifugao, Kalinga and Mountain Province; and two cities – the chartered city of Baguio in Benguet and the component city of Tabuk in Kalinga. The region's total land area is 1,865,660 hectares comprising 6.2 percent of the total land area of the country. It has a mountainous topography characterized by towering peaks, plateaus and intermittent patches of valleys. About 71 percent of the region's land area has slopes of 30 degrees and above. [2]

1.1.4. Soil characteristics

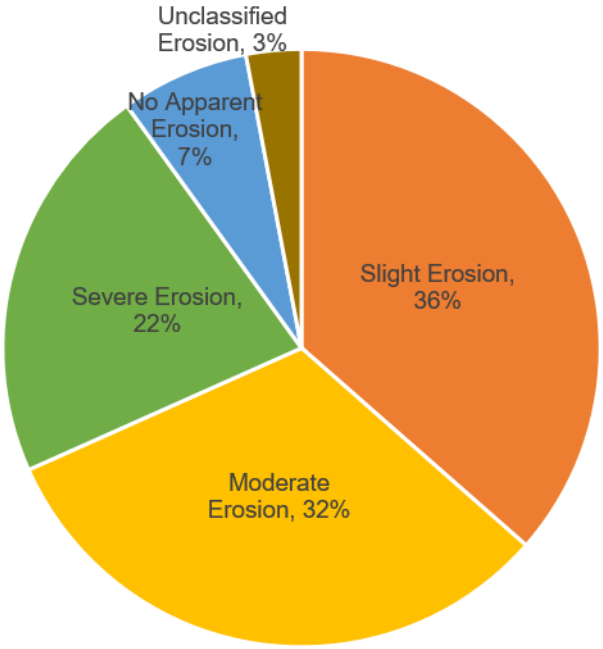
The region is composed of various soil types dominated by mountain soil and clay loam which indicates the land suitability for cultivation. The region comprises of 53 percent mountain soils, 17 percent clay loam, 9 percent clay, 4 percent loam and 17 percent other soil types. [3]

Human activities such as land use conversion, deforestation and illegal logging, kaingin, and other unsustainable farming practices, and poor land and water management have caused the quality of soil to decline contributing to soil degradation. Food and Agriculture Organization (FAO) of the UN defined soil degradation as the change in soil health status resulting in a diminished capacity to provide goods and services.

Soil erosion is the most common type of soil degradation. Based on the data of DENR, majority of the land area of the region are susceptible in slight erosion (36%). There are also areas susceptible to moderate (32%) and severe erosion (22%).

[2]Status of Forest
[3]Status of Forest

Figure 1.4 Distribution of Areas Susceptible to Erosion by Class, CAR: 2019



Source of basic data: Department of Environment and Natural Resources

1.2. Land cover, ecosystem and biodiversity

This subcomponent presents the relationship of data on land cover, ecosystems and biodiversity, as well as the observed changes over time and across locations. The Food and Agriculture Organization (FAO) defined land cover as the observed (bio)physical cover of the earth's surface. It is one of the indicators of ecosystem type. Ecosystems are community of organisms which have interacting and interdependent relationship. Biodiversity, a measure of ecosystem health, is the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, including biodiversity within species, between species and of ecosystems. Biodiversity is a fundamental characteristic of ecosystems, while variability among ecosystems is a fundamental driver of biodiversity.

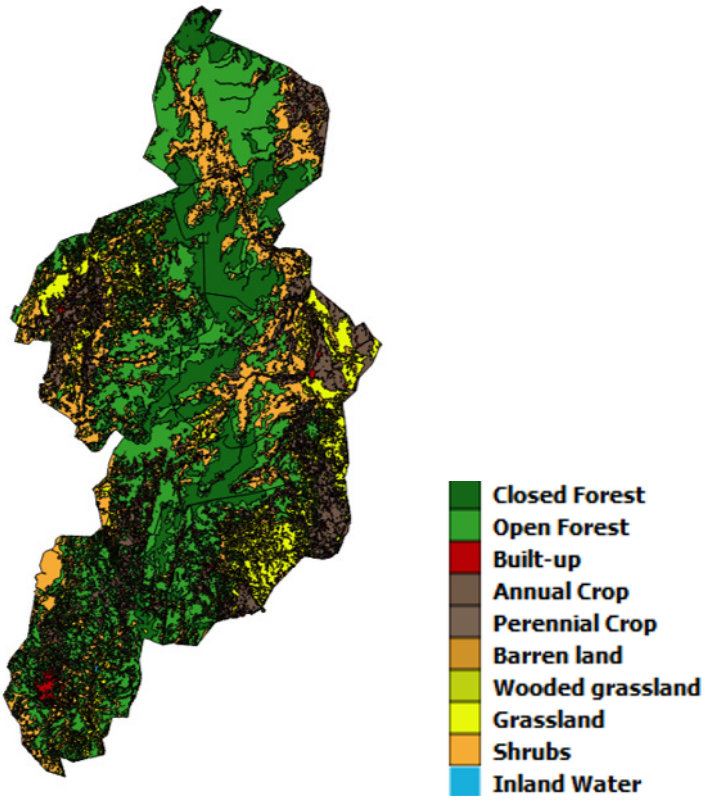
Data compiled for this subcomponent are sourced from the National Mapping and Resource Information Authority (NAMRIA) and DENR.

1.2.1. Land Cover

The 2015 Land Cover map of CAR is the result of the latest national mapping activity carried out by NAMRIA generated by interpreting satellite images captured from Landsat 8 with 30-meter resolution and Google Earth. The land cover classification
follows the DENR Department Memorandum Circular 2005-05: Adopting Forestry Definitions Concerning Forest Cover/Land Use and the Forest Resources Assessment (FRA) of the Food and Agriculture Organization (FAO) of the UN. The classification is aggregated into 12 categories – Closed forest, Open forest, Annual crop, Perennial crop, Wooded grassland, Shrubs, Grassland, Built-up area, Fallow, Fishpond, Barren land, and Inland water.

In 2015, forest cover of the region composed of 832,335 hectares, other wooded land covered 520,503 hectares, agricultural land covered 250,242 hectares, other natural land composed of 214,545 hectares, built-up area covered 23,809 hectares and inland water including fishpond covered 24,225 hectares.

Figure 1.5 CAR Land Cover: 2015



Source: National Mapping and Resource Information Authority, DENR

1.2.2. Ecosystems and biodiversity

The region has a unique vegetation and is endowed with various varieties of flora and fauna. Biodiversity is a source of value in forest, first, that it participates directly in production such as wood, hunting, and forest amenities and in regulating production such as resilience in the face of hazards and uncertainties, and in adapting to changes. Many services rendered by the forest ecosystem often depend on biodiversity and thus reduce its value. Second, its value lies in its non-market features such as culture, landscapes, philosophical and moral issues. But its value can be generally estimated by its replacement value which could run to hundreds of billions of pesos to restore the biodiversity of Cordillera region alone. It could be sufficient to emphasize that human beings could not survive without the basic services provided by the natural ecosystems and the biodiversity that constitute them

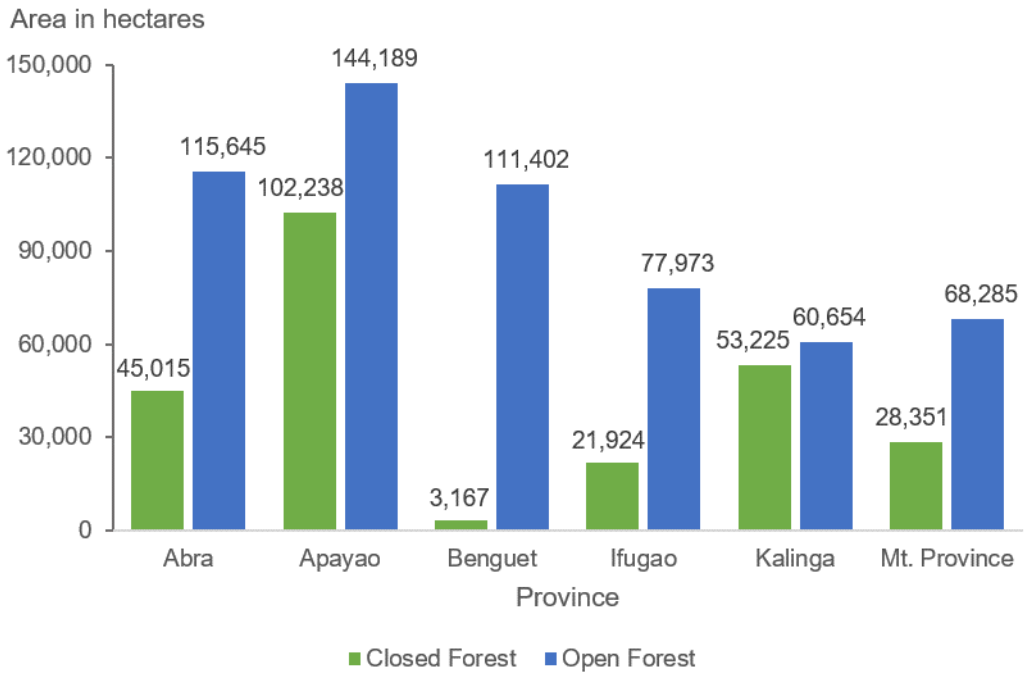
1.2.3. Forests

1.2.3.1. Forest cover

Forest cover in the region is further categorized into three types namely, (1) Closed forest, where tree formations cover a high proportion exceeding 40 percent of the ground; (2) Open forest where tree formations cover at least 10 percent and less than 40 percent; and (3) Plantation forest where forest stands are established by planting or/and seeding.

The area of natural forests is largest in the province of Apayao both in closed and open forests with 110,356 hectares and 146,808 hectares, respectively. Benguet had the smallest area of natural closed forest with 7,670 hectares while Kalinga had the smallest area of open forests with 50,042 hectares.

Figure 1.6 Area of Natural Forests by Province, CAR 2015

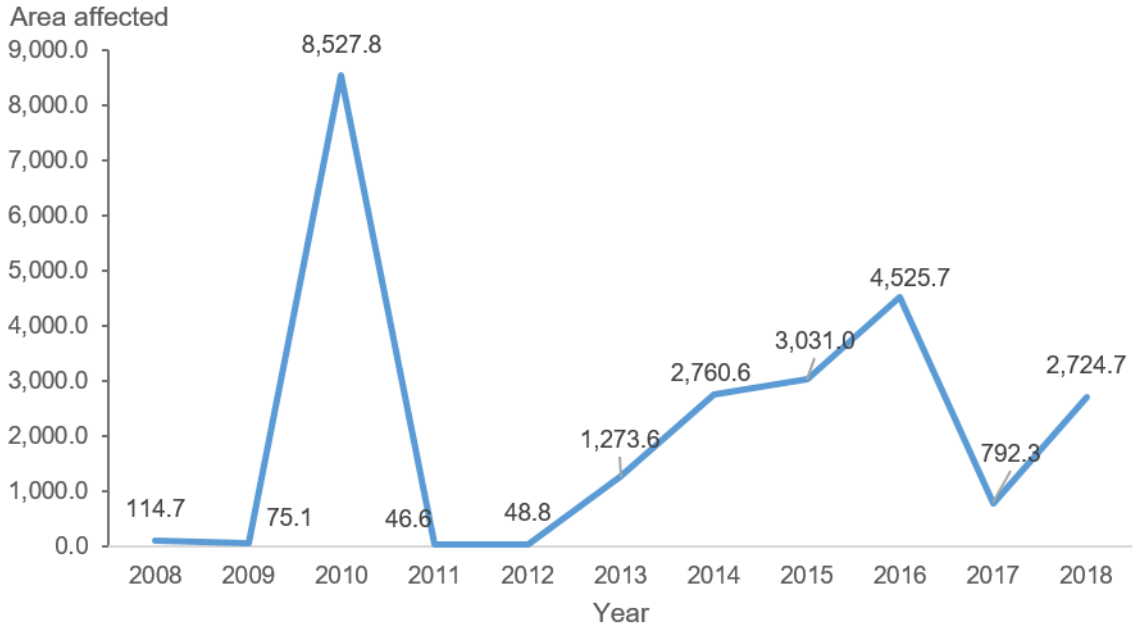


Source of basic data: Department of Environment and Natural Resources

1.2.3.2. Forest disturbances

Forest disturbances, as illustrated in Figure 1.7, peaked in 2010 affecting 8,527.8 hectares of which 96.4 percent or 8,216.6 hectares were affected by forest fires. The total forest disturbances during the period registered a total of 23,920.7 hectares.

Figure 1.7 Forest Disturbances, CAR: 2008-2018 (In hectares)



Source of basic data: Department of Environment and Natural Resources

1.3. Environmental quality

This subcomponent talks about the concentration of pollutants in the environment which comes from combined and cumulative impacts of human activities and natural processes. Statistics on environmental quality are important in monitoring the impacts of pollution to human sub-system and ecosystems.

The Air Quality Management Section and the Water Quality Management Section of the Environmental Management Bureau (EMB) served as the main sources of data for this subcomponent.

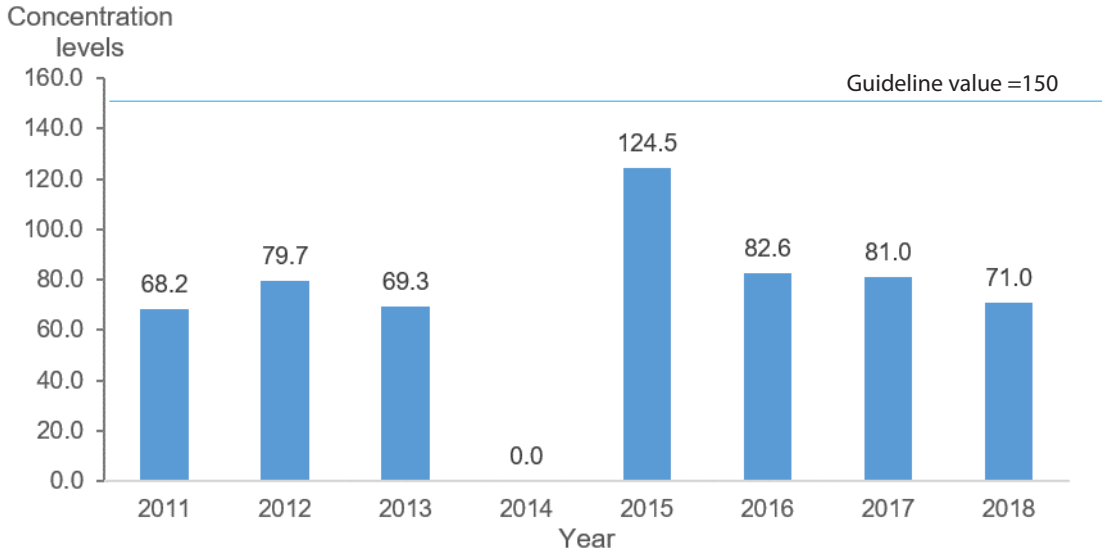
1.3.1. Air quality

Pursuant to RA No. 8749, or the Philippine Clean Air Act of 1999, the pollutants monitored to measure ambient air quality include pollutants at various concentrations, including but not limited to Total Suspended Particulate Matter (TSP), Particulate Matter with mass median diameter less than 25-50 µm matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), sulphur dioxide (SO_2), nitrogen dioxides (NO_2), and Photochemical Oxidants as Ozone (O_3).

The statistics compiled for this subcomponent are concentration of air pollutants, suspended solid particles, and other gases. These statistics are important to assess the effects of air quality to human and ecosystem health. The monitoring stations are strategically situated mostly in areas near the major sources of pollution to measure the air quality.

Concentration levels of PM_{10} is the only statistics collected for this topic. Also, only one monitoring station was cited for the report. The facility at Lower Session Road reported the highest level of concentration of PM_{10} in 2015 with 124.5 in micrograms per normal cubic meter and the lowest in 2013 with 69.3 in micrograms per normal cubic meter for the period 2011 to 2018. In 2018, the level of concentration is at 71.0 in micrograms per normal cubic meter. The reported concentration levels from 2011 to 2018 were below the guideline value of 150 micrograms per normal cubic meter which means that the air quality is generally good. There was no reported measure of PM_{10} for the year 2014.

Figure 1.8 Concentration Levels of Particulate Matter 10 (PM_{10}), Baguio City, 2011 to 2018, in micrograms per normal cubic meter



Source of basic data: Environmental Management Bureau – CAR

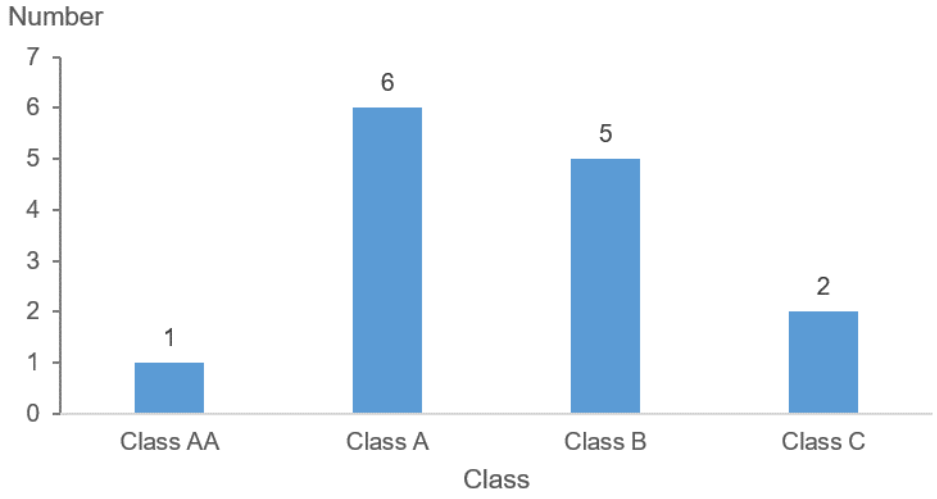
1.3.2. Water quality

There are 14 fresh water bodies in CAR being monitored by Environmental Management Bureau for standards of water quality. One out of the 14 water bodies was classified as Class AA (Ambulalacao Lake); six were categorized

in Class A (Abra River, Agno River, Chico River, Alenod River, Eddet River and Balili River); five belong to Class B (Pugo River, Amburayan River, Budacao River, Depanay River, and Asin Gallano River); and the remaining two were in Class C (Bued River and Ambalanga River).

The results of the 2018 monitoring reports revealed that 100 percent of the water bodies being monitored passed the water quality standards for Dissolved Oxygen (DO), however, two out of the 14 water bodies, namely Bued River and Balili River failed the standards on Biochemical Oxygen Demand (BOD).

Figure 1.9 Class of Selected Fresh Water Bodies in CAR: 2018



Source of basic data: Environmental Management Bureau

Half of the monitored fresh water bodies in CAR passed both standards in DO BOD during the period covered from 2008 to 2018. These water bodies are Ambulalacao Lake, Chico River, Budacao River, Alenod River, Ambalanga River, Eddet River and Asin Gallano River, although Ambulalacao Lake and Chico River have missing data due to unavailability.

DO and BOD concentration levels are interrelated. The higher the BOD, the faster the oxygen is depleted and the lesser the oxygen is available in the water. Furthermore, low levels of dissolved oxygen may mean non-survival of organisms. Consistent and up-to- date monitoring and recording of concentration levels of various water pollutants is needed to properly assess implementation and management of programs related to the Clean Water Act.

Tappiyah Falls
Banaue, Ifugao
Photo by: Winsky Salisa

STATISTICAL TABLES
Environmental Conditions and Quality

Table 1.1
Climatological Normals By Month, Baguio City
1981 to 2010

Month	Amount (mm)	No. of RD	Max (°C)	Min (°C)	Mean (°C)	Dry Bulb (°C)	Wet Bulb (°C)	Dew Pt. (°C)	Vapor Pressure (mbs)
January	15.2	3	23.3	12.9	18.1	17.1	15.5	14.5	16.5
February	23.4	3	24.1	13.4	18.7	17.7	16.0	15.0	17.0
March	46.0	5	25.2	14.5	19.9	18.9	17.0	15.9	18.1
April	104.1	9	25.8	15.9	20.8	20.0	18.2	17.3	19.7
May	341.1	20	25.0	16.4	20.7	19.8	18.4	17.7	20.2
June	475.8	22	24.4	16.5	20.5	19.6	18.4	17.8	20.3
July	781.9	26	23.4	16.3	19.8	19.0	18.1	17.6	20.2
August	905.0	27	22.6	16.2	19.4	18.7	17.9	17.5	20.0
September	570.9	24	23.4	16.0	19.7	18.9	17.9	17.3	19.8
October	454.3	17	23.9	15.7	19.8	19.0	17.8	17.1	19.6
November	97.4	8	24.1	15.1	19.6	18.7	17.2	16.4	18.6
December	26.2	4	23.5	13.7	18.6	17.7	16.0	15.0	17.0

Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

Table 1.1
Climatological Normals By Month, Baguio City
1981 to 2010
(continued)

Month	Rel. Hum. %	MSLP (MBS)	DIR (16pt)	SPD (mps)	Cloud Amount (okta)
January	85	1011.7	SE	2	5
February	84	1011.3	SE	2	5
March	83	1010.3	SE	2	5
April	84	1008.9	SE	2	5
May	88	1007.7	SE	2	6
June	89	1007.0	SE	2	7
July	92	1006.6	SE	2	7
August	93	1006.3	SE	2	7
September	91	1007.1	SE	2	7
October	89	1008.0	SE	2	6
November	86	1009.3	SE	2	5
December	84	1011.0	SE	2	5

Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

Table 1.2
Climatological Extremes, Baguio City
as of 2010

Month	Temperature				Temperature		Highest Wind (mps)		
	High	Date	Low	Date	Amount	Date	SPD	DIR	Date
January	26.7	01-31-1978	6.3	01-18-1961	107.4	01-25-2006	20	SE	01-25-1975
February	28.7	02-10-1978	6.7	02-01-1963	58.2	02-28-1989	15	ESE	02-13-1974
March	30.4	03-15-1988	7.4	03-01-1963	80.6	03-27-2001	17	ESE	03-28-1996
April	30.0	04-28-1995	10.0	04-01-1923	147.7	04-08-1967	25	SW	04-25-1976
May	29.4	05-09-2003	7.7	05-30-1989	730.3	05-30-1989	27	SE	05-02-1978
June	28.7	06-03-1991	11.8	06-20-2014	538.4	06-29-2004	35	WNW	06-27-1993
July	27.9	07-04-1983	12.5	07-08-1925	1085.8	07-04-2001	47	SE	07-20-1974
August	27.7	08-30-1988	12.8	08-12-1936	648.0	08-02-1935	31	S	08-07-1964
September	28.0	09-04-1981	12.6	09-01-1990	799.8	09-27-1911	38	S	09-11-1970
October	27.7	10-08-1980	11.3	10-26-1913	994.6	10-14-1998	41	WNW	10-27-1974
November	28.2	11-19-1987	9.2	11-30-1989	698.7	11-05-1980	41	SE	11-04-1967
December	28.2	12-19-1987	7.6	12-13-1991	149.8	12-04-1936	30	SSE	12-02-2004

Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

Table 1.3 Annual Amount of Rainfall by Month, Baguio City Monitoring Station 2008 to 2018 (in millimeters)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2008	24.0	97.0	78.7	149.8	839.7	307.0	681.2	1,869.5	760.4
2009	7.2	64.5	82.9	407.3	398.5	810.0	758.4	1,087.7	516.9
2010	T	T	15.3	148.6	242.6	254.0	543.7	536.6	296.8
2011	96.0	13.8	93.4	11.9	462.5	529.1	427.5	1,096.3	619.7
2012	17.5	80.8	151.9	72.6	187.7	659.0	1,020.0	2,200.7	288.3
2013	11.4	26.8	63.6	70.3	338.7	232.8	368.2	1,220.4	590.1
2014	-	T	5.9	126.3	213.0	401.7	444.2	531.9	985.4
2015	11.3	7.3	57.1	121.8	245.5	282.5	1,493.9	1,031.6	263.6
2016	5.2	4.2	9.4	62.0	213.3	176.3	426.8	955.6	412.1
2017	39.9	71.5	4.7	61.3	570.1	208.5	751.0	449.6	206.9
2018	15.2	1.2	5.8	204.0	283.2	552.6	1,002.5	1,822.6	1,219.6

Note: T means trace
Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

Table 1.3 Annual Amount of Rainfall by Month, Baguio City Monitoring Station 2008 to 2018 (in millimeters)
(continued)

Year	Oct	Nov	Dec	Annual
2008	178.0	82.6	T	5,067.9
2009	1,981.8	22.2	-	6,137.4
2010	920.1	226.4	47.4	3,231.5
2011	332.4	81.6	67.4	3,831.6
2012	72.4	57.8	10.8	4,819.5
2013	240.0	53.5	23.6	3,239.4
2014	107.1	39.2	9.5	2,864.2
2015	1,212.2	8.0	167.1	4,901.9
2016	583.2	...	82.0	2,930.1
2017	230.0	120.0	28.4	2,741.9
2018	268.6	17.8	22.8	5,415.9

Note: T means trace
Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

Table 1.4
Annual Temperature Data by Month, Baguio City Monitoring Station
2008 to 2018
(in degrees Celsius)

Year	Levels	Jan	Feb	Mar	Apr	May
2008	Maxium Temperature	23.3	22.4	23.6	24.3	22.8
	Minimum Temperature	14.1	13.7	14.2	15.9	15.7
	Mean Temperature	18.7	18.1	18.9	20.1	19.3
2009	Maxium Temperature	22.7	24.2	24.6	23.7	23.5
	Minimum Temperature	12.9	14.8	15.9	16.0	16.2
	Mean Temperature	17.8	19.5	20.3	19.9	19.9
2010	Maxium Temperature	23.3	24.9	25.5	26.9	26.1
	Minimum Temperature	12.9	13.8	14.4	15.9	16.6
	Mean Temperature	18.1	19.4	20.0	21.4	21.4
2011	Maxium Temperature	22.8	23.6	24.4	25.7	25.0
	Minimum Temperature	12.3	12.6	13.4	14.1	15.4
	Mean Temperature	17.6	18.1	18.9	19.9	20.2
2012	Maxium Temperature	23.8	23.7	24.7	26.2	25.6
	Minimum Temperature	12.9	13.2	13.8	14.8	15.4
	Mean Temperature	18.4	18.5	19.3	20.5	20.5
2013	Maxium Temperature	23.8	25.4	25.5	26.7	25.1
	Minimum Temperature	12.4	13.9	15.0	16.1	16.3
	Mean Temperature	18.1	19.7	20.3	21.4	20.7
2014	Maxium Temperature	21.0	22.3	24.1	24.4	25.0
	Minimum Temperature	10.6	12.4	13.9	15.8	16.5
	Mean Temperature	15.8	17.4	19.0	20.1	20.8
2015	Maxium Temperature	21.8	22.1	23.8	24.4	24.5
	Minimum Temperature	12.1	13.0	14.2	15.7	16.6
	Mean Temperature	17.0	17.6	19.0	20.1	20.6
2016	Maxium Temperature	23.2	22.8	24.0	26.2	25.0
	Minimum Temperature	14.0	13.6	14.9	16.3	17.0
	Mean Temperature	18.6	18.2	19.5	21.3	21.0
2017	Maxium Temperature	22.6	22.2	24.4	25.1	24.6
	Minimum Temperature	13.1	12.8	14.7	15.9	16.9
	Mean Temperature	17.9	17.5	19.5	20.5	20.7
2018	Maxium Temperature	23.3	24.2	24.4	24.3	24.9
	Minimum Temperature	14.9	14.3	13.8	15.9	16.9
	Mean Temperature	19.1	19.3	19.1	20.1	20.9

Note: T means trace
Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

Jun	Jul	Aug	Sep	Oct	Nov	Dec
23.8	22.3	22.0	22.8	23.9	23.7	23.4
16.5	16.2	15.9	16.2	16.3	15.9	14.0
20.2	19.3	19.0	19.5	20.1	19.8	18.7
22.1	22.4	22.8	22.3	21.8	24.3	23.3
16.5	16.3	16.8	16.8	15.2	15.1	12.8
19.3	19.4	19.8	19.6	18.5	19.7	18.1
25.1	24.2	23.3	23.7	23.3	23.7	23.7
16.7	16.0	16.1	15.7	15.7	15.4	13.9
20.9	20.1	19.7	19.7	19.5	19.6	18.8
23.6	22.2	22.5	22.2	22.8	24.0	23.8
15.4	15.1	15.2	15.1	14.7	14.8	14.3
19.5	18.7	18.9	18.7	18.8	19.4	19.1
22.5	22.8	20.7	24.2	23.6	24.9	24.5
15.5	15.4	15.2	15.9	14.7	14.6	13.8
19.0	19.1	18.0	20.1	19.2	19.8	19.2
24.4	24.0	22.3	23.2	22.4	23.3	22.9
16.5	15.9	15.7	15.8	14.6	15.0	14.4
20.5	20.0	19.0	19.5	18.5	19.2	18.7
23.5	22.8	22.5	22.6	23.6	24.1	23.7
16.4	16.1	16.3	16.0	15.7	15.0	14.6
20.0	19.5	19.4	19.3	19.7	19.6	19.2
24.6	21.0	22.6	23.7	23.0	24.3	23.4
16.9	15.9	16.0	16.4	15.6	15.3	15.0
20.8	18.5	19.3	20.1	19.3	19.8	19.2
24.6	23.8	21.3	23.0	23.2	23.5	23.8
16.7	16.2	16.1	16.0	15.8	15.1	14.8
20.7	20.0	18.7	19.5	19.5	19.3	19.3
25.2	23.3	23.2	23.5	23.2	23.9	23.5
17.0	16.5	16.6	16.7	16.2	16.1	14.8
21.1	19.9	19.9	20.1	19.7	20.0	19.1
22.5	22.1	20.6	23.1	23.6	24.6	23.8
16.6	16.3	16.3	15.8	15.3	14.1	14.1
19.6	19.2	18.5	19.5	19.5	19.4	19.0

Table 1.2
List of Watershed Forest Reserves in CAR, 2018

Name of Reservation	Proclamation Number	Date	Proclaimed Area (in hectares)	Computer-Generated Area
Buyog Forest Reserve	93	Nov 5, 1992	21.9	19.8
Ambuklao-Binga Watershed Reservation	548	Apr 19, 1969	73,350.0	89,271.0
SRMPD Watershed Forest Reservation(DENR Area)	2320	Nov 22, 1993	…	29,758.9
SRMPD Watershed Forest Reservation(NPC Area)	2320	Nov 22, 1993	…	9,618.8
Lucnab Watershed Forest Reserve	178	May 12, 1993	6.0	6.0
Crystal Cave Forest Reserve	16	Apr 27, 1922	4.1	4.1
Busol Forest Reserve	15	Apr 2, 1922	336.6	340.0
Ambuklao Forest Reserve	120	Nov 25, 1966	10,000.0	9,695.0
Forbes Park Forest Reserve(Parcel-2)	10	Oct 12, 1915	…	16.8
Forbes Park Forest Reserve(Parcel 1)	10	Oct 12, 1915	…	29.9
Forbes Park Forest Reserve (Parcel 3)	10	Oct 12, 1915	…	24.0
Natonin-Tanudan Forest Reserve	85	Aug 9, 1966	6,958.0	17,359.7
Abulog River Forest Reserve	573	Jun 26, 1969	195,659.0	204,456.3
Natonin Forest Reserve	166	Dec 13, 1969	2,843.0	7,825.9
Casamata Hill National Park	P.D. No. 1305	Aug 6, 1974	57.0	496.1
Malubluba Watershed Forest Reserve			…	230.4
Guimitara Watershed Forest Reserve			…	63.7
Mt. Sto. Domingo Forest Reserve	73	Aug 9, 1966	9,693.0	4,374.4
Bontoc-Ifugao Forest Reserve(Lot 1)	636	Oct 19, 1940	…	1,091.4
Bontoc-Ifugao Forest Reserve(Lot 2)	636	Oct 19, 1940	…	325.2
Central Conner Forest Reserve	126	Nov 25, 1966	116, 682	19,647.9
Mount Pulag National Park	75	Feb 20, 1987	11,550.0	12,726.1
Central Mayoyao Forest Reserve	156	Feb 13, 1969	13,420.0	13,222.9
Magat River Forest Reserve(CAR Side)	573	Jun 26, 1969	…	321,310.9
Damlusong Watershed Forest Reserve			…	1,040.5
Boasao Watershed Forest Reserve			…	119.0
Central Cordillera Forest Resrve	217	Feb 16, 1929	697,138.2	839,005.7
Balbalan-Balbalasang National Park			…	22,658.1
Balbalan-Balbalasang National Park(Proclaimed)	1357	Dec 9, 1974	1,338.0	1,593.4
Chico River Forest Reserve	573	Jun 26, 1969	333,176.2	344,706.6
Asin Forest Reserve	677	Feb 5, 1941	2,168.0	2,744.7
Mount Sto. Tomas Forest Reserve	581	Jul 8, 1940	3,114.0	3,134.5
Marcos Highway Forest Reserve	1774	Jun 8, 1978	…	5,734.1
Ifugao-Isabela Forest Reserve	Unnumbered	Aug 9, 1969	26,922.0	32,818.8
Hapol-agan Forest Reserve	158	Sep 22, 1987	216.5	…

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.6 List of Priority Watershed in CAR
As of 2013 (area in hectares)

Name of Watershed	No. Of Watershed	Watershed Area	Location (Province)	Municipalities Covered
CAR	4	582,500		
Chico River Watershed		330,000	Mt. Province, Ifugao, Kalinga, Apayao	Bauko, Sabangan, Bontoc, Sagada, Sandangan & Barlig; Tinoc & Hungduan; Tanudan, Lubuagan, Tinglayan, Pinukpuk, Tabuk, Balbalan & Pasil; Coner
Mallig River Watershed		45,580	Kalinga, Mt. Province	Tanudan & Tabuk; Paracelis
Abulog River Watershed		205,000	Apayao, Cagayan (Basin Wide)	Calanasan, Kabugao, Pudtol, Flora & Coner; Abulog
Manucotae River Watershed		1,920	Cagayan, Apayao	Pamplona; Luna

Source: Department of Environment and Natural Resources, Forest Management Bureau

Table 1.6 List of Priority Watershed in CAR
As of 2013 (area in hectares)
(continued)

Name of Watershed	River Basin (RB) Covered	National Irrigation System	Number of River	NIS Service Area
CAR			5	20,153
Chico River Watershed	Cagayan RB	Lower Chico RIS Upper Chico RIS	2	19,407
Mallig River Watershed	Cagayan RB	Mallig RIS	1	
Abulog River Watershed	Abulog RB	Abulog-Apayao RIS	1	
Manucotae River Watershed	Oamplona RB	Pamplona RIS	1	746

Table 1.7
Areas Susceptible to Erosion by Class by Province, CAR
As of 2019

Province	Erosion Class				
	No Apparent Erosion	Slight Erosion	Moderate Erosion	Severe Erosion	Unclassified Erosion
Abra	11,190	166,853	97,194	72,737	29,998
Apayao	38,335	134,065	168,293	81,050	-
Benguet	10,562	142,484	97,471	51,443	1,562
Ifugao	7,459	95,505	60,388	91,529	2,169
Kalinga	39,917	93,405	70,090	53,964	3,618
Mt. Province	22,342	48,122	100,787	54,763	2,051
TOTAL	129,805	680,433	594,223	405,486	39,398

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.7
Areas Susceptible to Erosion by Class by Province, CAR
As of 2019
(continued)

Province	Reservoir	River	Total
Abra	-	7,720	385,692
Apayao	-	1,870	423,613
Benguet	1,594	-	305,117
Ifugao	819	413	258,282
Kalinga	-	3,898	264,892
Mt. Province	-	-	228,064
TOTAL	2,413	13,902	1,865,660

Table 1.8
Land Cover Classification, CAR
2015 (area in hectares)

Region/ Province	Forest (ha.)			Other Wooded Land (ha.)			Agricultural (ha.)		Fishpond	Built up Area
	Closed	Open	Mangrove	Wooded Grassland	Shrubs	Fallow	Annual Crop	Perennial Crop		
CAR	254,065	578,270	-	-	520,503	-	245,123	5,119	223	23,809
Abra	36,705	115,983	..	-	122,923	-	38,416	482	-	3,222
Apayao	110,356	146,808	..	-	117,776	-	30,972	1,843	-	2,834
Benguet	7,670	117,455	..	-	93,619	-	47,631	27	-	8,868
Ifugao	18,536	73,162	..	-	51,013	-	52,917	1,050	223	3,082
Kalinga	42,477	50,042	..	-	76,573	-	46,911	702	-	3,290
Mt Province	38,321	74,820	..	-	58,598	-	28,276	1,015	-	2,514

Source: National Mapping and Resource Information Authority, Department of Environment and Natural Resources

Table 1.8
Land Cover Classification, CAR
2015 (area in hectares)
(continued)

Region/Province	Other Natural Land (ha.)			Inland Water	Grand Total
	Barren Land	Grassland	Marshland		
CAR	10,839	203,706	-	24,002	1,865,660
Abra	4,121	57,689	-	6,150	385,692
Apayao	1,637	6,348	-	5,038	423,613
Benguet	1,519	23,983	-	4,344	305,117
Ifugao	1,012	53,628	-	3,659	258,282
Kalinga	2,513	39,450	-	2,936	264,892
Mt Province	37	22,608	-	1,876	228,064

Table 1.19.1a
List of Known Flora in Balbalasang Balbalan National Park as of 2019 (continued)

Plant Form	Family Name	Scientific Name	Common Name	Local Name	Geographical Distribution
Tree					
		Mangifera indica	Mango		Indigenous
	Anacardiaceae	Semecarpus philippinensis	Ligas	Kamiring	Indigenous
		Mangifera altissima	Pahutan		Indigenous
	Anonaceae	Annona Muricata	Guyabano		Indigenous
	Apocynaseae	alstonia scholaris	Dita		Indigenous
	Araucariaceae	Agathis damara	Almaciga		Indigenous
	Areacaceae	Caryota maxima	Takipan	Bolang	Indigenous
		Areca Catechu	Bunga	bua	Indigenous
	Bixaceae	Bixa orellana	Achuete	Colonosi	Indigenous
	Caprifiaceae	Viburnum odoratissimum	Idog		Indigenous
	Clusiaceae	Callophyllum inophyllum	Bitaog		Indigenous
	Combretaceae	Terminalia catappa	Talisai		Indigenous
		Terminalia edulis	Kalumpit	Solbo	Indigenous
	Dilleniaceae	Dillenia Philippinensis	Katmon		Endemic
	Diptocarpaceae	Anisoptera thurifera	Palosapis		Endemic
		Shorea astylosa	Yakal		Endemic
		Shorea negrosensis	Red Lauan		Endemic
		Shorea palosapis	Mayapis		Endemic
		Shorea Polysperma	Tanguile		Endemic
		Shorea guiso	Guijo		Indigenous
	Euphorbiaceae	Macaranga bicolor	Hamindang		Endemic
		Macaranga grandifolia	Takip-asin		Endemic
		excoecaria agallocha	Buta buta		Indigenous
		Acalypha amantaceae	Bogus		Indigenous
		Macaranga dipterorarpifolia	Balumti		Indigenous
		Macaranga hispidia	Lagapak		Indigenous
		Macaranga tanarius	Binunga	Samak	Indigenous
		Mallotus ricinoides	Hinlaumo	Kaliwawoy	Indigenous
	Fabaceae	Cassia spectabilis	Anchoan dilaw		Exotic
		Albizia saman	Acacia		Exotic
		Calliandra calothyrsus	Calliandra		Exotic
		Tamarindus indica	Tamarind		Exotic
		Albizia procera	Akleng parang		Indigenous
		Bauhinia monandra	Fringon		Indigenous
		Erythrina subumbrans	Rarang	Sablang	Indigenous
		Lecaena leucocephala	Ipil-ipil		Indigenous
		Sesbania gradiflora	Katurai		Indigenous
		Gliricidia sepium	Kakawate		Indigenous
		Ptercarpus indicus	Narra		Indigenous

Table 1.19.1a
List of Known Flora in Balbalasang Balbalan National Park as of 2019 (continued)

Plant Form	Family Name	Scientific Name	Common Name	Local Name	Geographical Distribution
	Lamiaceae	Gmelina arborea	Yemane		Exotic
		Persea Americana	Avocado		Exotic
	Leeaceae	Leea guineensis	Mali-mali		Indigenous
	Lythraceae	Lagerstroemia speciosa	Banaba		Indigenous
	Malvaceae	Ceiba pentandra	Kapok		Indigenous
	Meliaceae	Sandocrium koetjape	Santol		Exotic
		Swietenia macrophyllia	Mahogany		Exotic
		Aglaia rimosa	Bayanti		Indigenous
		Dysoxylum gaudichaudianum	Igyo		Indigenous
		Lansium domesticum	Lansones		Indigenous
	Moraceae	Ficus septica	Hauili		Endemic
		Artocarpus blancoi	Antipolo		Endemic
		Ficus ulmifolia	Is-is		Endemic
		Artocarpus heterophyllus	Nanka		Indigenous
		Artocarpus ovatus	Anubing		Indigenous
		Broussonetia luzonica	Himbabao		Indigenous
		Ficus balete	Balete	Tolak	Indigenous
		Ficus minahassae	Hagimit		Indigenous
		Ficus nota	Tibig		Indigenous
		Ficus variegata	Tangisang-bayawak	Tabog	Indigenous
		Artocarpus camansi	Kamansi	Pakak	Indigenous
		Artocarpus altilis	Rimas		Indigenous
	Myrtaceae	Psidium guajava	Bayabas		Exotic
	Phyllanthaceae	Bischofia javanica	Tuai	Tuol	Indigenous
	Pinaceae	Pinus Kesiya	Benguet Pine		Indigenous
	Rubiaceae	Coffea Arabica	Kape		Exotic
	Rutaceae	Citrus grandis	Pomelo		Exotic
		Citrus hystrix	Kabuyau		Indigenous
	Sapotaceae	Chrysophyllum Cainito	Caimito		Exotic
	Sterculiceae	Pterocymbium tinctorium	Taluto		Indigenous
	Theaceae	Camelia lanceolata	Haikan		Indigenous
	Ulmaceae	Trema orientalis	Anabiong		Indigenous
	Urticaceae	Leukosyke benguetensis			Endemic
		Leukosyke capitellata	Alagasi		Indigenous
		Pipturus arborescens	Dalunot		Indigenous

Table 1.19.1a
List of Known Flora in Balbalasang Balbalan National Park as of 2019 (continued)

Plant Form	Family Name	Scientific Name	Common Name	Local Name	Geographical Distribution
Vine					
	Asteraceae	Mikania cordata	Uoko		Exotic
		Centrosema pubescens	Dilang-butiki		Indigenous
	Fabaceae	Strongylodon macrobotrys	Jade Vine		Endemic
		Phaseolus lunatus	Patani		Exotic
		Pueraria montana	Kudsu		Indigenous
	Leeaceae	Arcangilisia flava	Albutra		Indigenous
	Piperaceae	Piper interrutum	Litlit		Indigenous
	Poaceae	Dinochloa sp.	Dinochloa		
Herb					
	Amaryllidaceae	Hymenocallis littoralis	Spider lily		Indigenous
	Apiaceae	Centalla asiatica	Takip Kuhol		Indigenous
	Araceae	Colocasia esculenta	Gabi		Exotic
		Dieffenbachlia sp.	unknown		
		Shefflera sp.	unknown		
	Astraceae	Chromolaena odorata	Hagonoy		Exotic
		Ageratum conyzoides	Bulak-Manok		Exotic
		Bidens pilosa	Dadayem		Indigenous
	Commelinaceae	Pollia secundiflora	Salibangon		Indigenous
	Fabaceae	Mimosa pudica L.	Makahiya		Exotic
	merrillii Costaceae	Rhaphidophora	unknown		
	Musaceae	Musa speciosus	Saging		Indigenous
	Myrtaceae	Fleurya interrupta	Lipang aso		Exotic
	Nepenthaceae	Nepenthes alata	Pitcher Plant		Endemic
		Nepenthes ventricosa	Pitcher Plant		Endemic
	Smilacaceae	Costus speciosus	Tubung-usa		Indigenous
	Zingberaceae	Alpinia galanga	ankuakas		Indigenous
		Kolowratia elegans	Tagbak		Endemic
Fern					
	Adiantaceae	Adiantum caudatum	Alambrillong gubat		Indigenous
	Aspleniaceae	Asplenium nidus	Pakpak lawin lalake		Indigenous
	Cyatheaceae	Cyathea contaminans	Pakong-buwaya	Sibanglan	Indigenous
	Dennstaedtiaceae	Pteridium aquilinium	Giant fern		Indigenous
	Dryopteridaceae	Bolbitis rhozophylla	Unknown		Indigenous
		Tectaria crenata	Patugo		Indigenous
	Gleicheniaceae	Dicranopteris linearis	Kilob		
	Hymenophyllaceae	Tricholomanes Thysanostomum	Unknown		Indigenous

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.19.1a
List of Known Flora in Balbalasang Balbalan National Park as of 2019 (continued)

Plant Form	Family Name	Scientific Name	Common Name	Local Name	Geographical Distribution
	Polypodiaceae	Microsorum longissimum	Pakong-bato		
	Pteridaceae	Pityrogramma calomelanos	Pakong-gubat		Indigenous
		Pteris cretica	Cretan brake fern		Indigenous
	Schizaeaceae	Lygodium cirncinnatum	Nitong Puti		Indigenous
	Selaginellaceae	Selahinella Jagorii	Selaginella		Endemic
Shrub					
	Apocynaceae	Tabernaemontana pandacaqui	Pandakaki		Indigenous
	Asteraceae	Ageratina adenophora	Bangbangsit		Exotic
		Tithonia diversifolia	Wild sunflower		Exotic
	Chorantaceae	Chloranthus erectus	Baraw-baraw		Indigenous
	chorantaceae	Chloranthus glaber	Gipas		Indigenous
	Euphorbiaceae	Acalypha wilkesiana	Badoues		Indigenous
		Breynia rhamnoides	Matanghipon		Indigenous
	Lycopodiaceae	Lycopodium cernuum	Lamon-babae		Indigenous
	Malvaceae	Hibiscus rosa-sinensis	Gumamela		Indigenous
	Melastomataceae	Astronia candolleana	Talanak		Endemic
		Astronia cumingiana	Badlin		Indigenous
		Melastomata malabathricum	Dunagu		Indigenous
		Medinillia sp.	Unknown		
	Moracea	Ficus pseudopalma	Niog-niogan		Endemic
		Ficus ampelas	Aplas		Indigenous
	Rosaceae	Rubus mollucanus	Pnit/Wildberry		Indigenous
	Theaceae	Camellia sinensis	Unknown	Tsa	Exotic
	Verbenaceae	Lantana camara	Coronitas		Exotic
Grass					
	Poaceae	Paspalum Conjugatum	Carabao grass		Exotic
		Pennisetum purpureum	Elephant grass		Exotic
		Andropogin aciculatus	Amorseco		Indigenous
		Bambusa Blumeana	Kawayan-tinik		Indigenous
		Bambusa comulata	Lopa		Indigenous
		Eleusine indicus	Paragis		Indigenous
		Gigantochloa levis	Bolo		Indigenous
		Imperata cylindrica	cogon		Indigenous
		Miscanthus sinensis	Rono		Indigenous
		Sacharum spontaneum	Talahib		Indigenous
		Setaria palmifolia	Ayas-as		Indigenous
		Sporolobus indicus	Weeping grass		Indigenous
		Themeda triandra	Samsamon		
		Thysanolaena latifolia	Tambo		

Table 1.19.1a
List of Known Flora in Balbalasang Balbalan National Park as of 2019 (continued)

Plant Form	Family Name	Scientific Name	Common Name	Local Name	Geographical Distribution
		Pennisetum clandestinum	Kikuyu		Exotic
Orchid					
	Orchidaceae	Spathoglottis plicata	Ground Orchid		Indigenous
Unknown Species					
	Acanthaceae	Acanthus sp.	Acanthus		
	Apocynaceae	Hoya sp.	Hoya		
	Araceae	Aracaceae sp.			
	Araliaceae	Osmoxylon fenicis merr.	Unknown		
		Araliaceaa sp. 6			
	Areraceae	Arecaceae sp.			
		Heterospather sp.	Bilis		
	Burseraceae	Canarium so.			
	Caprifliaceae	Viburnum luzonicum	Atelba		
	Ericaceae	Vaccinium sp.	Unknown		
	Fagaceae	Lithocarpus sp.	Tabangawan		
	Flamenthaceae	Flamenthaceae sp.		Kalipa	
	Hypoxidaceae	Curculigo sp.			
	Icacinaceae	Gomphandra sp.	Unknown		
	Lamiaceae	Clerodendrum sp.	Unknown		
	Lauraceae	Litsea sp.			
	Leeaceae	Leea sp.	Unknown		
	Melastomataceae	Astronia sp,	Unknown		
	Moraceae	Ficus ribes var cuneata	Dungarug		
	Piperaceae	Piper sp.	Unknown(long narrow leaf)		
	Rosaceae	Rosaceae sp. 25			
	Rutaceae		Kalinga orange		
	Sapindaceae	Nephelium sp			
	Smilacaceae	Smilax sp.	Unknown		
		Smilax sp. 21			
	Tiliaceae	Microcos philippinensis		Balukok	
	Urticaceae	Elatostema sp.		Pawis	
	Vitaceae	Tetrastigma sp.	Unknown		
		Cayratia sp.			

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.19.1b
List of Known Fauna in Balbalasang Balbalan National Park
As of 2019

Taxonomic Class	Family	Scientific Name	Common Name	Local Name	Geographical Distribution
Birds					
		Phapitreron leucotis	White-eared Brown Dove		Endemic
		Loriculus philippinensis	Philippine Hanging Parrot		Endemic
		Dasylophus superciliosus	Red-crested Malkoha		Endemic
		Lepidogrammus cumingi	Scale-feathered malkoha		Endemic
		Centropus viridis	Philippine Coucal		Endemic
		Otus megalotis	Luzon Lowland Scops-owl		Endemic
		Otus longicornis	Luzon Highland Scops owl		Endemic
		Collocalia troglodytes	Pygmy Swiftlet		Endemic
		Actenoides lindsayi	Spotted Kingfisher		Endemic
		Buceros hydrocorax	Northern Rufous Hornbill		Endemic
		Picoides maculatus	Philippine Pygmy Woodpecker		Endemic
		Pycnonotus urostictus	Yellow0wattled Bulbul		Endemic
		Ixos philipinus	Philippine Bulbul		Endemic
		Parus elegans	Elegant tit		Endemic
		Thabdornis grandis	Long-billed Rhabdornis		Endemic
		Stachyris whiteheadi	Chestnut-faced Babbler		Endemic
		Rhycornis bicolor	Luzon Water-redstart		Endemic
		Cettia seebohmi	Philippine Bush-warbler		Endemic
		Orthomus derbianus	Grey-backed Tailorbird		Endemic, Luzon Endemic
		Eumyias panayensis	Island flycatcher		Endemic, Luzon Endemic
		Rhipudura cyaniceps	Blue-headed fantail		Endemic, Luzon Endemic
		Pachycephala albiventris	Green-backed Whistler		Endemic, Luzon Endemic
		Lanius validiriostris	Mountain Shrike		Endemic, Luzon Endemic
		Sarcops calvus	Coleto		Endemic, Luzon Endemic
		Aethopyga pulcherrima	Metallic-winged Sunbird		Endemic, Luzon Endemic
		Dicaeum australe	Red-striped flowerpcker		Endemic, Luzon Endemic
		Dicaeum pygmaeum	Pygmy Pflowerpecker		Endemic, Luzon Endemic
		Dicaeum hypoleucum	Buzzing Flowerpecker		Endemic, Luzon Endemic

Table 1.19.1b
List of Known Fauna in Balbalasang Balbalan National Park
As of 2019 (continued)

Taxonomic Class	Family	Scientific Name	Common Name	Local Name	Geographical Distribution
Amphibians					
	Dicroglossidae	Limnonected macrocephalus	Luzon Fanged Frog	Bulbol	
		Occidozygalaevis	Puddle Frog	Kit-kite/ Toktok	
	Ceratobatrachidae	Platymantis dorsalis	Common Forest Frog		
	Ranidae	Sanguirana luzonensis	Luzon stream Frog	Kadjao	
		Sanguiranan sp.		Ayaba	
		Sanguirana igorota	Balbalan Frog		
	Microhylidae	Kaloula kalingensis	Kalinga Narrow Mouthed Frog		
		Kaloula picta	Painted Narrow Mouthed Frog	Katsaw	
	Rhacophoridae	Polypedates leucomystax	Common Tree Frog	Pilak	
Mammals					
		Cervus philippinensis	Philippine brown deer		Endemic
		Ptenochirus lofori	Musky fruit bat		Endemic
		Sus philippinensis	Philippine pig		Endemic
		Polyramus pallidus	Cordillera Giant cloud rat		Endemic
		Apomys sp. Abrae	Cordillera greater forest mouse		Endemic
		Apomys sp. C.	Lesser forest mouse		Endemic
		Rattutrattus norvigicus	Common brown rat		Endemic
		Ratus argentiventer	Highland rats		Endemic
		Batomys granti	Luzon hairy-tailed rat		Endemic
		Acerodon jubanatus	Golden crowned flying fox		Endemic
		Bullimus luzonicus	Large forest rat		Endemic
Reptiles					
	Agamidae	Bronchocela marmorata	Crested Lizard	Takka	
	Scincidae	Eutropics mutifasciata	Common sun skink		
	Colubridae	Ahaetulla prasina praceocularis	Vine snake	Ay-ayapat	
	Typhlopidae	Acutotyphlophs banaorum	Banao blind snake		
	Viperidae	Trimeresurus Flavomaculatus	Pit viper	Minugong	

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.19.2a
List of Known Flora in Marcos Highway National Park
As of 2019 (continued)

Pant Form	Family	Scientific Name	Common Name
Tree	Actinidiaceae	Saurauia elegans	Uyok
Tree	Anacardiaceae	Shorea contorta	White Lauan
Tree	Anacardiaceae	Mangifera indica	Mango
Tree	Anonaceae	Annona muricata	Guyabano
Tree	Anonaceae	Annona squamosa	Atis
Tree	Apocynaceae	Alstonia scholaris	Dita
Tree	Caricaceae	Carica papaya	Papaya
Tree	Casuarinaceae	Casuarina equisetifolia	Agoho
Tree	Combretaceae	Terminalia catappa	Talisai
Tree	Dipterocarpaceae	Shorea polysperma	Tanguile
Tree	Euphorbiaceae	Tectona grandis	Teak
Tree	Fabaceae	Piliostigma malabaricum	Alibangbang
Tree	Fabaceae	Pterocarpus indicus	Narra
Tree	Fabaceae	Albizia procera	Akleng parang
Tree	Fabaceae	Leucaena leucocephala	Ipil-ipil
Tree	Fabaceae	Flemingia macrophylla	Flemingia
Tree	Fabaceae	Cassia siamea	Thailand Shower
Tree	Fabaceae	Senna spectabilis	Anchoan Dilaw
Tree	Fabaceae	Tamarindus indicus	Tamarind
Tree	Fabaceae	Samanea saman	Rain Tree
Tree	Fagaceae	Quercus variabilis	Oak Tree
Tree	Lamiaceae	Gmelina arborea	Yemane
Tree	Lauraceae	Persia americana	Avocado
Tree	Lythraceae	Lagerstroemia speciosa	Banaba
Tree	Meliaceaae	Lancium domesticum	Lansones
Tree	Meliaceae	Swietenia macrophylla	Mahogany
Tree	Meliaceae	Sandoricum koetjape	Santol
Tree	Moraceae	Artocarpus heterophylla	Jack Fruit
Tree	Moreceae	Ficus nota	Tibig
Tree	Moreceae	Ficus balete	Balete
Tree	Myrtaceae	Eucalyptus camaldulensis	Eucalyptus, Red Gum
Tree	Myrtaceae	Psidium guajava	Guava
Tree	Myrtaceae	Syzygium cumini	Lomboy/Duhat
Tree	Phyllantaceae	Bischofia javanica	Tuai
Tree	Rotataceae	Citrus grandis	Pomelo
Tree	Rubiaceae	Coffea canephora	Robusta Coffee
Tree	Rutaceae	Citrus aurantium	Orange
Tree	Rutaceae	Citrus lemon	Lemon
Tree	Sapindaceae	Samanea saman	Acacia
Tree	Sapindaceae	Nephelium lappaceum	Rambutan
Tree	Sapindaceae	Dimocarpus longan	Longgan
Tree	Sapotaceae	Chrysophylium cainito	Caimito

Local Name	Conservation Status	Geographical Distribution
		Native
	Critically Endangered (IUCN)	Endemic
	Data Deficient (IUCN)	Introduced
		Native
		Introduced
	Least Concern (IUCN)	
	Data Deficient (IUCN)	
	Least Concern (IUCN)	Native
		Native
	Critically Endangered (IUCN)	Endemic
	Critically Endangered (IUCN)	Endemic
		Endemic
	Vulnerable (IUCN)	Endemic, Native
	Least Concern (IUCN)	Native
		Introduced
		Native
	Least Concern (IUCN)	Native
	Least Concern (IUCN)	
	Least Concern (IUCN)	
	Least Concern (IUCN)	
		Native
	Least Concern (IUCN)	Native
	Least Concern (IUCN)	Native
	Vulnerable (IUCN)	
	Least Concern (IUCN)	Native
	Least Concern (IUCN)	Native
		Native
		Native
	Least Concern (IUCN)	Introduced
		Native
	Least Concern (IUCN)	Native
	Least Concern (IUCN)	Native
	Least Concern (IUCN)	
		Native
	Near Threatened (IUCN)	Native
		Indigenous

Table 1.19.2a
List of Known Flora in Marcos Highway National Park
As of 2019 (continued)

Pant Form	Family	Scientific Name	Common Name
Tree	Sapotaceae	Manilkara sapota	Chico
Tree	Tiliaceae	Microsis philippinensis	Balukok
Herb	Apiaceae	Centalla asiatica	Takip kuhol
Fern	Marattiaceae	Pteridium aquilinum	Giant Fern
Flowering Plant	Asteraceae	Ageratina adenophora	Bangbangsit
Flowering Plant	Asteraceae	Tithonia diversiflora	Mirasol/Sunflower
Flowering shrub	Asteraceae	Chromolaena odorata	Hagonoy
Shrub	Betulaceae	Alnus maritima	Alnus
Shrub	Fabaceae	Calliandra calothyrsus	Calliandra
Shrub	Fabaceae	Calliandra calothyrsus	Calliandra
Grass	Poaceae	Bambusa blumeana	Kauayan tinik
Grass	Poaceae	Bambusa vulgaris	Kauayang kiling
Grass	Poaceae	Dendrocalamus merilliana	Bayog
Grass	Poaceae	Miscanthus sinensis	Rono
Grass	Poaceae	Paspalum conjagatum	Carabao Grass
Grass	Poaceae	Themeda triandra	Samsamon
Grass	Poaceae	Imperata cylindrica	Cogon
Grass	Poaceae	Sarchrum spontaneum	Talahib
Grass	Poaceae	Andropogon aciculatus	Amorseco
Palm	Palmae	Cocos nucifera	Coconut

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Local Name	Conservation Status	Geographical Distribution
		Introduced
		Native
	Least Concern (IUCN)	Native
		Native
		Introduced
		Introduced
		Introduced
	Endandered (IUCN)	
		Introduced
		Exotic
		Native
		Native
		Native
		Native
		Native
		Native
		Native
	Least Concern (IUCN)	Native
		Native
		Native

Table 1.19.2b
List of Known Fauna in Marcos Highway National Park
As of 2019

Taxonomic Class	Family	Scientific Name	Local/Common Name	Conservation Status (IUCN)	Geographical Distribution
	Psittacidae	Prioniturus montanus	Luzon racket-tail parrot	Near threatened*	
	Strigidae	Otus longicornis	Luzon scops owl	Near threatened*	
	Phasianidae	Gallus gallus	Wild chicken	Least concern*	
	Passeridae	Passer domesticus	House sparrow	Least concern*	
	Estrildidae	Lonchura atricapilla	Maya	Least concern*	
	Dicaeidae	Dicaeum anthonyi	Flame-crowned flowerpecker	Near threatened*	
	Pycnonotidae	Hypsipetes philippinus	Philippine bulbul	Least concern*	
	Zosteropidae	Zosterornis whiteheadi	Chestnut-faced babbler	Least concern*	
	Cervidae	Cervus mariannus	Philippine brown deer	Vulnerable*	
	Suidae	Sus philippinensis	Philippine warty pig	Vulnerable*	
	Muridae	Phloeomys pallidus	Northern Luzon Giant cload rat	Least concern*	
	Muridae	Apomys abrae	Luzon Cordillera forest mouse	Least concern*	
	Muridae	Rattus norvegicus	Common brown rat	Least concern*	
	Muridae	Batomys granti	Luzon hairy-tailed rat	Least concern*	
	Pteropodidae	Acerodon jubatus	Giant Golden Crown floying fox	Endangered Cites I	
	Muridae	Bullimus luzonicus	Large Luzon forest rat	Least concern*	
	Elapidae	Naja naja philippinensis	Philippine common cobra	Endangered Cites II	
	Varanidae	Varanus salvator	Water Monitor Lizard	Threatened Cites II*	

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.19.3a
List of Known Flora in Upper Agno River National Park
As of 2019

Plant Form	Family	Scientific Name	Common Name
Tree	Sterculiaceae	Pterocymbium tinctorium	
Tree	Fabaceae	Erythrina crista-galii	Dap-dap
Tree	Apocynaceae	Alstonia scholaris	Dita
Tree	Moraceae	Ficus benguetensis	Alumit
Tree	Euphorbiaceae	Macaranga grandifolia	Takip-asin
Tree	Moraceae	Ficus coronata	Sandpaper fig
Tree	Apocynaceae	Alstonia scholaris	Dita
Tree	Anacardiaceae	Pistasia chinensis	Sangilo
Tree	Moraceae	Ficus septica	Hauili
Tree	Pinaceae	Pinus kesiya	Benguet Pine
Tree	Sapindaceae	Acacia auricoliformis	Japanese Acacia
Tree	Betulaceae	Alnus maritimma	Alder
Tree	Fabaceae	Calliandra calothyrsus	Calliandra
Tree	Fabaceae	Piliostigma malabaricum	Alibangbang
Tree	Myrtaceae	Eucalyptus camaldulensis	Eucalyptus, Rud Gem
Tree	Casuarinaceae	Casuarina equisitifolia	Agoho
Tree	Phillantaceae	Bischofia javanica	Tuai
Tree	Meliaceae	Sweitenia macrophylla	Mahogany
Tree	Sapindaceae	Samanea saman	Acacia
Tree	Dipterocarpaceae	Shorea polysperma	Tanguile
Tree	Fagaceae	Quercus variabilis	Oak Tree
Tree	Anacardiaceae	Anacardium occidentale	Kasui
Tree	Lythraceae	Lagerstoemia speciosa	Banaba
Tree	Anonaceae	Annona muricata	Guyabano
Tree	Fagaceae	Pterocarpus indicus	Narra
Tree	Lamiaceae	Gmelina arborea	Yemane
Tree	Fagaceae	Albizia procera	Akleng Parang
Tree	Combretaceae	Terminalia catappa	Talisai
Tree	Fabaceae	Ficus nato	Tibig
Tree	Moraceae	Pistacia chinensis	Sangilo
Tree	Anacardiaceae	Mangifera indica	Mango
Tree	Sapotaceae	Chrysophilium caimito	Caimito
Tree	Myrtaceae	Psidium guajava	Guava
Tree	Fabaceae	Tamarindus indicus	Tamarind
Tree	Rotataceae	Citrus grandis	Pomelo
Tree	Meliaceae	Sandoricum koeptjape	Santol
Tree	Moraceae	Artocarpus heterophyllus	Jack Fruit
Tree	Lauraceae	Persia americana	Avocado
Tree	Meliaceae	Lansium domesticum	Lanzones
Tree	Bombacaceae	Ceiba pentandra	Kapok
Tree	Fabaceae	Leucaena leucacephala	Ipil-ipil
Tree	Fabaceae	Flemingia macrophylla	Flemigia

Local Name	Conservation Status (IUCN)	Geographical Distribution
		Native
		Endemic
		Native
		Native
	Least Concern	Endemic
	Least Concern	
	Endangered	
		Vulnerable
	Endemic	Critically endangered
	Native	
	Native	
	Endemic	Vulnerable
	Native	
		Data deficient

Table 1.19.3a
List of Known Flora in Upper Agno River National Park
As of 2019 (continued)

Plant Form	Family	Scientific Name	Common Name
Tree	Fabaceae	Cassia siamea	Thailand Shower
Tree	Fabaceae	Cassia spectabilis	Anchoan Dilaw
Tree	Moraceae	Ficus irisana	Aplas
Tree	Theaceae	Camellia sinensis	Tsa
Vine	Dioscoreaceae	Dioscorea bulbifera	Air Potato
Herb	Asteraceae	Matricaria chamomilla	Chamomile
Fern	Cyatheceae	Aspidium barometz	Golden Chicken Fern
Fern	Onocleaceae	Matteuccia struthiopteris	Ostrich fern
Fern	Thelyptaredaceae	Christella parasitica	Ivory Coast
Fern	Aspleniaceae	Asplenium nidus	Bird's Nest Fern
Fern	Nephrolepidaceae	Polypodium cordifolium	Tuberous sword fern
Fern	Polypodiaceae	Adiantum cuadatum	Alambrillong-Gubat
Fern	Pteridaceae	Maidenhair-fern-Adiantum	Walking Fern
Fern	Polypodiaceae	Chrysopteris phymatodes	Lizard's Foot
Fern	Pteridaceae	Adiantum diaphanum	Filmy Maidenhair Fern
Shrub	Myrtaceae	Tristaniopsis laurina	Water Gum
Shrub	Celastraceae	Celastrus scandens	American Bittersweet
Shrub	Rhamnaceae	Berchemia scandens	Alabama supllejack
Grass	Poaceae	Miscantus sinensis	Rado
Grass	Poaceae	Miscanthus chinensis	Chinese Silver Grass
Grass	Poaceae	Gigantochloa levis	Bolo Bamboo
Grass	Poaceae	Themeda gigantea	Kangaroo Grass
Grass	Asparagceae	Ophiopogon planiscapus	Black Mondo Grass
Orchids	Orchidaceae	Dendrobium anosmum	Gintong talutot
Liverworts	Splachnaceae	Splachum waberbaueri	
Moss	Urticaceae	Pilea micropyylla	Alabong
Palm	Arecaceae	Caryota	Fishtail Palm
	Asparagaceae	Asparagus asparagoides	Bridal Creeper
	Chloranthaceae	Sarcandra glabra	Gipas
	Actinidaceae	Sauraria elegans	Uyok
	Tiliaceae	Mocrosis philippinensis	Balukok
	Poaceae	Bambusa blumeana	Kauayan Tinik
	Poaceae	Bambusa vulgaris	Kauayan Kiling
	Poaceae	Dendrocalamus merillianus	Bayog
	Poaceae	Gigantchloa levis	Bolo
	Marattiaceae	Pteridium aquilinum	Giant Fern
	Poaceae	Paslalum conjagatum	Carabao Grass
	Asteraceae	Ageratina edenphora	Bangbangsit
	Asteraceae	Tithonia diversiflora	Mirasol/Sunflower
	Poaceae	Themeda triandra	Samsamon
	Poaceae	Imperata cylindrica	Cogon
	Poaceae	Pennisitum clandistinum	Kikuyo

Local Name	Conservation Status (IUCN)	Geographical Distribution
Borabor	Native	
	Native	
Pasgak		
Bayabang		
	Endemic	
Rono		
Talnag		
Pugahan	Endemic	

Table 1.19.3a
List of Known Flora in Upper Agno River National Park
As of 2019 (continued)

Plant Form	Family	Scientific Name	Common Name
	Poaceae	Sarchrum spontaneum	Talahib
	Asteraceae	Chromonaela odorata	Hagonoy
	Apiaceae	Centella asiatica	Takip kuhol
	Poaceae	Andropogon Acciculatus	Amorseco
	Nepenthaceae	Nepenthes bellii	Pitcher Plant
	Palmae	Cocos nucifera	Coconum

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Local Name	Conservation Status (IUCN)	Geographical Distribution
	Endangered	

Table 1.19.3b
List of Known Fauna in Upper Agno River National Park
As of 2019

Taxonomic Class	Family	Scientific Name	Common Name	Geographical Distribution
Birds				
		Otus megalutis	Scops Owl	Endemic
		Megapodius cumingii	Kusili/Philippine Scrubfowl	Endemic
		Actenoides lindsayi	Woodpecker Bird	Endemic
Amphibian				
		Alcalus mariae	Palawan-Eastern Frog	Endemic, Palawan Island
Mammal				
		Rusa Marianna	Philippine Deer	Endemic
		Megachiroptera	Fruit Bats	Endemic
		Phloeomys pallidus	Cloud Rats	Endemic
Reptile				
		Dendrelaphis caudolineatus	Mountain Snake	Endemic
		Naja Philippinensis	Philippine Cobra Snake	Endemic, Northern Region
		Varanus bitatawa	Northern Sierra Madre forest monitor	Endemic
Insects				
		Neodythemis nyungwe	Nyungwe Junglewatcher	
		Araneidae	Orbweaver	
		Ocybadistes knightorum	Black Grass-dark Butterfly	
		Trilophidia annulata		
		Cicadoidea	Cicada	
		Halyomorpha halys	Brown marmorated stink bug	
		Lithobius forficatus	Brown Centipede	
		Orthomorpha coarctata	Long-flange Millipede	

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.19.4a
List of Known Flora in Mt. Data National Park
As of 2019 (continued)

Plant Form	Family	Scientific Name	Common Name	Local Name	Geographical Conservation
Tree	Actinidiaceae	Saurauia elegans	Uyok		Native
Tree	Actinidiaceae	Saurauia sp. 2			
Tree	Actinidiaceae	Saurauia sp. 3			
Tree	Actinidiaceae	Saurauia sp. 4			
Tree	Anacardiaceae	Bauchanania arborescens	Balinghasai		Native
Tree	Araliaceae	Schefflera insularum	Galamai-amo		Endemic
Tree	Asteracaceae	Tree sp. 1			
Tree	Asteracaceae	Tree sp. 2			
Tree	Betulaceae	Alnus japonica	Japanese alder	Arnus	Native
Tree	Boraginaceae	Codia myxa	Indian Cherry		
Tree	Burseraceae	Canarium sp. 1			
Tree	Burseraceae	Canarium sp. 2			
Tree	Buxaceae	Tree sp. 1			
Tree	Caprifoliaceae	Viburnum coriaceum			Native
Tree	Caprifoliaceae	Viburnum luzonicum	Atelba		Endemic
Tree	Caprifoliaceae	Viburnum odonatissimum	Idog		
Tree	Caprifoliaceae	Viburnum sp. 1			
Tree	Caprifoliaceae	Viburnum sp. 2			
Tree	Caprifoliaceae	Viburnum sp. 3			
Tree	Clethraceae	Clethra luzonica			Native
Tree	Clethraceae	Clethra sp. 1			
Tree	Clusiaceae	Garcinia sp. 1			
Tree	Daphniplylaceae	Daphniplyllum gracile			Native
Tree	Ericaceae	Rhododendron sp. 1			
Tree	Ericaceae	Vaccinium barandanum			Endemic
Tree	Ericaceae	Vaccinium cumingianum			Native
Tree	Ericaceae				Native
Tree	Ericaceae	Vaccinium sp. 1			
Tree	Ericaceae	Vaccinium sp. 2	Tenggel		
Tree	Ericaceae	Tree sp. 1			
Tree	Euphorbiaceae	Antidesma ghaesembilla	Binayuyo		Native
Tree	Euphorbiaceae	Claoxylon reburceus			
Tree	Euphorbiaceae	Homalanthus alpinus	Malabalanti		Endemic
Tree	Euphorbiaceae	Homalanthus megaphyllus			
Tree	Fagaceae	Lithocarpus coopertus	Ulayan		Endemic
Tree	Fagaceae	Lithocarpus jardanae	Katiluk		
Tree	Fagaceae	Lithocarpus luzoniensis	Kilog		Endemic
Tree	Fagaceae	Lithocarpus oligarpus	Kitaldag		
Tree	Gerneriaceae	Aeschyranthus sp. 1			
Tree	Gerneriaceae	Cyrtandra sp. (1)			

Table 1.19.4a
List of Known Flora in Mt. Data National Park
As of 2019 (continued)

Plant Form	Family	Scientific Name	Common Name	Local Name	Geographical Conservation
Tree	Gerneriaceae	Cyrtandra sp. (2)			
Tree	Gerneriaceae	Cyrtandra sp. (3)			
Tree	Hamalenidaceae	Polyosma lineabractea			
Tree	Lamiaceae	Comphostemma philippinariium			
Tree	Lamiaceae	Plectranthus sp.1			
Tree	Lamiaceae	Salvia sp. 1			
Tree	Lamiaceae	Tree sp. 1			
Tree	Lauraceae	Litsea perrotetiin	Dumoplas		Endemic
Tree	Lauraceae	Litsea perrotetii	Marang		Endemic
Tree	Lauraceae	Neolitsea villosa			Endemic
Tree	Lauraceae	Neolitsea vulcanica			Endemic
Tree	Leeceae	Leea magnifolia			Endemic
Tree	Melastomaceae	Astronia quadrangulata	Unknown		
Tree	Melastomaceae	Medenilla cordata			Endemic
Tree	Moraceae	Ficus benguetensis			Endemic
Tree	Moraceae	Ficus sp.1			
Tree	Moraceae	Ficus sp.2			
Tree	Myrsinaceae	Ardisia sp. 1			
Tree	Myrsinaceae	Ardisia sp. 2			
Tree	Myrsinaceae	Ardisia sp. 3			
Tree	Myrsinaceae	Ardisia sp. 4			
Tree	Myrtaceae	Decaspermum sp. 1			
Tree	Myrtaceae	Syzygium santosii			Endemic
Tree	Myrtaceae	Syzygium subcaudatum			Endemic
Tree	Myrtaceae	Syzygium sp. 1			
Tree	Myrtaceae	Syzygium sp. 2			
Tree	Myrtaceae	Syzygium sp. 3	Vertek babae		
Tree	Myrtaceae	Prumnopitys amara	Black Pine		Native
Tree	Rosaceae	Prunus grisea	Lago		Native
Tree	Rubiaceae	Hedyotis benguetensis			Native
Tree	Rubiaceae	Psychotoria sp. 1			
Tree	Rubiaceae	Psychotoria sp. 2			
Tree	Rubiaceae	Psychotoria sp. 3			
Tree	Rutaceae	Citrus sp. 1	Fukog		
Tree	Rutaceae	Evodia retussa			
Tree	Rutaceae	Evodia sp. 1			
Tree	Rutaceae	Evodia sp. 2			
Tree	Rutaceae	Melicope triphylla			Native
Tree	Rutaceae	Skimmia philippinensis			Endemic
Tree	Smilacaceae	Smilax sp. 1			
Treesss	Staphylaceae	Turpinia ovalifolia	Unknown		Native

Table 1.19.4a
List of Known Flora in Mt. Data National Park
As of 2019 (continued)

Plant Form	Family	Scientific Name	Common Name	Local Name	Geographical Conservation
Tree	Taxaceae	Taxus sumatrana	Taiwan Yew		Native
Tree	Theaceae	Camellia sp. 1			
Tree	Theaceae	Cleyera japonica	Japanese cleyera		
Tree	Theaceae	Eurya coriaceae	Bakig		Native
Tree	Theaceae	Eurya flava			
Tree	Theaceae	Eurya japonica	East-asian Eurya		
Tree	Theaceae	Eurya sp. 1			
Tree	Theaceae	Three sp. 1			
Tree	Thymeliaceae	Wikstroemia ovata	Suka		Endemic
Shrub	Acanthaceae	Shrub sp. 1			
Shrub	Actinidiaceae	Saurauia sp. 1			
Shrub	Araliaceae	Aralia bipinnata	Sugsuga		Native
Shrub	Araliaceae	Schefflera microphylla			Endemic
Shrub	Chlorantaceae	Chloranthus gabac	Gepas		
Shrub	Melastomaceae	Melastoma malabathricum	Malabas melastome		Native
Shrub	Melastomaceae	Melastoma sp. 1			
Shrub	Saxifragaceae	Deutzie pulchra	Beautiful deutzia		Native
Shrub	Theaceae	Thea lanceolata			
Shrub	Winteraceae	Drimys piperata	Sepal		Native

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.19.4b
List of Known Fauna in Mt. Data National Park
As of 2019

Taxonomic Class	Family	Scientific Name	Common Name	Local/ Common Name	Conservation Status (IUCN)	Geographical Distribution
Birds						
		Yungipicus maculatus	Pygmy woodpeckers			Endemic
		Hypsipetes philippinus	Philippine bulbul			Endemic
		Bubo philippensis	Philippine owl			Endemic
		Leucopsar rothschild	Martinez			Native
		Coturnix coturnix	Quails			
Amphibians						
		Anura	Frogs			
Mammals						
			Rats			
			Mices			
Reptiles						
			Lizards			
			Snakes			
			Talakup			

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.10
List and Status of Protected Areas in CAR
As of 2013

Protected Area	Location	Issuances		Area (in hectares)	Remarks
		Proc./R.A.	Date		
Casamata Hill National Park	Bangued, Abra	Proc. 1305	26 Aug 74	57	For Delisting (co-management with LGU)
Mt.Data National Park	Along Baguio-Bontoc National Road, Benguet, Ifugao; and Kayapa Nueva Vizcaya	Proc. 65	3 Jun 36	5,512	
Mt. Pulag National Park	Balbalan, Kalinga, & Nueva Vizcaya	Proc. 75	20 Feb 87	11,550	
Balbalasang-Balbalan National Park	Balbalan, Kalinga, & Apayao	R.A. 6463/ Proc. 1357	17-Jun-72/ 9-Dec-74	1,338	
Lower Agno Watershed Forest Reserve	Tuba, Itogon, Benguet & Baguio City. San Manuel and San Nicolas, Pangasinan	Proc. 2320	22 Nov 83	39,304	
Upper Agno River Basin Resource Reserve	Atok, Bokod, Buguias, Itogon, Kabayan, Tublay, Kibungan, Latrinidad, Benguet Prov.; Hungduan & Kiangan,Ifugao; Kayapa, Nueva Vizcaya	Proc. 268	23 Apr 00	77,561	
Marcos Hi-way Watershed Forest Reserve	Agoo, La Union; Baguio City and Tuba, Benguet	Proc. 1754	22 Jun 78	6,105	For Disestablishment

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.11
List of Proclaimed Protected Areas Under the National Integrated Protected Areas System (NIPAS) as of 2012

Region	Name of Protected Area	Location	Protected Area (in hectares)	Buffer Zone (in hectares)
CAR	Upper Agno River Basin Resource Reserve	Atok, Buguias, Itogon, Kabayan, Tublay, Kibungan, La Trinidad, Benguet; Hungduan & Kiangan,Ifugao; Kayapa, Nueva Vizcaya	77,561	

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Total Area (in hectares)				Proclamation	
Terestrial		Marine			
Protected Area	Buffer Zone	Protected Area	Buffer Zone	Number	Date
77,561				268	23 April 2000

Table 1.12
Area of Natural Forest by Province
2015 (area in hectares)

Landcover Type	Abra	Apayao	Benguet	Ifugao	Kalinga	Mt. Province	Total
Closed Forest	45,015	102,238	3,167	21,924	53,225	28,351	253,920
Open Forest	115,645	144,189	111,402	77,973	60,654	68,285	578,148
Total	160,660	246,427	114,568	99,897	113,879	96,636	832,069

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.13 Characteristics of Rivers and Streams as of 2019

Name of Major River	Name of Tributaries	Location	Water Classification	Est. Drainage Area (ha.)	Length (km.)	Discharge Rate (cu.m./sec)
Abra River		Luba, Manabo, Bucay, Tayum, Bangued, Pidigan, Langiden, San Quintin	A	441,682.0	198.0	2,300.0
	Tineg River	Dolores, San Juan, Tineg	B		96.0	
	Saquet River			5,670.6	17.6	
	Mankayan River					
	Collalo River					
	Abit River			11,025.0	20.0	
	Layacan River			8,005.0	17.0	
	Utep River			23,336.0	37.9	
	Damanit River			11,071.4	38.4	
	Ikmin River			20,151.0	37.5	
	Bucloc River			16,250.8	36.3	
	Manicbel River				28.4	
	Saccang River					
	Mapisla River					
	Malanas River			17,786.4	58.0	
	Talogtog River					
	Sinalang River			14,413.3	38.5	
	Binongan River			45,688.5	60.0	
	Palsoguan River			19,905.7	44.0	
	Bandi River					
	Malapa-ao River			12,867.7	18.2	
	Baay River			19,757.0	27.5	
	Anayan River			14,782.1	26.0	
Chico River	Chico River (Lower)	Tinglayan, Lubuagan, Tabuk, Pinukpuk	B	409,489.6	103.4	38.3
	Saltan River		B		73.8	6.2
	Tanudan River		A		38.8	
	Pasil River				37.7	
	Baren River	Conner	B		32.0	

Table 1.13 Characteristics of Rivers and Streams as of 2019 (continued)

Name of Major River	Name of Tributaries	Location	Water Classification	Est. Drainage Area (ha.)	Length (km.)	Discharge Rate (cu.m./sec)
	Nabuangan River	Conner	B		38.0	
	Matalag River				43.0	
	Purag River				13.0	
	Acutan River				25.0	
	Tabuk River					
	Chico River (Upper)	Bauko, Sabangan, Bontoc	B		50.0	67.1
	Agoyo River				14.5	4.7
	Docligan River				25.6	7.9
	Lingoy River				19.0	2.1
	Agudong River				14.3	0.9
	Bayudan River				15.8	0.9
	Malitep river				6.3	0.8
	Barlig river				33.0	2.2
	Amlusong River				12.3	0.8
	Balitian River				16.7	5.3
	Bananid River					
	Taboa river					
	Bunga River					
	Bikigan River					
	Belwagan River					
	Talubin River					
	Gultron River					
	Aguid River					
	Guinaang River					
	Batugan River					
	Talbok River					
Apayao-Abulug River		Luna, Sta. Marcela, Pudtol, Kabugao	C	265,094.6		54.4
	Acutan River	Conner	B			
	Binuan River	Kabugao				
	Karagawan River	Kabugao	B			
	Laco River	Kabugao	B			
	Malabanig River	Kabugao	B			
	Malunog River (Upstream)	Pudtol	B		21.5	
	Malunog River (Downstream)	Luna, Sta. Marcela, Pudtol, Kabugao	C			
	Nagan River	Pudtol	AA		24.3	

Table 1.13 Characteristics of Rivers and Streams as of 2019 (continued)

Name of Major River	Name of Tributaries	Location	Water Classification	Est. Drainage Area (ha.)	Length (km.)	Discharge Rate (cu.m./sec)
	Tumog River (upstream)	Luna	B			
	Tumor River (downstream)	Luna	C			
	Ayayao River				12.0	
	Awan River				12.5	
	Malungog River				8.1	
	Tumalig River				14.3	
	Bannan River				14.5	
	Tabayagan River				28.5	
	Sicapo River				21.9	
	Dagara River				31.9	
	Tawit River				51.1	
	Maton river				34.4	
Magat River				227,374.5	28.0	
	Alimit River	Mayoyao, Aguinaldo	C		70.0	32.9
	Ibulao River	Lamut, Lagawe, Kiangan	C		27.7	
	Lamut River	Lamut, Asipulo	C		41.8	12.8
	Pula River				17.3	
	Nayon River				10.0	
	Lagawe River					
	Ambangal Brook					
	Sapao River					
	Tawang River					
	Mayoyao River				9.0	
	Bunhian River					
	Kiling River					
	Ubao River					
	Calupaan River					
	Ducligan River				6.0	
	Ngao-ngao River				25.0	
	Payawan River				6.6	
	Bunog River				8.0	
	Kinawayanan Creek				11.0	
	Magulon-Aduyongan River				19.0	
Siffu-Mallig River	Siffu River	Paracelis	B	143,242.1		

Table 1.13 Characteristics of Rivers and Streams as of 2019 (continued)

Name of Major River	Name of Tributaries	Location	Water Classification	Est. Drainage Area (ha.)	Length (km.)	Discharge Rate (cu.m./sec)
	Mallig River	Natonin	B			
	Saliok River					
	Viga River					
	Bacami River					
	Paracelis River					
Agno River		Kabayan, Bokod	A	128,725.2	117.0	
	Ambalanga River	Itogon	C		10.7	
	Baculongan River					
	Alenod River		A		8.0	
	Baayan River				12.6	
	Eddet River		A		8.8	
	Alut River				6.8	
	Batan River				9.7	
	Batangban River					
	Bokod River		A		18.5	
	Bolo River					
	Labey River					
	Benneng River				32.6	
	Pito River				2.9	
	Liang River				6.0	
	Tublay River					
Amburayan River		Kapangan, Atok	B	60,858.2		
	Maikong River					
	Natubleng River				1.8	
	Palina River				10.4	
	Bakun River				33.7	
	Mayos River				5.1	
	Ambaledeng River				21.9	
	Tabao River				4.2	
	Abiang River				5.5	
	Pudong River				7.0	
	Sacburoy River				5.4	
	Bagu River				7.8	
	Ominong River				7.0	
Zumigui-Ziwanan River				55,146.9		
	Zumigui River	Luna	B		34.2	

Table 1.13 Characteristics of Rivers and Streams as of 2019 (continued)

Name of Major River	Name of Tributaries	Location	Water Classification	Est. Drainage Area (ha.)	Length (km.)	Discharge Rate (cu.m./sec)
	Ziwanan River	Calanasan	B			
	Manucotae River				13.0	
	Marag River				17.0	
	Dumayong River				22.0	
	Anocot River					
	Masil River					
Aringay River			B	25,939.0	27.0	4,215.0
	Asin-Galiano River	Tuba			5.3	
	Elew River				7.4	
	Abuloy River				4.8	
	Pugo River		B		7.2	
	Budacao River				6.4	
	Depanay River				5.3	
	Cagaling River				2.3	
	City Camp River				4.1	
Naguilian River						
	Balili River	La Trinidad, Baguio City, Sablan	A	19,455.4	30.6	0.9
	Payung River				9.6	
	Coplas River					
	Oring River				4.1	
	Anneng River				13.3	
	Bolo Creek				1.8	
	Gayasi River				5.5	
	Gibraltar Creek					
	Sagudin Creek					
Bued River		Baguio City, Tuba, Itogon	C	18,473.8	31.5	62.6
	Taloy Creek				2.1	
	Twin Peaks Creek				2.8	
	Bayating Creek					
	Colorado Falls / Palimall Creek				4.9	
	Arobigos Creek					
	Talebe Crrek					
	Pasingi Creek					
	Covelas Creek					
	Tokang Creek				3.1	
	Ampasit Creek				6.7	

Table 1.13 Characteristics of Rivers and Streams as of 2019 (continued)

Name of Major River	Name of Tributaries	Location	Water Classification	Est. Drainage Area (ha.)	Length (km.)	Discharge Rate (cu.m./sec)
	Sangilo Creek				3.2	
	Balding Creek				7.1	
	Ataki Creek				6.2	
	Camp 4 Creek				2.0	
	Pugo/Kias Creek				9.9	
	Camp 5 / Honey Creek				3.1	
	Gold Coin Creek					
	Liwliw Creek					
	Copper King Creek				2.5	
	Amliang Creek					
	Uabac Creek					
	Chaparral Creek				6.2	
	Balsigan Creek				2.1	
	Loakan Creek				2.0	
Silag River	Silag River			12,244.0	30.3	
Cabicungan River	Cabicungan River	Calanasan	B	5,888.1	11.9	
Others	Bakun River					
	Badeo River					
	Budacao River	Tuba	A			
	Depanay River		A			

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.14
Characterization of Soil by Type and by Province
2015 (area in hectares)

Soil Type	Abra	Apayao	Benguet	Ifugao	Kalinga	Mt. Province	CAR
Clay	68,434	24	14,714	39,127	20,407	32,350	175,056
Clay loam	18,014	159,160	36,431	26,248	64,583	23,307	327,743
Gravelly clay loam	-	-	3,672	8,753	-	-	12,425
Gravelly loam	-	-	5,837	-	-	-	5,837
Loam	1,010	-	36,976	294	2,261	29,096	69,637
Mountain soil	253,145	249,132	196,388	154,641	118,012	121,998	1,093,316
River wash	6,007	427	41	166	2,705	-	9,346
Rocky	-	-	-	357	517	-	874
Sandy clay	-	-	485	-	1,845	1,141	3,472
Sandy clay loam	35,675	657	-	3,161	5,001	-	44,494
Sandy loam	1,406	2,722	585	215	49,201	576	54,704
Silt loam	-	5,335	9,988	320	360	1,611	17,615
Silty clay	-	3,745	-	-	-	-	3,745
Silty clay loam	2,001	2,412	-	24,998	-	17,984	47,395
Total	385,692	423,613	305,117	258,282	264,892	228,064	1,865,660

Source of basic data: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.15 Rock Types by Province
2015 (area in hectares)

Rock Types	Abra	Apayao	Benguet	Ifugao	Kalinga	Mt. Province	CAR
Neogene	80,630	58,836	68,006	12,569	26,029	28,605	274,674
Oligocene-Miocene	25,831	39,015	2,030	7,721	1,619	4,359	80,576
Oligocene-Miocene (Sedimentary & Metamorphic Rocks)	40,866	54,624	134,990	178,455	66,110	92,188	567,234
Paleocene-Eocene (Sedimentary & Metamorphic Rocks)	27,894	-	-	-	-	-	27,894
Pliocene-Pleistocene	478	15,137	-	10,263	55,269	10,889	92,036
Pliocene-Quaternary	-	4,258	3,930	962	2,805	3,060	15,016
Recent	30,441	19,834	294	1,273	32,292	1,344	85,478
Undifferentiated	154,018	177,400	69,208	22,012	39,426	64,401	526,465
Undifferentiated (Sedimentary & Metamorphic Rocks)	-	-	-	115	-	6,896	7,011
Upper Miocene-Pliocene	-	2,346	3,571	-	-	-	5,917
Upper Miocene-Pliocene (Sedimentary & Rocks)	25,534	52,163	23,087	24,911	41,342	16,322	183,359
Total	385,692	423,613	305,117	258,282	264,892	228,064	1,865,660
Silty clay	-	3,745	-	-	-	-	3,745
Silty clay loam	2,001	2,412	-	24,998	-	17,984	47,395
Total	385,692	423,613	305,117	258,282	264,892	228,064	1,865,660

Source of basic data: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.16.1 Annual Average Dissolved Oxygen (DO) and Biochemical Oxygen Demand (BOD) Concentration of Selected Fresh Water Bodies in CAR
2011 to 2018 (continued)

Water Body	DO WQ Guideline	BOD WQ Guideline	Class	2011				2012	
				Average (in mg/L)		Conformance with the standard		Average (in mg/L)	
	(mg/l)	(mg/l)		DO	BOD	DO	BOD	DO	BOD
Bued River	5	7	C	7.07	6.33	Passed	Passed	10.33	5
Ambulalacao Lake	5	1	AA	-	-			-	-
Pugo River	5	5	B	9.09	5	Passed	Failed	10.64	1
Abra River	5	3	A	-	-			-	-
Agno River	5	3	A	6.75	3	Passed	Failed	10.18	1.5
Chico River	5	5	A	5.56	1	Passed	Passed	-	-
Amburayan River	5	5	B	6.88	6.33	Passed	Failed	9.36	1.625
Budacao River	5	3	B	5.13	1	Passed	Passed	10.99	1
Alenod River	5	3	A	6.28	1	Passed	Passed	12.33	1
Ambalanga River	5	7	C	5.09	4	Passed	Passed	10.08	1
Eddet River	5	3	A	7.28	1	Passed	Passed	13.87	1
Depanay River	5	3	B	6.59	1	Passed	Passed	11	3
Asin Gallano River	5	5	B	6.23	2.6	Passed	Passed	10.87	4.625
Balili River	5	3	A	3.22	59.7	Failed	Failed	6.45	-

Source of basic data: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.16.1 Annual Average Dissolved Oxygen (DO) and Biochemical Oxygen Demand (BOD) Concentration of Selected Fresh Water Bodies in CAR
2011 to 2018

Water Body	2015				2016				2017
	Average (in mg/L)		Conformance with the standard		Average (in mg/L)		Conformance with the standard		Average (in mg/L)
	DO	BOD	DO	BOD	DO	BOD	DO	BOD	DO
Bued River	8.30	14.23	Passed	Failed	9.28	7.28	Passed	Failed	9.79
Ambulalacao Lake	9.61	1.5	Passed	Passed	13.84	1.33	Passed	Passed	10.39
Pugo River	10.91	1	Passed	Passed	10.62	<1	Passed	Passed	10.59
Abra River	9.38	3.16	Passed	Failed	9.90	4.33	Passed	Failed	10.58
Agno River	8.80	1.94	Passed	Passed	11.64	1.27	Passed	Passed	12.64
Chico River	9.24	-	Passed		10.03	-	Passed		10.34
Amburayan River	10.02	1	Passed	Passed	12.25	1.25	Passed	Passed	11.99
Budacao River	10.26	1	Passed	Passed	10.23	1	Passed	Passed	10.46
Alenod River	12.96	1	Passed	Passed	12.85	1	Passed	Passed	14.48
Ambalanga River	9.74	2	Passed	Passed	10.82	1	Passed	Passed	11.04
Eddet River	14.31	2.33	Passed	Passed	11.87	2	Passed	Passed	12.91
Depanay River	10.59	1	Passed	Passed	11.28	1	Passed	Passed	10.73
Asin Gallano River	7.59	1.59	Passed	Passed	9.80	1.1	Passed	Passed	10.50
Balili River	6.32	34.19	Passed	Failed	6.10	55.56	Passed	Failed	4.95

Source of basic data: Department of Environment and Natural Resources - Cordillera Administrative Region

2013				2014					
Conformance with the standard		Average (in mg/L)		Conformance with the standard		Average (in mg/L)		Conformance with the standard	
DO	BOD	DO	BOD	DO	BOD	DO	BOD	DO	BOD
Passed	Passed	9.09	1	Passed	Passed	8.18	9.13	Passed	Failed
		8.19	2	Passed	Passed	18.5	1.5	Passed	Passed
Passed	Passed	13.96	<1	Passed	Passed	9.39	1	Passed	Passed
		-	-			-	-		
Passed	Passed	11.06	2	Passed	Passed	10.42	1.17	Passed	Passed
		9.09	-	Passed		9.38	-	Passed	
Passed	Passed	11.01	1.5	Passed	Passed	10.06	<1	Passed	Passed
Passed	Passed	10.44	<1	Passed	Passed	10.59	1	Passed	Passed
Passed	Passed	10.94	1	Passed	Passed	14.16	2	Passed	Passed
Passed	Passed	13.17	3	Passed	Passed	8.54	1.5	Passed	Passed
Passed	Passed	18.69	1	Passed	Passed	7.89	1	Passed	Passed
Passed	Failed	11.36	1	Passed	Passed	10.61	1	Passed	Passed
Passed	Passed	8.09	2	Passed	Passed	9.48	1	Passed	Passed
Passed		6.77	43.4286	Passed	Failed	5.89	41.95	Passed	Failed

2017			2018			
	Conformance with the standard		Average (in mg/L)		Conformance with the standard	
BOD	DO	BOD	DO	BOD	DO	BOD
10.24	Passed	Failed	10.09	10.78	Passed	Failed
1.75	Passed	Passed	11.36	1	Passed	Passed
1	Passed	Passed	13.55	1	Passed	Passed
1.27	Passed	Passed	13.09	1.1	Passed	Passed
1.11	Passed	Passed	13.93	1.63	Passed	Passed
1.03	Passed	Passed	7.71	1.28	Passed	Passed
1.08	Passed	Passed	12.88	1	Passed	Passed
1	Passed	Passed	13.58	1	Passed	Passed
1	Passed	Passed	17.30	1	Passed	Passed
2	Passed	Passed	12.77	1.5	Passed	Passed
1	Passed	Passed	14.83	1	Passed	Passed
1	Passed	Passed	14.95	1	Passed	Passed
1.19	Passed	Passed	13.19	1.05	Passed	Passed
63.45	Failed	Failed	5.78	53.87	Passed	Failed

Table 1.16.2
Acidity/Alkalinity/pH of Selected Fresh Water Bodies in CAR
2011 to 2018 (continued)

Water Body	WQ Guideline	2011	2012	2013	2014	
		2nd Qtr	4th Qtr	4th Qtr	3rd Qtr	4th Qtr
Bued River	6.5-9.0	8.57	-	9.39	7.73	7.72
Ambulalacao Lake	6.5-8.5	-	-	10.08	-	8.31
Pugo River	6.5-8.5	7.21	9.01	9.41	-	7.96
Abra River	6.5-8.5	-	-	-	-	-
Agno River	6.5-8.5	8.01	9.07	8.92	-	7.64
Chico River	6.5-8.5	8.39	-	8.99	-	7.69
Amburayan River	6.5-8.5	8.32	9.173	9.46	-	8.32
Budacao River	6.5-8.5	7.85	8.99	9.25	-	8.15
Alenod River	6.5-8.5	8.48	8.33	8.92	-	7.65
Ambalanga River	6.5-9.0	8.39	8.19	9.46	-	7.72
Eddet River	6.5-8.5	8.31	8.96	8.51	-	7.56
Depanay River	6.5-8.5	8.09	9.1	9.33	-	8.14
Asin Gallano River	6.5-8.5	8.57	8.81	9.34	8.46	8.02
Balili River	6.5-8.5	7.88	8.55	7.80	8.09	7.48

Source of basic data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.16.2
Acidity/Alkalinity/pH of Selected Fresh Water Bodies in CAR
2011 to 2018

Water Body	2017				2018	
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr
Bued River	7.78	7.42	9.04	8.86	7.46	9.19
Ambulalacao Lake	8.24	7.42	7.93	6.9	6.43	6.53
Pugo River	6.86	7.47	7.88	7.59	7.87	8.6
Abra River	7.73	8.51	7.23	7.23	8.98	8.98
Agno River	7.82	7.52	7.49	7.46	7.15	6.57
Chico River	7.84	7.92	7.69	7.87	9.31	7.40
Amburayan River	7.55	7.86	7.38	7.95	7.87	7.57
Budacao River	6.79	7.16	7.86	7.15	7.86	8.6
Alenod River	7.84	7.68	7.54	7.59	7.04	6.95
Ambalanga River	7.44	7.33	7.62	7.39	7.93	6.52
Eddet River	7.84	7.81	7.51	7.46	7.51	6.78
Depanay River	7.23	7.39	7.96	7.31	7.72	8.78
Asin Gallano River	7.64	8.01	7.72	8.05	8.69	9.60
Balili River	7.49	7.41	7.60	7.49	7.01	7.86

Source of basic data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

2015				2016		
1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	4th Qtr
8.06	7.61	8.17	7.48	7.88	8.17	8.217
-	8.06	6.78	7.61	8.25	6.41	15.78
5.67	-	8.29	7.64	7.97	7.08	7.51
7.22	7.59	7.97	7.30	7.06	7.81	7.11
-	7.73	7.57	7.35	5.48	7.29	7.18
-	8.42	7.90	8.13	7.98	7.66	8.01
7.90	-	8.23	7.44	8.24	8.65	7.65
6.42	-	8.39	7.9	7.72	6.9	7.8
-	7.83	6.57	7.54	9	7.37	6.68
-	8.06	6.73	7.11	11	6.41	7.68
-	8.15	8.13	7.19	8	7.49	6.99
5.92	-	8.41	7.8	7.49	6.9	7.49
7.73	6.88	76.33	7.82	7.06	7.42	7.72
7.56	7.56	7.59	7.69	8.18	7.45	7.73

2018	
3rd Qtr	4th Qtr
7.09	7.66
6.22	7.79
8.05	9.31
7.32	7.78
7.35	7.61
7.06	9.96
7.57	7.57
7.79	10.31
7.45	7.45
7.25	7.67
7.57	8.01
7.95	10.85
8.13	8.22
8.99	6.98

Table 1.16.3
Total Suspendid Solid of Selected Fresh Water Bodies in CAR
2011 to 2018 (continued)

Water Body	WQ Guideline (mg/l)	2011	2012		2013	2014	
		2nd Qtr	2nd Qtr	4th Qtr	4th Qtr	3rd Qtr	4th Qtr
Bued River	80	312.7	-	-	258.3	221.2	571.3
Ambulalacao Lake	25	-	-	-	1	2	2
Pugo River	65	1	4	<1	<1	<1	<1
Abra River	50	19.4	13.8	18.3	8.8	1.8	8
Agno River	50	22	-	2.3	104.3	46.4	58.8
Chico River	65	161	35.3	18.6	4.7	25.3	13.1
Amburayan River	65	16	1	<1	2.7	20.7	16
Budacao River	50	<1	<1	<1	<1	2	3
Alenod River	50	8	-	4	9	31	10
Ambalanga River	80	245	-	87	7	232	385
Eddet River	50	<1	-	2	10	1	<0.006
Depanay River	50	<1	1	<1	5	2	<1
Asin Gallano River	65	42.3	3	2.3	7	-	2.8
Balili River	50	29	8.2	22.7	25.1	32.96	34.2

Source of data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.16.3
Total Suspendid Solid of Selected Fresh Water Bodies in CAR
2011 to 2018

Water Body	2017				2018	
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr
Bued River	115.9	115.9	155.2	283.7	219.2	130.3
Ambulalacao Lake	<1	1	5	2	<1	1
Pugo River	<1	2	24	1	<1	<1
Abra River	7.8	4.7	123.5	123.5	4	70.6
Agno River	7.5	69.5	14.3	20.5	14.3	521.3
Chico River	29.8	60.6	17.5	19.6	11.7	10.2
Amburayan River	2.0	1.9	8.3	2.3	5.2	27.8
Budacao River	<1	2	21	<1	<1	<1
Alenod River	7	2	5	3	6	57
Ambalanga River	192	71	214	125.5	548	784
Eddet River	<1	<1	191	3	3	16
Depanay River	<1	3	55	2	2	1
Asin Gallano River	3.0	26.2	44	4.4	5	11.6
Balili River	65.8	62.8	39.5	19.2	67.1	63.1

Source of data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

2015				2016		
1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	4th Qtr
958.0	364.0	181.2	63.1	207.8	1277.7	53.8
2	5	1	3	3	7	4
2	1	3	2	<1	2	4
5.2	5.3	96.2	3.2	4.3	3	41.2
138.3	202.4	19.5	21	8.33	130	33.6
9.6	8.2	20.6	5.4	7.4	8.8	5.0
4.5	1	47	14.3	<1	8.3	1.7
2	<1	3	12	<1	<1	<1
1	10	8	<1	<1	<1	7
2994	877	357	199	197	242	7
4	2	7	<1	<1	4	<1
<1	<1	<1	2	<1	2	<1
6.3	58.8	14.4	10.8	3	7.3	1.5
62.9	111.2	21.0	12.6	127.5	43.7	22.3

2018	
3rd Qtr	4th Qtr
2374.1	135.1
9	6
8	<1
232.3	9.4
60.8	134.8
15.8	9
22.1	4.3
8	3
17	17
190	246
16	22
7	<1
12.4	3.8
45.8	18.5

Table 1.16.4
Fecal Coliform of Selected Fresh Water Bodies in CAR
2011 to 2018 (in MPN/100 mL)
(continued)

Water Body	WQ Guideline (MPN/100ml)	2011	2012	2014	
		2nd Qtr	2nd Qtr	3rd Qtr	4th Qtr
Bued River	200	-	-	218,005,607	332,000,000
Ambulalacao Lake	<1.1	-	-	7,000	8
Pugo River	100	5	23	-	-
Abra River	<1.1	-	-	-	-
Agno River	<1.1	1,600	-	49,000	80,250
Chico River	100	7,667	-	-	-
Amburayan River	100	-	-	-	-
Budacao River	<1.1	2	49	2,400	310
Alenod River	<1.1	-	-	1,300	490
Ambalanga River	200	-	-	92,000	1,600,000
Eddet River	<1.1	-	-	790	<0.017
Depanay River	<1.1	5	17	1,700	94
Asin Gallano River	100	16,533	73,133	-	6,780
Balili River	<1.1	240,000	20,141,857	6,210,645,217	106,000,000,000

Source of data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.16.4
Fecal Coliform of Selected Fresh Water Bodies in CAR
2011 to 2018 (in MPN/100 mL)

Water Body	2016			2017	
	2nd Qtr	2nd Qtr	3rd Qtr	1st Qtr	2nd Qtr
Bued River	648,000	69,100,000	664,751,875	113,000,000	1,250,000,000
Ambulalacao Lake	23	140	79	<1.08	25
Pugo River	260	700	1,100	7,900	270
Abra River	-	-	-	-	-
Agno River	1,512	47,140	3,966	1,080	31,900
Chico River	-	-	-	-	-
Amburayan River	-	-	-	-	-
Budacao River	23	220	4,900	170	13,000
Alenod River	3,300	330	33,000	13,000	200
Ambalanga River	17,000	490,000	4,900	1,600,000	23,000
Eddet River	1,700	94,000	70,000	2,200	680
Depanay River	700	7,900	200	230	2,300
Asin Gallano River	10,860	28,920	298,000	10,740	268,000
Balili River	1,630,000,000	8,490,280,476	21,500,304,762	11,715,333,333	5,280,190,476

Source of data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

2015			
1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
503,000,000	523,000,000	119,200,000	-
23	23	35,000	-
94	130	790	-
-	-	-	-
1,828	2,400	6,175	-
-	-	-	-
-	2,800	35,533	405
17	540	23	-
110	920	5,400	-
920,000	33,000	49,000	-
170,000	49	2,400	-
54	240	1,100	-
3,784,800	80,733	16,780	-
1,010,000,000	74,581,900	1,439,000,000	-

		2018			
3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
22,821,333	3,506,592	135,599,986	16,419,340	35,892,404	686,522,392
-	1,300	380	400	140	130
7,900	150	9,200	220	2,100	78
-	-	-	-	-	-
-	8,200	8,075	843,133	285,500	2,720
-	-	-	-	-	-
-	-	2,575	15,010	21,264	852
170	2,400	3,500	400	330	4,000
-	2,400	3,500	63,000	22,000	22,000
-	49,000	920,000	170,000	380,000	49,000
-	49,000	9,200	380	3,500	790
230	4,600	16,000	1,400	3,900	1,300
78,240	3,331	-	9,220	40,520	5,440
113,593,476,190	118,122,636,190	212,025,155,000	290,527,740,000	36,263,384,700,000	40,268,416,047,619

Table 1.16.5
Temperature of Selected Fresh Water Bodies in CAR
2011 to 2018 (continued)

Water Body	WQ Guideline	2011	2012	2013	2014	
		2nd Qtr	4th Qtr	4th Qtr	3rd Qtr	4th Qtr
	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)
Bued River	25-31	28.0	25.0	24.4	22.3	21.9
Ambulalacao Lake	26-30	-	-	18.0	-	17.2
Pugo River	26-30	26.1	24.5	23.5	-	22.5
Abra River	26-30	-	-	-	-	-
Agno River	26-30	22.6	19.0	21.9	-	20.2
Chico River	26-30	22.6	-	20.8	-	19.8
Amburayan River	26-30	27.8	23.1	23.2	-	25.6
Budacao River	26-30	28.7	23.4	23.9	-	21.4
Alenod River	26-30	22.0	17.8	19.8	-	17.9
Ambalanga River	25-31	28.5	25.7	24.0	-	25.0
Eddet River	26-30	23.2	19.8	21.2	-	20.5
Depanay River	26-30	25.6	24.0	24.1	-	21.0
Asin Gallano River	26-30	28.6	25.7	24.8	24.0	23.6
Balili River	26-30	22.1	21.3	21.4	20.6	20.6

Source of data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 1.16.5
Temperature of Selected Fresh Water Bodies in CAR
2011 to 2018

	2017				2018
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr
	(°C)	(°C)	(°C)	(°C)	(°C)
Bued River	22.4	25.2	23.0	22.2	23.1
Ambulalacao Lake	23.0	19.4	16.9	16.2	16.7
Pugo River	22.6	25.1	23.1	23.9	23.6
Abra River	28.9	31.8	27.6	27.6	30.6
Agno River	20.9	23.7	21.8	21.7	21.1
Chico River	17.5	26.5	22.1	21.4	23.2
Amburayan River	22.5	24.7	23.1	23.8	21.6
Budacao River	22.0	23.5	22.4	23.1	22.7
Alenod River	18.9	21.2	19.6	19.3	20.0
Ambalanga River	23.0	26.3	23.6	26.5	28.3
Eddet River	20.7	23.5	20.1	20.0	18.5
Depanay River	21.7	24.4	23.1	23.1	22.6
Asin Gallano River	25.7	27.5	23.8	25.9	26.0
Balili River	23.5	23.5	22.8	21.5	21.3

Source of data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

2015				2016		
1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	4th Qtr
(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)
19.8	22.2	23.4	21.9	22.1	24.7	23.1
-	18.2	18.8	13.4	16.6	22.6	15.8
20.5	-	22.3	22.2	23.1	27.9	22.6
23.9	27.9	27.6	27.0	23.6	29.7	28.4
-	23.2	21.8	19.3	21.9	23.6	21.1
-	27.1	22.0	23.4	21.2	20.1	22.5
19.5	-	22.4	20.3	23.3	26.7	21.4
20.3	-	21.0	23.5	22.0	25.2	22.0
-	22.1	21.0	18.2	19.0	23.4	18.4
-	27.4	24.6	25.1	22.5	22.4	25.7
-	26.4	21.3	20.2	22.1	26.2	19.4
20.2	-	22.3	22.7	21.6	26.7	22.1
23.9	26.0	24.9	23.4	23.6	30.2	25.1
20.5	21.5	21.5	20.6	20.8	22.4	21.4

2018		
2nd Qtr	3rd Qtr	4th Qtr
(°C)	(°C)	(°C)
24.3	21.2	22.9
18.7	16.9	14.6
26.0	22.8	23.8
30.6	26.8	28.5
22.4	21.1	22.0
25.3	22.7	22.2
22.4	21.0	22.4
26.0	22.4	22.7
20.0	19.0	19.0
30.4	24.8	25.5
23.7	19.5	18.4
24.4	22.0	22.5
28.5	24.5	23.0
22.3	21.9	21.9

Table 1.17
Concentration Levels of Particulate Matter 10 (PM10)
2011 to 2018

Region	Location	2011	2012	2013	2014	2015	2016	2017	2018
CAR	Plaza Garden Park, Central Business District, Lower Session Road, Baguio City (RT)	68.2	79.7	69.3	…	124.5	82.6	81.0	71.0

Source of data: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Tappiyah Falls
Banaué, Ifugao
Photo by: Winsky Salisa

ENVIRONMENTAL RESOURCES AND THEIR USE

Component 2 is a collection of statistics that describe the interaction between the environment and human activities. It presents the stocks and changes in stocks of environmental resources brought about by human interventions. Environmental resources are defined as "the naturally living and non-living components of the Earth together constituting the biophysical environment, which may provide benefits to humanity". [4]

The statistics compiled for this component are indicators that can be used to monitor the achievement of Sustainable Development Goals (SDG). The core statistics under this component have several connections to the 2030 Sustainable Agenda. Some of these are Goal 2 – food security; Goal 6 – availability of clean water; Goal 7 – sufficiency of energy; Goal 13 – provision of resources and mitigation of global warming; and Goals 14 and 15 – maintenance of life on water and land, respectively. These statistics are linked together to arrive at Goal 12 – responsible consumption; SDG 8 – sustainable growth; and SDG 9 – innovation.

This component covers six subcomponents focusing on (1) mineral resources, (2) energy resources, (3) land, (4) soil resources, (5) biological resources, and (6) water resources. Its core statistics mainly report on stocks and changes in the stocks of these resources. Energy resources are not reported in this document due to unavailability of regional data.

There are 30 core statistics in Component Two. The limited sources only allowed the compilation of 15 statistics scattered in the six subcomponents. The remaining half of the core statistics are not included for various reasons. The region has no available data on energy resources and groundwater resources. There is also no official data on land use area, natural fertilizer use, and pesticide use. Data on the volume of water inflows from neighboring territories is not included because it does not apply to the region and the revised FDES does not yet define the scope of the statistic for archipelagic countries like the Philippines.

2.1. Mineral resources

Minerals are defined as the "elements or compounds composed of a concentration of naturally occuring solid, liquid or gaseous materials in or on the earth's crust"[5] . Minerals are categorized into two, namely metallic an non-metallic minerals. Metallic minerals include gold, silver and copper, and non-metallic minerals include precious gems, sand and clay. By definition, coal and petroleum resources are also considered as non-metallic minerals, but due to their capacity to provide energy, they are included in Energy Resources.

Mineral resources are non-renewable. They do not regenerate on any human timescale. This implies that the rate at which they are extracted is also the rate of their depletion. Since they cannot be renewed, sustainable use of these resources must be practiced by the industries engaged in mining.

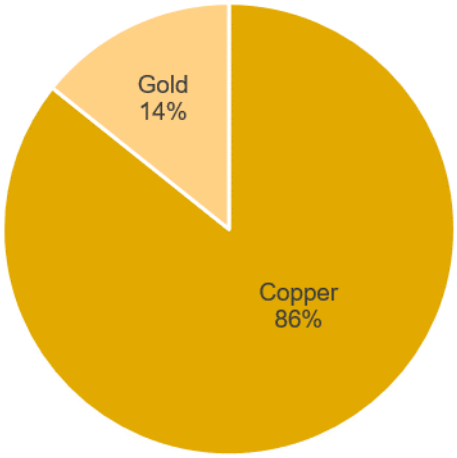
2.1.1. Metallic and non-metallic mineral resource/reserve

The core statistics under this topic is the Inventory of Mineral Resources and the Volume of Mineral Production. The Mines and Geosciences Bureau provided both reports covering the period 2008-2018.

[4]System of Environmental-Economic Accounting 2012 Central Framework
[5]United Nations for the Development of Environment Statistics 2013 (Final official edited version)

Cordillera region has two prime commodities of metallic mineral resources – gold and copper. According to the Annual Mineral Resources/Reserves Inventory, CAR has 69.6 million tons of metallic mineral resources of which 86 percent is copper and 14 percent is gold. The average rate of extraction for gold reserves was estimated at 462,491 MT from 2008 to 2018. Extraction for copper reserves on the other hand posted an average of 8.6 million MT for the same period.

Figure 2.1 Percentage Distribution of Metalic Minerals Reserve, CAR:2018

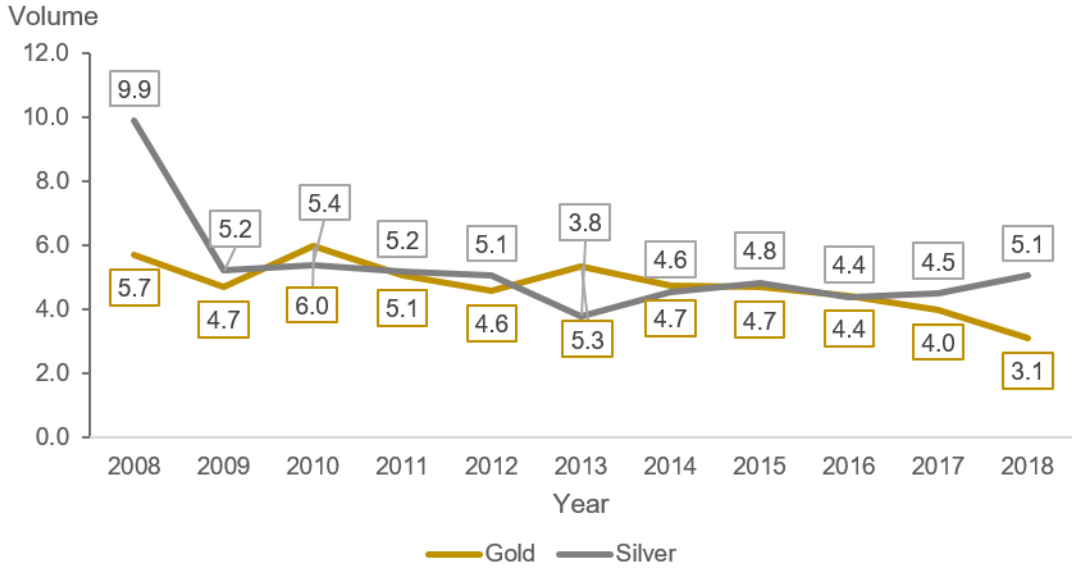


Source of basic data: Mines and Geosciences Bureau – CAR

2.1.2. Mineral production

The production of precious metals gold and silver is shown in Figure 2.2. Gold and silver production displayed an overall downtrend from 2008 to 2018. Gold posted the highest production in 2010 at 6.0 thousand kilograms and the lowest in 2018 at 3.1 thousand kilograms. Meanwhile, silver posted the highest production in 2008 at 9.9 thousand kilograms and the lowest in 2013 at 3.8 thousand kilograms.

Figure 2.2 Volume of Production of Gold and Silver, CAR: 2008-2018 (In thousand kilograms)



Source of basic data: Mines and Geosciences Bureau – CAR

2.2. Biological resources

The list of core statistics for biological resources includes timber resources, aquatic resources, crops, livestock, and other non-cultivated biological resources. Unlike mineral and energy resources, biological resources are renewable. Therefore, harvest of these resources must not exceed the rate of regeneration.

At present, there are no core statistics to be compiled under other non-cultivated biological resources. The data presented in this subcomponent came from DENR and PSA.

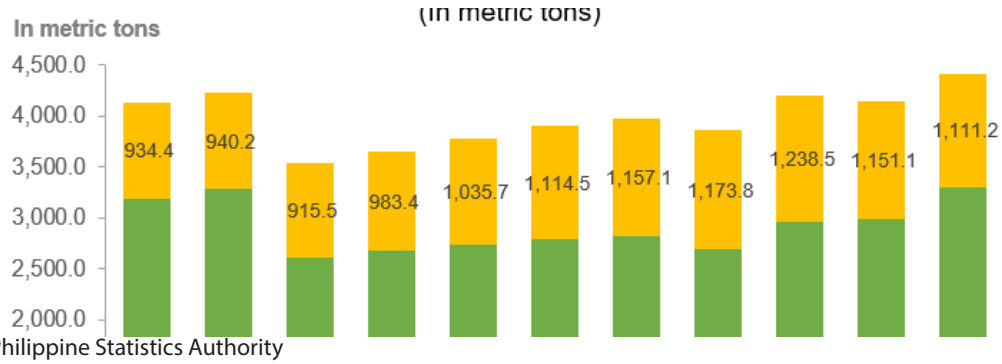
2.2.1. Aquatic resources

Aquatic resources include different species of fish, crustaceans, mollusks and aquatic plants. The core statistics under this topic includes the levels of fish capture production and aquaculture production.

Statistics on fish capture production are divided into three: (1) commercial fisheries, (2) inland municipal fisheries, and (3) marine municipal fisheries. Commercial and municipal fishing differs in the capacity of fishing vessels or boats used. Commercial fishing is the catching of fish using boats with capacity of three gross tons, either for trade, business or profit beyond subsistence, or sports. Municipal fishing utilizes fishing vessels with three gross tons or less of capacity. Aquaculture production, on the other hand is presented according to the type of environment (brackish water, freshwater or marine water); and type of facility (ponds, pens, cages or reservoirs). Oyster, mussel and seaweed farming are also included under Aquaculture. Statistics on fish capture and aquaculture production were provided by the Philippine Statistics Authority.

Fishery production in CAR only includes freshwater aquaculture and inland municipal fishery. About 75 percent of the fish production in the region came from Aquaculture and the remainder was the output of Inland Municipal Fishing. The driver of aquaculture and inland municipal fishery is tilapia production.

Figure 2.3 Fish Production by Type of Fishery, CAR: 2008 to 2018



Source: Philippine Statistics Authority

2.2.2. Crops

The core statistics compiled for this topic were amount produced, area planted, area harvested and amount used of inorganic fertilizers. All these statistics were sourced from the data produced by PSA.

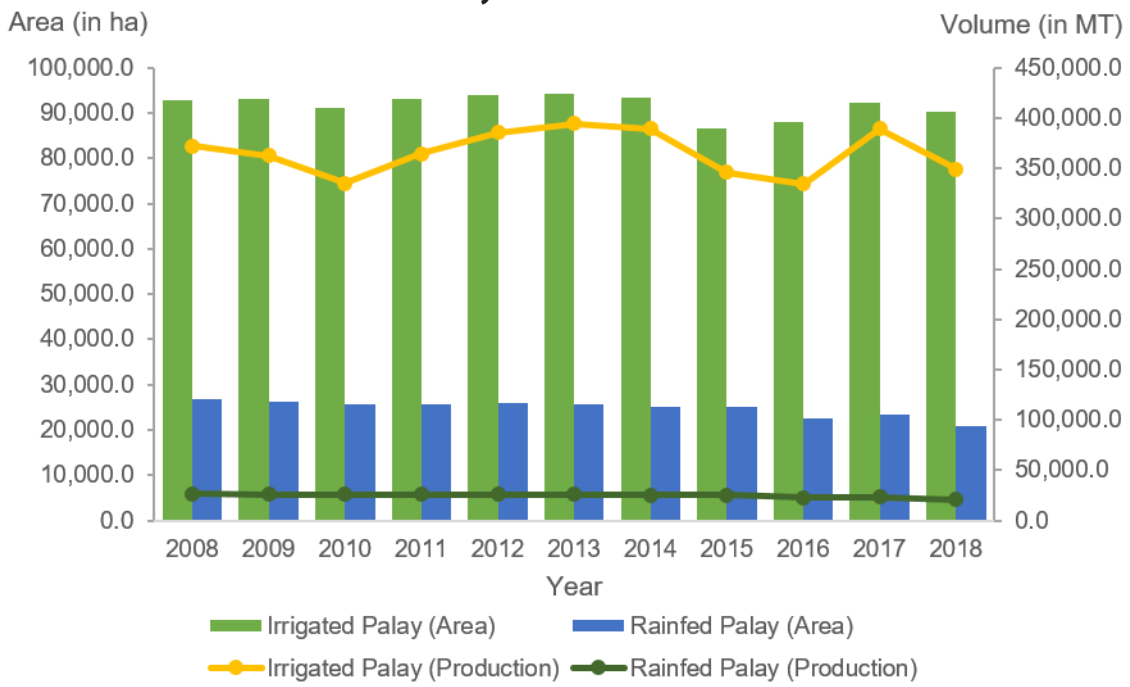
Statistics for area harvest and area produced were not differentiated and are compiled in the same table. The amount used of inorganic fertilizers was presented in two ways: by area applied and harvested and the amount applied by grade. Data on the amount used of natural fertilizers and pesticides were not available.

The amount of production and area planted/harvested covered palay, corn and 66 other crops. Statistics on the volume of production and area planted/harvested for palay were classified into irrigated and

rainfed palay while corn was categorized into white and yellow corn. The most recent collected statistics on the use of inorganic fertilizers include up to 2014 only. The area applied and harvested with inorganic fertilizers were also available for palay and corn only.

Total area planted/harvested of palay in CAR decreased by an annual average of 0.7 percent from 119,816 hectares in 2008 to 111,387 hectares in 2018 or equivalent to an annual average decline of 842.9 hectares. Area planted/harvested of palay for irrigated palay covered almost 80 percent of the total area

Figure 2.4 Area Planted/Harvested and Volume of Production of Palay in CAR: 2008 - 2018

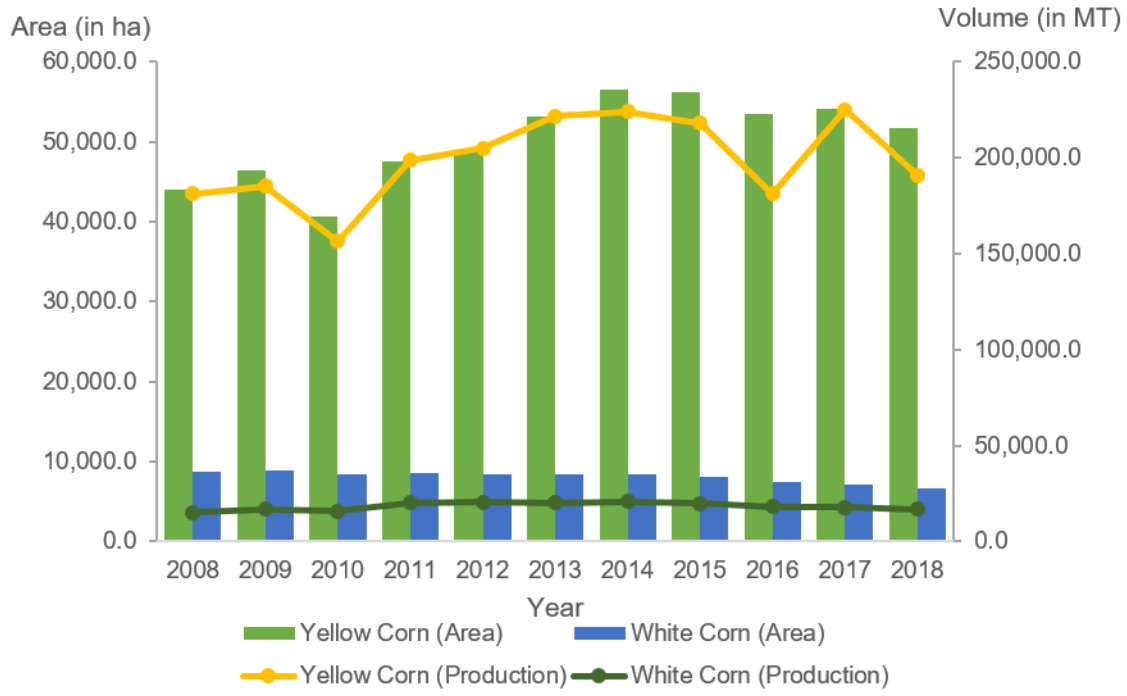


Source: Philippine Statistics Authority

while rainfed palay covered the remaining 20 percent. Volume of production for palay consequently decreased by an annual average of 0.9 percent or 5,405.1 MT yearly decline from 445,156 MT in 2008 to 391,105 MT. On the average, irrigated palay contributed 85.8 percent of the total production while rainfed palay shared 14.2 percent.

The total area planted/harvested of corn increased from 52,698 hectares in 2008 to 58,405 hectares in 2018. This translates to an annual average increase of 1.3 percent or 570.7 hectares annual increment in the total area planted/harvested for corn production in the region. Volume of production also increased from 196,421 MT in 2008 to 207,439 MT in 2018 with an annual average growth of 1.5 percent or an annual increment of 1,101.8 MT. Average share of production of yellow corn was 91.5 percent. The highest volume was recorded in 2017 with 224,962 MT while the lowest was in 2010 with 156,518 MT. The 8.5 percent remainder was the average contribution of white corn to the total production for the span of 11 years.

Figure 2.5 Area Planted/Harvested and Volume of Production of Yellow Corn and White Corn, CAR: 2008-2018



Source: Philippine Statistics Authority

2.2.3. Livestock

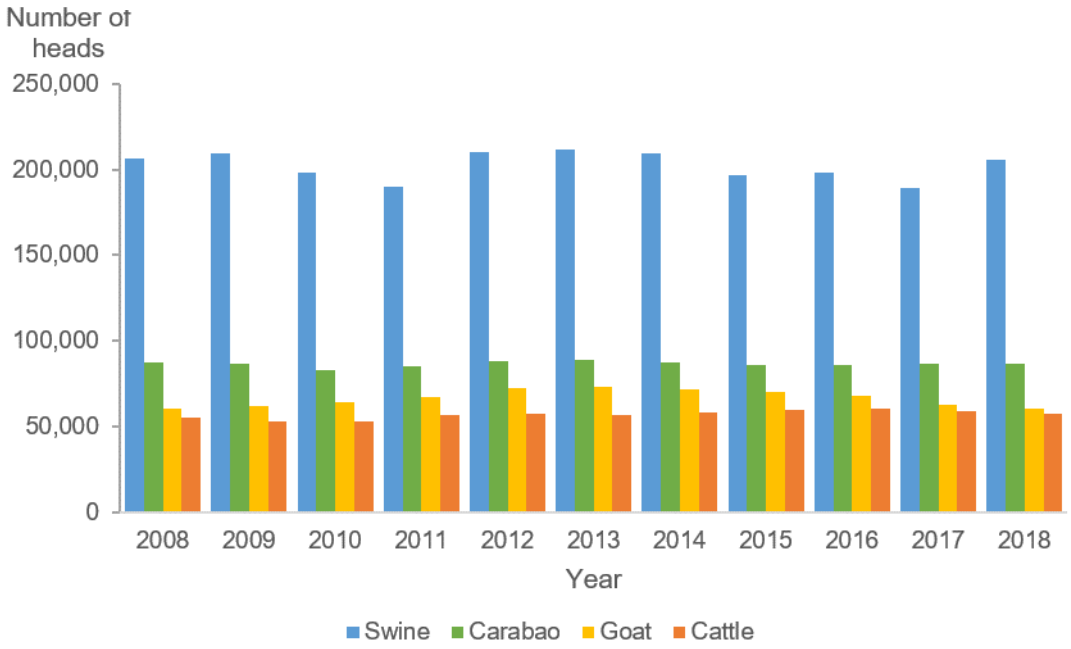
The FDES defined livestock as animals raised by humans for commercial purposes, consumption or labor. Data for the only core statistics in this topic came from the Livestock Inventory as of January 1 of the indicated year. The statistics gathered refers to the number of cattle, carabao, hog, goat, chicken and duck which were also classified according to farm type (i.e. commercial or backyard), except for chicken, which was categorized into broilers, layers and native/improved chicken.

For four-legged animals, commercial farms are those that satisfy one of the following: (a) at least 21 adults and zero young; (b) at least 41 heads of young animals; (c) at least 10 heads of adults and 22 heads of young animals. For poultry, a commercial farm should satisfy any of the following criteria: (a) 500 layers or 1000 broilers; (b) 100 layers and 100 broilers if raised in combination; (c) 100 heads of ducks regardless of age. Backyard farms refer to those that do not fall in the category of commercial farming.

Based on the statistics gathered, the largest livestock was swine with numbers from 188,937 heads (2017) to 211,886 heads (2013) with 98.2 percent raised in backyard farms and 1.2 percent raised in commercial farms (2018). Inventory of cattle posted the least number with only 60,364 maximum heads in 2016, majority of which was raised in backyard farms (86.7 percent). Likewise, most of the carabaos and goats were raised in backyard farms.

Chicken inventory was highest in 2011 with 1.8 million heads, most of which were native/improved. For the inventory of ducks, 2018 had the highest with 297,038 heads, all were raised in backyard farms.

Figure 2.6 Livestock Inventory by Species, CAR: 2008-2018



Source: Philippine Statistics Authority

2.3. Water resources

There are two topics for this subcomponent. One of these is water resource flows. The FDES 2013 recommends compiling data on precipitation, inflow from neighboring territories and evapotranspiration. Out of these core statistics, the only data collected was evaporation. Evapotranspiration is not yet being captured by the facilities of PAGASA. It takes into account the vaporization of water in plant tissues, aside from the evaporation of water. The volume of precipitation is already presented in Component One. No data was collected for the inflows of water from neighboring territories.

Another topic for this subcomponent is the the flow of water starting from abstraction to its return to the environment. The core statistics recommended by the FDES under this topic are the total amount of water abstraction, the amount abstracted from surface water, and the amount abstracted from renewable and non-renewable groundwater.

There is no data available on actual water abstraction. Data on Water Permits Granted provided by the EMB-CAR covering the period 2008 to 2018 were used as proxy indicators.

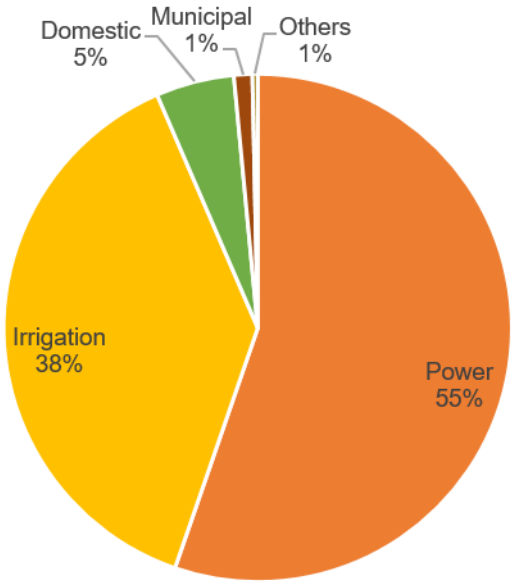
2.3.1. Water resource flows

The data on evaporation from PAGASA were generated from the monitoring facility in Benguet State University, La Trinidad, Benguet. During the period covered, volume of evaporation was highest in 2013. Volume of evaporation generally dropped during the month of August where precipitation was highest. The highest observed evaporation was also seen in 2013 during the month of July.

2.3.2. Abstraction of water

Based on the data on water permits granted, water used for generating power had the highest percentage of allocation with 55 percent. Water allocation for irrigation came second with 38 percent, followed by Domestic use with 5 percent. The data also revealed that the common source of water in CAR was surface water, and this was mainly for power generation.

Figure 2.7 Percentage Distribution of Total Water Allocated by Use, CAR: 2018



Source: Environmental Management Bureau

BAWADI protected area
Military Cutoff, Baguio City
Photo by: Winsky Salisa

STATISTICAL TABLES
Environmental Resources and their Use

Table 2.1
Stock of Commercially Recoverable Gold and Copper Resources, Ectraction and Average Grade, CAR: 2008 to 2018

Year	Gold			Copper		
	Volume (Tons)	Extraction	Ave. Grade g/t Au	Volume (Tons)	Extraction	Average %Cu
2008	5,193,709	474,089	8.6	54,700,000	8,973,520	0.24
2009	2,684,229	389,254	10.5	69,200,000	8,183,683	0.23
2010	3,030,749	337,046	8.4	90,200,000	9,368,936	0.23
2011	9,128,082	529,160	8.8	80,800,000	9,477,575	0.20
2012	8,559,342	568,740	8.8	73,500,000	5,607,858	0.21
2013	8,344,352	745,309	9.5	66,000,000	7,729,938	0.21
2014	7,714,146	381,429	10.9	59,700,000	9,504,933	0.20
2015	5,558,082	349,846	9.7	69,700,000	9,195,265	0.20
2016	9,928,082	295,464	3.7	59,700,000	9,341,663	0.20
2017	9,928,082	424,492	4.0	59,700,000	8,674,809	0.19
2018	9,928,082	592,569	3.9	59,700,000	8,652,155	0.18

Source of basic data: Mines and Geosciences Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 2.2
Nonmetallic Minerals Resource/Reserve Inventory, CAR 2008 to 2018 (in metric tons)

Year	Sand and Gravel	Limestone
2008	977,815.0	150,253,447.0
2009	943,700.0	150,253,447.0
2010	907,500.0	150,253,447.0
2011	1,080,650.7	150,253,447.0
2012	1,042,209.0	150,253,447.0
2013	984,383.8	150,253,447.0
2014	940,712.7	140,314,311.0
2015	1,343,713.8	139,778,579.0
2016	835,632.8	139,146,383.6
2017	850,092.7	139,145,887.5
2018	802,889.5	139,135,643.8

Source of basic data: Mines and Geosciences Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 2.3
Mineral Production
2008 to 2018 (volume in thousands unit used, value in million pesos)
(continued)

Mineral/Mineral Product	Unit Used	2008		2009		2010	
		Volume	Value	Volume	Value	Volume	Value
Metallics							
Gold	kg	5.7	6,584.0	4.7	6,589.4	6.0	8,635.0
Gold (small scale)	kg	0.0	2.3	0.0	2.8	0.0	3.3
Silver	kg	9.9	171.1	5.2	118.1	5.4	160.8
Copper	MT	19.3	-	15.9	-	16.2	-
Copper Concentrate	DMT	87.7	6,920.8	62.0	3,619.5	65.3	5,723.9
Non-metallics							
Sand and Gravel	Cu.M.	161.8	28.2	220.3	35.2	243.6	40.2
Slaked lime	MT	0.2	1.2	0.3	1.7	0.3	1.7
Quicklime	MT	9.3	64.7	7.4	49.4	7.4	50.0

Source of basic data: Mines and Geosciences Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 2.3
Mineral Production
2008 to 2018
(volume in thousands unit used, value in million pesos)

Mineral/Mineral Product	Unit Used	2015		2016		2017	
		Volume	Value	Volume	Value	Volume	Value
Metallics							
Gold	kg	4.7	7,457.1	4.4	8,558.7	4.0	7,186.9
Gold (small scale)	kg	0.0	22.4	0.0	7.6	0.0	5.8
Silver	kg	4.8	104.8	4.4	118.9	4.5	112.0
Copper	MT	15.5	-	15.9	-	13.6	-
Copper Concentrate	DMT	70.0	3,520.3	73.1	3,781.6	65.3	4,682.1
Non-metallics							
Sand and Gravel	Cu.M.	903.2	152.6	770.3	163.6	1,022.1	517.2
Slaked lime	MT	0.1	0.3	0.0	0.2	0.1	0.4
Quicklime	MT	7.8	59.1	9.3	76.7	9.4	76.2

Source: Mines and Geosciences Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

2011		2012		2013		2014	
Volume	Value	Volume	Value	Volume	Value	Volume	Value
5.1	7,982.8	4.6	7,359.6	5.3	7,359.6	4.7	8,241.4
0.0	3.3	0.0	8.3	0.0	8.7	-	-
5.2	246.0	5.1	158.0	3.8	162.1	4.6	122.6
14.2	-	13.6	-	10.1	-	16.1	-
69.6	13,114.8	74.2	3,969.5	40.5	3,969.5	70.1	4,759.4
355.5	37.0	515.6	136.8	479.2	37.2	756.9	121.1
0.4	2.1	0.5	2.5	0.0	0.2	0.1	0.7
8.2	54.7	8.7	58.1	9.1	60.8	9.8	65.5

2018	
Volume	Value
3.1	6,659.7
-	-
5.1	124.2
12.1	-
55.4	3,589.5
514.4	120.1
1.7	15.3
9.0	92.2

Table 2.4
Forest Disturbance by Province
2008 to 2018
(area in hectares)

Year	Kaingin	Forest Fire	Illegal Logging	Pest/ Diseases	Total
2008	15.0	99.5	0.2	-	114.7
2009	5.5	69.0	0.6	-	75.1
2010	311.0	8,216.6	0.2	-	8,527.8
2011	-	44.0	2.6	-	46.6
2012	7.0	39.0	2.8	-	48.8
2013	467.5	803.6	0.9	1.6	1,273.6
2014	438.6	2,320.6	1.5	-	2,760.6
2015	299.8	2,729.0	2.2	-	3,031.0
2016	1,025.2	3,500.4	0.1	-	4,525.7
2017	13.1	779.2	0.0	-	792.3
2018	81.5	2,641.6	0.1	1.5	2,724.7
Total	2,664.0	21,242.4	11.2	3.1	23,920.7

Source: Department of Environment and Natural Resources - Cordillera Administrative Region

Table 2.5
Stocks of Timber Resources, CAR
2008 to 2018
(in thousands of cubic meters)

Year	Natural timber resources		Cultivated timber resources (Plantation forest)	Total tree-covered area
	Available for wood supply (Open forest)	Not Available for wood supply (Closed forest)		
2008	94,282.3	43,506.4	3,059.2	140,847.9
2009	94,307.0	43,505.9	3,069.8	140,882.7
2010	93,395.1	43,453.8	2,679.0	139,527.8
2011	93,689.8	43,453.5	2,919.4	140,062.6
2012	95,012.8	43,453.1	3,998.6	142,464.4
2013	96,442.8	43,444.1	5,165.2	145,052.1
2014	99,156.7	43,424.5	7,379.0	149,960.1
2015	98,786.4	43,402.2	7,077.0	149,265.6
2016	98,814.5	43,375.8	7,089.0	149,279.2
2017	99,507.0	43,371.2	7,385.8	150,263.9
2018	101,566.4	43,355.2	8,268.4	153,190.0

Source: Philippine Statistics Authority - Cordillera Administrative Region

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cordillera Administrative Region	3,195.6	3,288.5	2,618.7	2,676.2	2,741.9	2,793.0	2,819.6	2,692.9	2,963.7	2,996.9	3,307.6
Brackishwater Fishpond	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Fishpond	1,667.5	1,829.0	1,646.8	1,765.2	1,826.1	1,856.0	1,860.2	1,756.9	1,854.1	1,803.5	1,886.9
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	1,667.2	1,827.4	1,644.6	1,761.8	1,822.1	1,853.3	1,858.3	1,756.1	1,853.9	1,803.1	1,886.5
Carp	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.2
Catfish	...	0.0	0.0	...	2.2	0.9	0.9	0.6	0.0	0.1	0.2
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	0.0	0.2	...	...	...	...	0.1	0.0	...	...
Freshwater prawn	...	...	...	...	...	...	...	...	...	...	...
Others	...	1.4	1.7	3.2	1.5	1.4	0.9	...	...	0.1	...
Freshwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Cage	1,528.1	1,459.5	971.9	911.0	915.8	936.9	959.4	936.0	1,109.7	1,193.4	1,420.7
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	1,528.1	1,459.5	971.9	911.0	915.8	936.9	959.4	936.0	1,109.6	1,193.4	1,420.7
Carp	...	...	...	...	...	...	...	...	0.0	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Oyster	...	...	...	...	...	...	...	...	...	...	...
Mussel	...	...	...	...	...	...	...	...	...	...	...
Seaweed	...	...	...	...	...	...	...	...	...	...	...
Rice Fish	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Small Farm Reservoir	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Abra	441.2	465.9	451.6	459.0	482.5	469.6	452.0	413.6	399.1	357.5	359.0
Brackishwater Fishpond	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Freshwater Fishpond	441.2	465.9	451.6	459.0	482.5	469.6	452.0	413.6	399.1	357.5	359.0
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	441.2	465.9	451.6	458.3	481.5	468.4	451.1	413.6	399.1	357.5	359.0
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Freshwater prawn	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	0.7	1.0	1.1	0.9	...	...	...	...
Freshwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Oyster	...	...	...	...	...	...	...	...	...	...	...
Mussel	...	...	...	...	...	...	...	...	...	...	...
Meaweed	...	...	...	...	...	...	...	...	...	...	...
Rice Fish	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Small farm reservoir	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Apayao	187.0	188.7	170.9	166.7	182.2	206.8	205.4	174.1	170.0	93.3	99.7
Brackishwater fishpond	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Pen	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Fishpond	186.6	187.0	170.8	166.7	181.9	206.2	205.4	174.1	170.0	93.3	97.7
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	186.6	186.9	170.7	166.7	180.1	206.2	205.4	174.1	170.0	93.3	97.6
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	0.0	0.0	...	1.8	...	...	...	0.0	...	0.1
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	0.0	0.1	...	...	...	...	...	...	...	...
Freshwater prawn	...	...	...	...	...	...	...	...	...	...	...
Others	...	0.1	...	...	...	...	...	...	...	...	...
Freshwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Cage	0.5	1.7	0.1	...	0.2	0.6	...	...	...	...	2.0
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	0.5	1.7	0.1	...	0.2	0.6	...	...	...	...	2.0
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Oyster	...	...	...	...	...	...	...	...	...	...	...
Mussel	...	...	...	...	...	...	...	...	...	...	...
Seaweed	...	...	...	...	...	...	...	...	...	...	...
Rice Fish	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Small Farm Reservoir	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Benguet	296.5	312.2	306.2	322.1	324.9	337.3	352.7	355.8	298.0	318.7	304.1
Brackishwater Fishpond	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Fishpond	69.3	73.1	71.9	76.0	77.3	78.4	80.5	81.4	47.4	48.2	45.4
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	69.3	73.1	71.9	76.0	77.3	78.4	80.5	81.4	47.4	48.2	45.4
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Freshwater prawn	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Freshwater Cage	227.2	239.1	234.3	246.1	247.7	258.9	272.3	274.3	250.6	270.5	258.7
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	227.2	239.1	234.3	246.1	247.7	258.9	272.3	274.3	250.6	270.5	258.7
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Oyster	...	...	...	...	...	...	...	...	...	...	...
Mussel	...	...	...	...	...	...	...	...	...	...	...
Seaweed	...	...	...	...	...	...	...	...	...	...	...
Rice Fish	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Small Farm Reservoir	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Ifugao	2,001.1	2,056.3	1,435.1	1,461.5	1,494.7	1,527.6	1,557.4	1,551.9	1,916.8	2,091.7	2,417.0
Brackishwater Fishpond	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Fishpond	700.7	837.6	697.6	799.4	829.5	853.2	873.4	893.4	1,059.4	1,170.4	1,258.3
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	700.7	837.6	697.6	799.4	829.5	853.2	873.4	893.4	1,059.4	1,170.4	1,258.3
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Freshwater prawn	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Cage	1,300.4	1,218.6	737.5	662.2	665.2	674.5	684.0	658.5	857.4	921.3	1,158.8
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	1,300.4	1,218.6	737.5	662.2	665.2	674.5	684.0	658.5	857.4	921.3	1,158.8
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Others	...	...	...	...	...	...	...	...	...	...	...
Oyster	...	...	...	...	...	...	...	...	...	...	...
Mussel	...	...	...	...	...	...	...	...	...	...	...
Seaweed	...	...	...	...	...	...	...	...	...	...	...
Rice Fish	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Small Farm Reservoir	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Kalinga	254.6	249.4	240.8	249.0	240.7	234.7	235.4	182.8	167.1	124.5	117.9
Brackishwater Fishpond	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Brackishwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Fishpond	254.5	249.4	240.7	248.9	240.7	234.6	235.4	182.8	167.1	124.5	117.9
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	254.2	247.8	238.6	247.3	239.7	233.2	234.5	182.1	167.1	124.3	117.8
Carp	0.3	0.3	0.3	0.2	0.2	0.2	0.1	...	...	...	...
Catfish	...	...	...	...	0.3	0.9	0.9	0.6	...	0.1	0.1
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	0.1	...	...	...	...	0.1	0.0	...	...
Freshwater prawn	...	...	...	...	...	...	...	...	...	...	...
Others	...	1.3	1.7	1.4	0.4	0.3	...	...	...	0.1	...
Freshwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Cage	0.1	0.0	0.1	0.1	0.0	0.1	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	0.1	0.0	0.1	0.1	0.0	0.1	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
iganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Oyster	...	...	...	...	...	...	...	...	...	...	...
Mussel	...	...	...	...	...	...	...	...	...	...	...
Seaweed	...	...	...	...	...	...	...	...	...	...	...
Rice Fish	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Small Farm Reservoir	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	15.3	16.0	14.2	18.0	17.0	17.1	16.7	14.8	12.7	11.3	10.0
Brackishwater Fishpond	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Brackishwater Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Fishpond	15.2	16.0	14.2	15.3	14.3	14.2	13.6	11.6	11.0	9.7	8.7
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	15.2	16.0	14.2	14.2	14.1	14.0	13.5	11.5	10.9	9.5	8.5
Carp	...	...	...	...	0.1	0.2	0.2	0.1	0.1	0.1	0.2
Catfish	...	...	...	...	0.1	0.0	0.0	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Freshwater prawn	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	1.2	0.1	-	...	...	...	0.0	...
Freshwater Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Freshwater Cage	0.0	0.0	0.0	2.7	2.7	2.9	3.1	3.2	1.7	1.6	1.3
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	0.0	0.0	0.0	2.7	2.7	2.9	3.1	3.2	1.7	1.6	1.3

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation 2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Carp	...	...	...	...	...	...	...	...	0.0	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Pen	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Marine Cage	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn	...	...	...	...	...	...	...	...	...	...	...
Mudcrab	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn	...	...	...	...	...	...	...	...	...	...	...
White shrimp	...	...	...	...	...	...	...	...	...	...	...
Grouper	...	...	...	...	...	...	...	...	...	...	...
Siganid	...	...	...	...	...	...	...	...	...	...	...
Spiny lobster	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Oyster	...	...	...	...	...	...	...	...	...	...	...
Mussel	...	...	...	...	...	...	...	...	...	...	...
Seaweed	...	...	...	...	...	...	...	...	...	...	...
Rice Fish	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...
Small Farm Reservoir	...	...	...	...	...	...	...	...	...	...	...
Milkfish	...	...	...	...	...	...	...	...	...	...	...

Table 2.6
Aquaculture: Volume of Production by Type, Environment, Species and Geolocation
2008 to 2018
(in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tilapia	...	...	...	...	...	...	...	...	...	...	...
Carp	...	...	...	...	...	...	...	...	...	...	...
Catfish	...	...	...	...	...	...	...	...	...	...	...
Gourami	...	...	...	...	...	...	...	...	...	...	...
Mudfish	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...

Source: Philippine Statistics Authority

Table 2.7
Inland Municipal Fisheries: Volume of Production by Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cordillera Administrative Region	934.4	940.2	915.5	983.4	1,035.7	1,114.5	1,157.1	1,173.8	1,238.5	1,151.1	1,111.2
Fish	837.7	840.7	813.3	880.5	926.4	982.8	1,016.6	1,029.6	1,105.2	1,016.3	881.8
Carp	106.3	106.9	103.7	108.0	121.6	133.8	133.1	135.5	128.1	115.3	118.8
Catfish (Hito)	25.0	25.2	26.4	26.7	29.0	39.8	38.1	37.2	37.0	33.0	31.8
Catfish (Kanduli)	13.0	10.2	9.5	8.8	8.7	9.7	10.4	2.4	1.8	3.6	10.2
Climbing perch (Martiniko)	...	...	...	...	...	...	...	...	...	0.6	1.0
Eel (Igat)	45.5	46.8	46.6	50.6	54.0	57.1	57.4	57.7	44.7	25.6	24.4
Freshwater goby (Biya)	108.2	106.7	101.1	122.4	140.2	143.7	143.4	152.2	141.2	133.6	120.1
Gourami	5.4	4.5	3.6	3.1	2.8	2.6	1.9	1.4	0.8	4.1	2.7
Milkfish (Bangus)	...	1.4	...	...	...	...	...	...	...	...	...
Mudfish (Dalag)	32.3	32.1	35.1	35.5	37.5	47.7	47.1	47.0	44.5	48.5	35.0
Mullet (Kapak)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Ludong)	...	...	...	...	...	...	...	...	0.5	0.6	...
Sardines (Tawilis)	...	...	...	...	...	...	...	...	...	...	...
Silver perch (Ayungin)	51.4	49.6	47.3	65.4	71.6	72.3	71.5	68.9	43.6	45.0	33.9
Spade fish (Kitang)	...	...	...	...	...	...	...	...	...	...	...
Starry goby (Dulong)	...	...	...	...	...	...	...	...	...	...	...
Tarpon (Buan Buan)	...	...	...	...	...	...	...	...	...	...	...
Tilapia	447.9	454.6	438.2	460.0	461.1	476.0	513.8	519.1	577.8	510.1	432.1
Big head carp	1.5	2.3	1.6	0.1	...	...	...	...	0.9	4.2	...
Other fishes	1.2	0.4	0.2	...	...	...	...	8.3	84.3	92.1	71.6
Crustaceans	59.8	57.7	55.8	55.9	62.8	67.0	71.4	76.6	72.0	65.8	54.9
Blue crab (Alimasag)	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn (Suahe)	...	...	...	...	...	...	...	...	...	...	...
Freshwater crab (Talangka)	0.4	0.3	1.2	1.3	1.8	5.3	5.5	4.7	4.5	5.2	4.2
Freshwater shrimp (Hipon)	59.4	56.8	54.0	54.0	60.0	61.7	65.9	71.9	67.4	60.6	50.7
Lobster (Ulang)	...	...	...	...	...	...	...	...	...	...	...
Mud crab (Alimango)	...	0.6	0.6	0.6	1.0	...	...	...	...	...	...
Tiger prawn (Sugpo)	...	...	...	...	...	...	...	...	...	...	...
White shrimp (Hipong Puti)	...	...	...	...	...	...	...	...	...	...	...
Other crustaceans	...	...	...	...	...	...	...	...	...	...	...
Molluscs	36.9	41.8	46.5	47.1	46.5	64.7	69.1	67.7	61.3	69.1	174.6
Clams (Kabibi)	...	...	...	...	...	...	...	...	...	...	1.7
Freshwater clams (Tulya)	23.9	25.6	29.7	29.6	28.2	37.8	39.9	40.8	35.8	35.7	68.8
Oyster (Talaba)	...	...	...	...	...	...	...	...	...	...	...
Shell (Kuhol)	...	0.4	...	...	...	...	...	...	...	...	11.0
Snail (Suso)	12.9	15.8	16.8	17.5	18.4	26.9	29.2	26.9	25.6	30.1	59.3
Other molluscs	...	...	...	...	...	...	...	...	...	3.2	33.8

Table 2.7
Inland Municipal Fisheries: Volume of Production by Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Abra	276.5	278.7	288.1	291.1	306.9	313.4	322.5	329.2	320.2	245.4	260.7
Fish	233.6	237.4	242.4	246.7	260.6	265.5	272.0	274.0	273.4	209.0	221.2
Carp	45.4	43.1	42.4	42.3	53.4	53.5	50.6	51.7	34.3	19.5	16.4
Catfish (Hito)	3.8	2.3	2.9	2.9	3.5	7.0	4.2	2.4	1.4	2.7	3.1
Catfish (Kanduli)	...	...	...	...	...	...	...	...	...	...	...
Climbing perch (Martiniko)	...	...	...	...	...	...	...	...	...	...	...
Eel (Igat)	14.7	14.6	12.4	12.4	13.7	14.0	10.5	9.5	9.3	5.4	5.0
Freshwater goby (Biya)	30.4	31.5	31.6	35.5	47.4	46.8	43.6	54.2	57.3	58.1	63.9
Gourami	...	...	...	...	...	...	...	...	...	...	...
Milkfish (Bangus)	...	...	...	...	...	...	...	...	...	...	...
Mudfish (Dalag)	4.2	3.6	3.7	3.8	4.3	7.7	5.7	4.0	0.8	3.3	3.0
Mullet (Kapak)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Ludong)	...	...	...	...	...	...	...	...	...	...	...
Sardines (Tawilis)	...	...	...	...	...	...	...	...	...	...	...
Silver perch (Ayungin)	...	...	...	...	...	...	...	...	...	...	...
Spade fish (Kitang)	...	...	...	...	...	...	...	...	...	...	...
Starry goby (Dulong)	...	...	...	...	...	...	...	...	...	...	...
Tarpon (Buan Buan)	...	...	...	...	...	...	...	...	...	...	...
Tilapia	135.0	142.3	149.5	149.8	138.4	136.4	157.4	152.3	170.3	120.0	129.7
Big head carp	...	...	...	...	...	...	...	...	...	...	...
Other fishes	...	...	...	...	...	...	...	...	...	...	...
Crustaceans	32.9	32.2	32.7	32.4	37.4	36.0	38.6	44.1	36.1	28.0	25.0
Blue crab (Alimasag)	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn (Suahe)	...	...	...	...	...	...	...	...	...	...	...
Freshwater crab (Talangka)	...	...	...	...	...	...	...	...	...	...	...
Freshwater shrimp (Hipon)	32.9	32.2	32.7	32.4	37.4	36.0	38.6	44.1	36.1	28.0	25.0
Lobster (Ulang)	...	...	...	...	...	...	...	...	...	...	...
Mud crab (Alimango)	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn (Sugpo)	...	...	...	...	...	...	...	...	...	...	...
White shrimp (Hipong Puti)	...	...	...	...	...	...	...	...	...	...	...
Other crustaceans	...	...	...	...	...	...	...	...	...	...	...
Molluscs	10.0	9.2	13.1	12.0	8.9	11.9	11.9	11.1	10.8	8.4	14.5
Clams (Kabibi)	...	...	...	...	...	...	...	...	...	...	...
Freshwater clams (Tulya)	10.0	9.2	13.1	12.0	8.9	11.9	11.9	11.1	10.8	8.4	14.5
Oyster (Talaba)	...	...	...	...	...	...	...	...	...	...	...
Shell (Kuhol)	...	...	...	...	...	...	...	...	...	...	...
Snail (Suso)	...	...	...	...	...	...	...	...	...	...	...
Other molluscs	...	...	...	...	...	...	...	...	...	...	...

Table 2.7
Inland Municipal Fisheries: Volume of Production by Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Apayao	110.4	116.4	111.0	120.5	131.9	185.4	195.6	197.4	188.1	155.6	214.4
Fish	103.4	110.2	103.9	113.1	122.7	158.6	167.7	172.0	164.8	132.7	123.8
Carp	11.6	13.0	11.7	13.4	13.9	23.6	23.9	24.1	23.8	24.7	28.2
Catfish (Hito)	5.5	5.1	5.8	5.7	6.7	13.3	13.6	13.9	14.3	7.3	9.6
Catfish (Kanduli)	...	...	...	...	...	...	...	...	...	...	0.2
Climbing perch (Martiniko)	...	...	...	...	...	...	...	...	...	0.6	1.0
Eel (Igat)	20.1	22.4	24.3	28.1	29.5	31.2	32.7	33.5	20.2	10.5	7.9
Freshwater goby (Biya)	13.3	12.0	10.9	11.1	11.6	14.4	15.0	15.0	15.8	2.2	3.4
Gourami	...	...	...	...	...	0.2	0.5	0.2	0.8	4.1	2.7
Milkfish (Bangus)	...	...	...	...	...	...	...	...	...	...	...
Mudfish (Dalag)	7.3	6.7	7.5	7.3	8.3	15.0	15.7	16.1	16.7	14.1	10.8
Mullet (Kapak)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Ludong)	...	...	...	...	...	...	...	...	0.5	0.6	...
Sardines (Tawilis)	...	...	...	...	...	...	...	...	...	...	...
Silver perch (Ayungin)	...	...	...	...	...	...	...	...	...	...	...
Spade fish (Kitang)	...	...	...	...	...	...	...	...	...	...	...
Starry goby (Dulong)	...	...	...	...	...	...	...	...	...	...	...
Tarpon (Buan Buan)	...	...	...	...	...	...	...	...	...	...	...
Tilapia	45.5	51.0	43.7	47.6	52.8	60.9	66.5	69.3	70.0	56.7	47.9
Big head carp	...	...	...	...	...	...	...	...	0.9	4.2	...
Other fishes	...	...	...	...	...	...	...	...	1.9	7.8	12.3
Crustaceans	4.1	3.0	4.3	4.4	5.5	10.2	10.5	9.8	9.9	8.0	7.7
Blue crab (Alimasag)	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn (Suahe)	...	...	...	...	...	...	...	...	...	...	...
Freshwater crab (Talangka)	0.4	0.3	1.2	1.3	1.8	5.3	5.5	4.7	4.5	5.2	4.2
Freshwater shrimp (Hipon)	3.7	2.1	2.5	2.6	2.7	4.9	5.0	5.1	5.4	2.8	3.5
Lobster (Ulang)	...	...	...	...	...	...	...	...	...	...	...
Mud crab (Alimango)	...	0.6	0.6	0.6	1.0	...	...	...	...	...	...
Tiger prawn (Sugpo)	...	...	...	...	...	...	...	...	...	...	...
White shrimp (Hipong Puti)	...	...	...	...	...	...	...	...	...	...	...
Other crustaceans	...	...	...	...	...	...	...	...	...	...	...
Molluscs	2.9	3.2	2.8	2.9	3.7	16.6	17.5	15.6	13.4	14.9	82.9
Clams (Kabibi)	...	...	...	...	...	...	...	...	...	...	1.7
Freshwater clams (Tulya)	...	...	...	...	0.6	5.7	6.0	5.4	5.0	5.4	25.9
Oyster (Talaba)	...	...	...	...	...	...	...	...	...	...	...
Shell (Kuhol)	...	0.4	...	...	...	...	...	...	...	...	11.0
Snail (Suso)	2.9	2.7	2.8	2.9	3.1	10.9	11.5	10.2	8.4	6.3	10.5
Other molluscs	...	...	...	...	...	...	...	...	...	3.2	33.8

Table 2.7
Inland Municipal Fisheries: Volume of Production by Species and Geolocation
2008 to 2018
(in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Benguet	78.6	84.2	82.9	85.6	87.5	89.6	93.1	98.4	95.8	105.4	105.1
Fish	74.3	79.1	78.1	80.8	82.0	83.5	86.6	91.6	93.6	105.3	105.1
Carp	19.7	21.8	19.8	20.3	21.1	21.3	22.0	22.8	23.6	25.2	22.6
Catfish (Hito)	...	...	...	...	...	...	...	...	...	...	...
Catfish (Kanduli)	...	...	...	...	...	...	...	...	...	...	...
Climbing perch (Martiniko)	...	...	...	...	...	...	...	...	...	...	...
Eel (Igat)	1.3	0.8	0.4	0.3	0.3	0.5	0.7	0.7	0.7	0.4	1.2
Freshwater goby (Biya)	3.7	5.0	4.9	4.6	4.4	4.4	4.5	4.5	4.6	7.9	7.8
Gourami	...	...	...	...	...	...	...	...	...	...	...
Milkfish (Bangus)	...	...	...	...	...	...	...	...	...	...	...
Mudfish (Dalag)	0.8	0.2	0.9	0.9	0.8	0.9	1.1	1.1	0.6	1.6	1.8
Mullet (Kapak)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Ludong)	...	...	...	...	...	...	...	...	...	...	...
Sardines (Tawilis)	...	...	...	...	...	...	...	...	...	...	...
Silver perch (Ayungin)	3.1	3.3	4.4	4.0	3.5	3.5	3.7	3.7	3.0	6.3	8.7
Spade fish (Kitang)	...	...	...	...	...	...	...	...	...	...	...
Starry goby (Dulong)	...	...	...	...	...	...	...	...	...	...	...
Tarpon (Buan Buan)	...	...	...	...	...	...	...	...	...	...	...
Tilapia	43.2	45.8	47.2	50.6	51.9	52.9	54.6	58.8	61.2	64.0	63.0
Big head carp	1.5	2.3	0.6	0.1	...	...	...	...	...	...	...
Other fishes	1.0	...	...	...	...	...	...	...	...	...	...
Crustaceans	...	...	...	...	...	...	...	...	0.3	0.1	...
Blue crab (Alimasag)	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn (Suahe)	...	...	...	...	...	...	...	...	...	...	...
Freshwater crab (Talangka)	...	...	...	...	...	...	...	...	0.0	...	...
Freshwater shrimp (Hipon)	...	...	...	...	...	...	...	...	0.3	0.1	...
Lobster (Ulang)	...	...	...	...	...	...	...	...	...	...	...
Mud crab (Alimango)	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn (Sugpo)	...	...	...	...	...	...	...	...	...	...	...
White shrimp (Hipong Puti)	...	...	...	...	...	...	...	...	...	...	...
Other crustaceans	...	...	...	...	...	...	...	...	...	...	...
Molluscs	4.3	5.1	4.7	4.8	5.5	6.1	6.5	6.8	1.8	...	...
Clams (Kabibi)	...	...	...	...	...	...	...	...	...	...	...
Freshwater clams (Tulya)	4.3	5.1	4.7	4.8	5.5	6.1	6.5	6.8	1.8	...	...
Oyster (Talaba)	...	...	...	...	...	...	...	...	...	...	...
Shell (Kuhol)	...	...	...	...	...	...	...	...	...	...	...
Snail (Suso)	...	...	...	...	...	...	...	...	...	...	...
Other molluscs	...	...	...	...	...	...	...	...	...	...	...

Table 2.7
Inland Municipal Fisheries: Volume of Production by Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ifugao	255.1	230.7	199.9	248.5	259.4	264.4	267.3	252.0	325.9	333.2	240.5
Fish	248.4	225.1	198.8	247.5	258.3	263.3	266.2	251.3	324.7	331.9	236.1
Carp	15.8	14.5	14.2	15.8	16.3	17.3	17.6	17.3	26.0	26.7	34.1
Catfish (Hito)	...	...	...	...	...	...	...	...	0.5	0.5	1.1
Catfish (Kanduli)	11.1	8.7	7.9	7.2	7.0	6.7	6.7	0.5	...	...	...
Climbing perch (Martiniko)	...	...	...	...	...	...	...	...	...	...	...
Eel (Igat)	...	...	...	...	...	...	...	...	...	...	...
Freshwater goby (Biya)	33.3	31.1	28.2	46.3	52.0	52.6	52.9	50.0	34.3	35.4	26.4
Gourami	...	...	...	...	...	...	...	...	...	...	...
Milkfish (Bangus)	...	...	...	...	...	...	...	...	...	...	...
Mudfish (Dalag)	...	...	...	...	...	...	...	...	1.1	1.0	5.0
Mullet (Kapak)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Ludong)	...	...	...	...	...	...	...	...	...	...	...
Sardines (Tawilis)	...	...	...	...	...	...	...	...	...	...	...
Silver perch (Ayungin)	38.2	35.5	31.6	49.8	56.5	57.5	57.8	55.2	32.3	32.9	25.2
Spade fish (Kitang)	...	...	...	...	...	...	...	...	...	...	...
Starry goby (Dulong)	...	...	...	...	...	...	...	...	...	...	...
Tarpon (Buan Buan)	...	...	...	...	...	...	...	...	...	...	...
Tilapia	150.0	135.3	115.8	128.5	126.6	129.3	131.2	128.3	161.4	165.2	107.6
Big head carp	...	...	1.0	...	...	...	...	...	...	...	...
Other fishes	...	...	...	...	...	...	...	...	69.2	70.1	36.7
Crustaceans	6.8	5.6	1.1	1.0	1.1	1.1	1.1	0.7	1.3	1.4	4.4
Blue crab (Alimasag)	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn (Suahe)	...	...	...	...	...	...	...	...	...	...	...
Freshwater crab (Talangka)	...	...	...	...	...	...	...	...	...	...	...
Freshwater shrimp (Hipon)	6.8	5.6	1.1	1.0	1.1	1.1	1.1	0.7	1.3	1.4	4.4
Lobster (Ulang)	...	...	...	...	...	...	...	...	...	...	...
Mud crab (Alimango)	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn (Sugpo)	...	...	...	...	...	...	...	...	...	...	...
White shrimp (Hipong Puti)	...	...	...	...	...	...	...	...	...	...	...
Other crustaceans	...	...	...	...	...	...	...	...	...	...	...
Molluscs	...	...	...	...	...	...	...	...	...	...	...
Clams (Kabibi)	...	...	...	...	...	...	...	...	...	...	...
Freshwater clams (Tulya)	...	...	...	...	...	...	...	...	...	...	...
Oyster (Talaba)	...	...	...	...	...	...	...	...	...	...	...
Shell (Kuhol)	...	...	...	...	...	...	...	...	...	...	...
Snail (Suso)	...	...	...	...	...	...	...	...	...	...	...
Other molluscs	...	...	...	...	...	...	...	...	...	...	...

Table 2.7
Inland Municipal Fisheries: Volume of Production by Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kalinga	204.7	221.0	225.2	230.7	243.4	255.5	272.1	289.7	299.6	304.4	286.8
Fish	168.9	179.6	181.5	185.3	196.3	205.7	217.7	233.5	239.9	230.3	191.7
Carp	13.7	14.5	15.6	16.3	17.0	18.1	19.0	19.5	19.7	18.8	17.1
Catfish (Hito)	15.6	17.8	17.7	18.1	18.8	19.5	20.4	20.9	20.9	22.4	18.1
Catfish (Kanduli)	1.9	1.5	1.6	1.6	1.7	3.0	3.7	1.9	1.8	3.6	10.1
Climbing perch (Martiniko)	...	...	...	...	...	...	...	...	...	...	...
Eel (Igat)	8.7	8.8	9.5	9.8	10.4	11.4	13.5	14.0	14.1	9.1	10.2
Freshwater goby (Biya)	20.0	19.6	18.6	19.5	20.3	21.4	23.2	23.9	24.7	25.9	16.6
Gourami	5.4	4.5	3.6	3.1	2.8	2.5	1.4	1.2	...	...	...
Milkfish (Bangus)	...	1.4	...	...	...	...	...	...	...	...	...
Mudfish (Dalag)	20.0	21.7	23.1	23.5	24.2	24.0	24.6	25.8	25.3	28.6	14.4
Mullet (Kapak)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Ludong)	...	...	...	...	...	...	...	...	...	...	...
Sardines (Tawilis)	...	...	...	...	...	...	...	...	...	...	...
Silver perch (Ayungin)	10.2	10.8	11.3	11.6	11.6	11.3	10.1	10.0	8.3	5.8	...
Spade fish (Kitang)	...	...	...	...	...	...	...	...	...	...	...
Starry goby (Dulong)	...	...	...	...	...	...	...	...	...	...	...
Tarpon (Buan Buan)	...	...	...	...	...	...	...	...	...	...	...
Tilapia	73.5	78.9	80.6	81.8	89.6	94.5	101.7	108.5	113.2	103.0	83.1
Big head carp	...	...	...	...	...	...	...	...	...	...	...
Other fishes	...	...	...	...	...	...	...	7.8	11.7	13.1	22.1
Crustaceans	16.1	16.9	17.7	18.0	18.8	19.8	21.2	21.9	24.5	28.4	17.9
Blue crab (Alimasag)	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn (Suahe)	...	...	...	...	...	...	...	...	...	...	...
Freshwater crab (Talangka)	...	...	...	...	...	...	...	...	...	...	...
Freshwater shrimp (Hipon)	16.1	16.9	17.7	18.0	18.8	19.8	21.2	21.9	24.5	28.4	17.9
Lobster (Ulang)	...	...	...	...	...	...	...	...	...	...	...
Mud crab (Alimango)	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn (Sugpo)	...	...	...	...	...	...	...	...	...	...	...
White shrimp (Hipong Puti)	...	...	...	...	...	...	...	...	...	...	...
Other crustaceans	...	...	...	...	...	...	...	...	...	...	...
Molluscs	19.7	24.5	25.9	27.4	28.4	30.1	33.2	34.3	35.3	45.8	77.2
Clams (Kabibi)	...	...	...	...	...	...	...	...	...	...	...
Freshwater clams (Tulya)	9.6	11.4	11.9	12.8	13.1	14.1	15.5	17.5	18.1	21.9	28.4
Oyster (Talaba)	...	...	...	...	...	...	...	...	...	...	...
Shell (Kuhol)	...	...	...	...	...	...	...	...	...	...	...
Snail (Suso)	10.1	13.1	14.0	14.6	15.2	16.0	17.7	16.8	17.2	23.8	48.8
Other molluscs	...	...	...	...	...	...	...	...	...	...	...

Table 2.7
Inland Municipal Fisheries: Volume of Production by Species and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mountain Province	9.2	9.3	8.6	7.1	6.6	6.2	6.5	7.2	8.9	7.1	3.9
Fish	9.2	9.3	8.6	7.1	6.6	6.2	6.5	7.2	8.9	7.1	3.9
Carp	...	...	...	...	...	...	...	0.1	0.7	0.4	0.4
Catfish (Hito)	...	...	...	...	...	...	...	...	...	0.1	...
Catfish (Kanduli)	...	...	...	...	...	...	...	...	...	...	...
Climbing perch (Martiniko)	...	...	...	...	...	...	...	...	...	...	...
Eel (Igat)	0.6	0.1	...	...	0.2	...	...	0.1	0.4	0.2	0.0
Freshwater goby (Biya)	7.5	7.5	6.9	5.4	4.6	4.1	4.1	4.5	4.5	4.1	1.9
Gourami	...	...	...	...	...	...	...	...	...	...	...
Milkfish (Bangus)	...	...	...	...	...	...	...	...	...	...	...
Mudfish (Dalag)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Kapak)	...	...	...	...	...	...	...	...	...	...	...
Mullet (Ludong)	...	...	...	...	...	...	...	...	...	...	...
Sardines (Tawilis)	...	...	...	...	...	...	...	...	...	...	...
Silver perch (Ayungin)	...	...	...	...	...	...	...	...	...	...	...
Spade fish (Kitang)	...	...	...	...	...	...	...	...	...	...	...
Starry goby (Dulong)	...	...	...	...	...	...	...	...	...	...	...
Tarpon (Buan Buan)	...	...	...	...	...	...	...	...	...	...	...
Tilapia	0.8	1.3	1.6	1.7	1.9	2.1	2.4	1.9	1.7	1.2	0.9
Big head carp	...	...	...	...	...	...	...	...	...	...	...
Other fishes	0.2	0.4	0.2	...	...	...	...	0.5	1.6	1.2	0.6
Crustaceans	...	...	...	...	...	...	...	...	...	...	...
Blue crab (Alimasag)	...	...	...	...	...	...	...	...	...	...	...
Endeavor prawn (Suahe)	...	...	...	...	...	...	...	...	...	...	...
Freshwater crab (Talangka)	...	...	...	...	...	...	...	...	...	...	...
Freshwater shrimp (Hipon)	...	...	...	...	...	...	...	...	...	...	...
Lobster (Ulang)	...	...	...	...	...	...	...	...	...	...	...
Mud crab (Alimango)	...	...	...	...	...	...	...	...	...	...	...
Tiger prawn (Sugpo)	...	...	...	...	...	...	...	...	...	...	...
White shrimp (Hipong Puti)	...	...	...	...	...	...	...	...	...	...	...
Other crustaceans	...	...	...	...	...	...	...	...	...	...	...
Molluscs	...	...	...	...	...	...	...	...	...	...	...
Clams (Kabibi)	...	...	...	...	...	...	...	...	...	...	...
Freshwater clams (Tulya)	...	...	...	...	...	...	...	...	...	...	...
Oyster (Talaba)	...	...	...	...	...	...	...	...	...	...	...
Shell (Kuhol)	...	...	...	...	...	...	...	...	...	...	...
Snail (Suso)	...	...	...	...	...	...	...	...	...	...	...
Other molluscs	...	...	...	...	...	...	...	...	...	...	...

Source: Philippine Statistics Authority

Table 2.8
Palay and Corn: Area Harvested by Ecosystem/Croptype and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Palay											
CAR	119,816	119,368	117,057	118,779	120,100	119,919	118,476	111,482	110,640	115,555	111,387
Abra	22,695	23,675	23,673	23,882	24,023	24,031	24,056	23,987	23,993	24,014	23,541
Apayao	29,636	29,333	29,281	29,376	29,429	28,942	27,566	27,552	24,950	26,245	23,312
Benguet	6,314	6,236	6,194	5,994	6,286	6,286	6,286	6,284	6,564	6,976	7,098
Ifugao	17,229	17,129	16,974	17,193	17,193	17,234	17,259	17,259	17,253	17,248	17,220
Kalinga	36,338	35,803	34,763	36,070	36,758	37,044	37,041	31,424	33,059	35,913	35,062
Mountain Province	7,604	7,192	6,172	6,264	6,411	6,382	6,268	4,976	4,821	5,159	5,154
Irrigated Palay											
CAR	93,011	93,265	91,265	93,043	94,068	94,352	93,301	86,521	88,006	92,205	90,420
Abra	13,775	14,755	14,763	14,804	14,915	14,920	14,950	14,927	14,919	14,934	14,480
Apayao	16,968	17,140	17,140	17,319	17,372	17,358	16,267	16,270	15,968	16,877	15,933
Benguet	5,304	5,230	5,188	5,081	5,200	5,200	5,200	5,200	5,276	5,755	5,877
Ifugao	16,387	16,287	16,132	16,336	16,336	16,374	16,399	16,399	16,393	16,388	16,382
Kalinga	34,112	33,682	32,724	34,031	34,739	35,023	35,098	29,485	31,244	34,011	33,515
Mountain Province	6,465	6,171	5,318	5,472	5,506	5,477	5,387	4,240	4,206	4,240	4,233
Rainfed Palay											
CAR	26,805	26,103	25,792	25,736	26,032	25,567	25,175	24,961	22,634	23,350	20,967
Abra	8,920	8,920	8,910	9,078	9,108	9,111	9,106	9,060	9,074	9,080	9,061
Apayao	12,668	12,193	12,141	12,057	12,057	11,584	11,299	11,282	8,982	9,368	7,379
Benguet	1,010	1,006	1,006	913	1,086	1,086	1,086	1,084	1,288	1,221	1,221
Ifugao	842	842	842	857	857	860	860	860	860	860	838
Kalinga	2,226	2,121	2,039	2,039	2,019	2,021	1,943	1,939	1,815	1,902	1,547
Mountain Province	1,139	1,021	854	792	905	905	881	736	615	919	921
Corn											
CAR	52,698	55,212	48,991	56,051	57,290	61,639	64,832	64,411	61,045	61,391	58,405
Abra	6,026	6,552	6,552	6,552	6,441	6,448	6,447	6,397	6,430	6,390	6,289
Apayao	4,848	4,853	4,014	5,343	5,812	6,739	7,200	6,748	6,595	7,040	6,225
Benguet	39	39	39	35	35	37	38	38	38	39	129
Ifugao	23,000	22,992	22,992	24,034	24,658	27,329	30,114	30,139	28,450	27,891	28,249
Kalinga	11,912	14,122	11,305	14,314	14,318	14,890	14,459	14,507	13,113	13,803	11,394
Mountain Province	6,873	6,654	4,089	5,773	6,026	6,196	6,574	6,582	6,419	6,228	6,119
White Corn											
CAR	8,759	8,856	8,350	8,538	8,437	8,413	8,368	8,125	7,497	7,198	6,696
Abra	5,806	6,332	6,332	6,342	6,241	6,250	6,249	6,199	6,232	6,192	6,091
Apayao	742	557	323	486	368	340	328	316	307	310	304
Benguet	34	34	34	32	32	34	35	35	30	30	19
Ifugao	1,000	750	650	583	733	733	733	733	311	90	120
Kalinga	890	925	725	849	760	770	770	770	571	471	130
Mountain Province	287	258	286	246	303	286	253	72	46	105	32

Table 2.8
Palay and Corn: Area Harvested by Ecosystem/Croptype and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Yellow Corn											
CAR	43,939	46,356	40,641	47,513	48,853	53,226	56,464	56,286	53,548	54,193	51,709
Abra	220	220	220	210	200	198	198	198	198	198	198
Apayao	4,106	4,296	3,691	4,857	5,444	6,399	6,872	6,432	6,288	6,730	5,921
Benguet	5	5	5	3	3	3	3	3	8	9	110
Ifugao	22,000	22,242	22,342	23,451	23,925	26,596	29,381	29,406	28,139	27,801	28,129
Kalinga	11,022	13,197	10,580	13,465	13,558	14,120	13,689	13,737	12,542	13,332	11,264
Mountain Province	6,586	6,396	3,803	5,527	5,723	5,910	6,321	6,510	6,373	6,123	6,087

Source: Philippine Statistics Authority

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Abaca											
CAR	870.0	870.0	579.0	579.0	550.0	499.0	481.0	430.0	249.0	249.0	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	870.0	870.0	579.0	579.0	550.0	499.0	481.0	430.0	249.0	249.0	...
Cacao											
CAR	26.0	26.0	27.0	29.0	31.0	40.0	52.0	52.0	57.0	49.7	51.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	12.0	12.0	12.0	12.0	15.0	20.0	30.0	30.0	30.0	22.7	23.0
Benguet	12.0	12.0	12.0	12.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	2.0	2.0	3.0	5.0	5.0	10.0	10.0	10.0	15.0	15.0	15.0
Mountain Province	...	...	...	...	...	...	2.0	2.0	2.0	2.0	3.0
Cashew											
CAR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Chrysanthemum											
CAR	57.0	61.0	61.0	62.0	62.0	62.0	60.0	60.2	55.1	58.0	64.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	57.0	61.0	61.0	62.0	62.0	62.0	60.0	60.0	55.0	58.0	64.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	0.2	0.1	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Coconut											
CAR	281.0	281.0	281.0	285.0	300.0	332.0	362.0	378.0	375.0	333.1	334.0
Abra	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
Apayao	50.0	50.0	50.0	55.0	70.0	100.0	130.0	130.0	130.0	88.1	86.0
Benguet	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Ifugao	21.0	21.0	21.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0	22.0
Kalinga	84.0	84.0	84.0	84.0	84.0	84.0	84.0	100.0	100.0	100.0	100.0
Mountain Province	52.0	52.0	52.0	51.0	51.0	52.0	52.0	52.0	49.0	49.0	52.0
Coffee											
CAR	7,270.0	6,980.0	6,866.0	6,720.0	6,716.0	6,695.0	6,680.5	6,631.0	6,322.0	6,289.4	5,983.0
Abra	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Apayao	116.0	116.0	116.0	109.0	135.0	140.0	130.0	121.0	123.0	105.4	105.0
Benguet	303.0	308.0	322.0	322.0	321.0	321.0	340.5	340.0	340.0	340.0	340.0
Ifugao	2,532.0	2,526.0	2,520.0	2,513.0	2,513.0	2,511.0	2,511.0	2,511.0	2,251.0	2,251.0	2,251.0
Kalinga	3,475.0	3,475.0	3,475.0	3,431.0	3,431.0	3,427.0	3,427.0	3,429.0	3,427.0	3,426.0	3,120.0
Mountain Province	797.0	508.0	386.0	298.0	269.0	249.0	225.0	183.0	134.0	120.0	120.0
Coffee Arabica											
CAR	578.0	574.0	585.0	594.0	618.0	619.0	629.0	627.0	615.0	606.9	593.0
Abra	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Apayao	25.0	25.0	25.0	18.0	50.0	50.0	40.0	34.0	34.0	29.9	30.0
Benguet	220.0	225.0	236.0	236.0	236.0	236.0	256.0	256.0	256.0	256.0	256.0
Ifugao	50.0	50.0	50.0	50.0	50.0	51.0	51.0	51.0	51.0	51.0	51.0
Kalinga	168.0	168.0	168.0	184.0	184.0	184.0	184.0	186.0	184.0	184.0	170.0
Mountain Province	94.0	85.0	85.0	85.0	77.0	77.0	77.0	79.0	69.0	65.0	65.0
Coffee Excelsa											
CAR	191.0	190.0	190.0	223.0	221.0	215.0	204.5	201.0	201.0	195.5	187.0
Abra	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Apayao	18.0	18.0	18.0	36.0	35.0	30.0	20.0	17.0	17.0	12.5	12.0
Benguet	22.0	22.0	22.0	22.0	21.0	21.0	20.5	20.0	20.0	20.0	20.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	143.0	143.0	143.0	159.0	159.0	159.0	159.0	159.0	159.0	158.0	150.0
Mountain Province	3.0	2.0	2.0	1.0	1.0	...	...	...	...	...	...
Coffee Liberica											
CAR	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Abra	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Coffee Robusta											
CAR	6,055.0	5,770.0	5,645.0	5,887.0	5,861.0	5,845.0	5,831.0	5,787.0	5,490.0	5,471.0	5,187.0
Abra	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Apayao	55.0	55.0	55.0	55.0	50.0	60.0	70.0	70.0	72.0	63.0	63.0
Benguet	61.0	61.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0
Ifugao	2,482.0	2,476.0	2,470.0	2,463.0	2,463.0	2,460.0	2,460.0	2,460.0	2,200.0	2,200.0	2,200.0
Kalinga	2,752.0	2,752.0	2,752.0	3,088.0	3,088.0	3,084.0	3,084.0	3,084.0	3,084.0	3,084.0	2,800.0
Mountain Province	700.0	421.0	299.0	212.0	191.0	172.0	148.0	104.0	65.0	55.0	55.0
Cotton											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Gladiola											
CAR	91.0	87.0	84.0	80.0	75.0	37.0	30.0	25.0	18.0	18.0	13.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	91.0	87.0	84.0	80.0	75.0	37.0	30.0	25.0	18.0	18.0	13.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Oil Palm											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Orchids											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Pili Nut											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Roses											
CAR	48.0	48.0	49.0	49.0	49.0	49.0	49.0	47.8	47.0	51.8	47.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	48.0	48.0	49.0	49.0	49.0	49.0	49.0	47.8	47.0	51.8	47.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Rubber											
CAR	...	...	...	...	27.0	27.0	27.0	27.0	27.0	27.0	12.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Kalinga	...	...	...	...	15.0	15.0	15.0	15.0	15.0	15.0	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Sugarcane											
CAR	153.0	171.0	171.0	170.0	170.0	339.0	1,217.0	1,213.0	1,085.2	1,101.0	1,017.0
Abra	...	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	5.0	5.0	5.0	8.0	8.0
Ifugao	...	...	...	...	...	10.0	15.0	11.0	11.0	11.0	11.0
Kalinga	130.0	130.0	130.0	130.0	130.0	289.0	1,156.0	1,156.0	1,029.0	1,027.0	952.0
Mountain Province	23.0	23.0	23.0	22.0	22.0	22.0	23.0	23.0	22.2	37.0	28.0
Tobacco											
CAR	2,021.0	2,018.3	2,018.0	2,012.5	2,052.0	2,051.0	2,051.4	2,051.0	2,082.3	2,066.0	2,046.0
Abra	2,010.0	2,010.0	2,010.0	2,005.0	2,046.0	2,046.0	2,046.0	2,046.0	2,046.0	2,046.0	2,041.0
Apayao	4.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.3	2.0	2.0
Benguet	1.0	...	...	...	...	...	...	...	...	...	...
Ifugao	1.0	1.3	1.0	1.0	1.0	1.0	1.4	1.0	1.0	1.0	1.0
Kalinga	5.0	5.0	5.0	5.0	3.0	2.0	2.0	2.0	33.0	17.0	2.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Tobacco Native											
CAR	9.0	7.0	7.0	6.5	41.0	18.4	18.4	18.4	18.7	18.4	17.4
Abra	...	...	...	...	36.0	14.4	14.4	14.4	14.4	14.4	13.4
Apayao	4.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.3	2.0	2.0
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	5.0	5.0	5.0	5.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Tobacco Virginia											
CAR	2,011.0	2,010.0	2,010.0	2,005.0	2,010.0	2,010.0	2,010.0	2,010.0	2,010.0	2,010.0	2,007.0
Abra	2,010.0	2,010.0	2,010.0	2,005.0	2,010.0	2,010.0	2,010.0	2,010.0	2,010.0	2,010.0	2,007.0
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	1.0	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Banana											
CAR	4,956.0	4,864.0	4,842.0	4,864.0	4,932.0	5,149.0	4,796.0	4,864.4	4,782.0	2,928.7	2,962.9
Abra	863.0	864.0	864.0	864.0	864.0	866.0	863.0	863.0	863.0	848.0	848.0

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Apayao	2,227.0	2,225.0	2,216.0	2,318.0	2,379.0	2,569.0	2,290.0	2,345.4	2,288.0	534.7	549.9
Benguet	300.0	298.0	298.0	290.0	282.0	282.0	282.0	284.0	283.0	253.0	253.0
Ifugao	874.0	852.0	852.0	813.0	813.0	813.0	722.0	722.0	723.0	710.0	708.0
Kalinga	295.0	295.0	271.0	271.0	296.0	302.0	318.0	329.0	329.0	338.0	334.0
Mountain Province	397.0	330.0	341.0	308.0	298.0	317.0	321.0	321.0	296.0	245.0	270.0
Banana Cavendish											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Banana Lakatan											
CAR	975.0	968.0	959.0	965.0	1,004.0	1,142.0	954.0	981.0	949.0	373.0	385.5
Abra	55.0	54.0	54.0	54.0	54.0	55.0	55.0	55.0	55.0	55.0	55.0
Apayao	750.0	750.0	750.0	760.0	800.0	946.0	760.0	790.0	760.0	185.0	203.5
Benguet	58.0	55.0	54.0	53.0	51.0	51.0	51.0	48.0	47.0	46.0	46.0
Ifugao	32.0	30.0	30.0	27.0	27.0	24.0	22.0	22.0	23.0	23.0	21.0
Kalinga	75.0	75.0	69.0	69.0	70.0	65.0	65.0	65.0	64.0	64.0	60.0
Mountain Province	5.0	4.0	2.0	2.0	2.0	1.0	1.0	1.0	...	...	...
Banana Saba											
CAR	1,336.0	1,304.0	1,328.0	1,318.0	1,317.0	1,353.0	1,332.0	1,352.0	1,322.0	862.7	864.9
Abra	391.0	392.0	392.0	392.0	392.0	392.0	390.0	390.0	390.0	380.0	380.0
Apayao	497.0	497.0	497.0	510.0	511.0	520.0	510.0	525.0	511.0	93.7	82.9
Benguet	90.0	91.0	92.0	90.0	88.0	88.0	88.0	88.0	88.0	79.0	79.0
Ifugao	87.0	86.0	86.0	83.0	83.0	83.0	67.0	67.0	67.0	65.0	65.0
Kalinga	68.0	68.0	62.0	62.0	72.0	78.0	85.0	90.0	90.0	97.0	97.0
Mountain Province	203.0	170.0	199.0	181.0	171.0	192.0	192.0	192.0	176.0	148.0	161.0
Calamansi											
CAR	68.0	65.0	64.0	65.0	67.0	69.0	73.4	75.0	72.5	73.5	71.2
Abra	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Apayao	18.0	18.0	18.0	18.0	20.0	20.0	25.0	25.0	22.5	23.5	21.2
Benguet	16.0	13.0	12.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Ifugao	11.0	11.0	11.0	11.0	11.0	11.0	11.4	11.0	11.0	11.0	11.0
Kalinga	7.0	7.0	7.0	8.0	8.0	10.0	10.0	12.0	12.0	12.0	12.0
Mountain Province	5.0	5.0	5.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
Durian											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Lanzones											
CAR	25.0	25.0	26.0	26.0	28.0	31.0	38.0	45.0	41.0	41.5	40.3
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	20.0	20.0	20.0	20.0	22.0	25.0	30.0	30.0	26.0	26.5	25.3
Benguet	...	...	...	...	...	...	...	5.0	5.0	5.0	5.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	5.0	5.0	6.0	6.0	6.0	6.0	8.0	10.0	10.0	10.0	10.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Mandarin											
CAR	178.0	178.0	177.0	177.0	185.0	197.0	204.0	213.0	206.0	195.5	188.5
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	62.0	62.0	62.0	62.0	65.0	68.0	75.0	75.0	68.0	60.5	53.5
Benguet	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	42.0	42.0
Ifugao	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Kalinga	35.0	35.0	35.0	35.0	35.0	35.0	35.0	38.0	38.0	38.0	38.0
Mountain Province	20.0	20.0	19.0	19.0	24.0	33.0	33.0	39.0	39.0	38.0	38.0
Mango											
CAR	790.0	792.0	792.0	794.0	766.0	779.0	782.0	794.0	791.0	789.0	783.0
Abra	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	125.0	125.0
Apayao	88.0	88.0	88.0	90.0	88.0	88.0	88.0	88.0	87.0	79.0	76.0
Benguet	264.0	264.0	264.0	264.0	238.0	238.0	238.0	238.0	238.0	236.0	236.0
Ifugao	114.0	116.0	116.0	116.0	116.0	116.0	115.0	119.0	119.0	119.0	119.0
Kalinga	80.0	80.0	80.0	80.0	84.0	96.0	101.0	107.0	107.0	103.0	103.0
Mountain Province	134.0	134.0	134.0	134.0	130.0	131.0	130.0	132.0	130.0	127.0	124.0
Mango Carabao											
CAR	697.0	699.0	699.0	699.0	669.0	677.0	680.0	690.0	686.0	690.0	683.9
Abra	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	125.0	125.0
Apayao	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	76.0	69.0	65.9
Benguet	264.0	264.0	264.0	264.0	238.0	238.0	238.0	238.0	238.0	236.0	236.0
Ifugao	106.0	108.0	108.0	108.0	108.0	108.0	107.0	110.0	110.0	110.0	110.0
Kalinga	60.0	60.0	60.0	60.0	60.0	68.0	73.0	80.0	80.0	80.0	80.0
Mountain Province	79.0	79.0	79.0	79.0	75.0	75.0	74.0	74.0	72.0	70.0	67.0
Mangosteen											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Orange											
CAR	179.0	179.0	178.0	174.0	170.0	156.0	151.0	145.2	136.5	130.0	129.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.2	4.5	4.0	4.0
Benguet	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	75.0	75.0	75.0
Ifugao	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	25.0	24.0
Kalinga	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Mountain Province	54.0	54.0	53.0	49.0	44.0	30.0	25.0	19.0	15.0	11.0	11.0
Papaya											
CAR	217.5	217.0	208.0	207.0	209.0	212.0	203.0	202.3	197.6	181.0	181.3
Abra	61.0	61.0	61.0	60.0	60.0	60.0	60.0	60.0	60.0	56.0	56.0
Apayao	8.0	8.0	7.0	7.0	7.0	9.0	7.0	7.3	7.6	7.0	7.1
Benguet	46.0	46.0	46.0	45.0	45.0	45.0	45.0	45.0	45.0	44.0	44.0
Ifugao	15.5	15.0	15.0	15.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Kalinga	65.0	65.0	60.0	61.0	62.0	62.0	55.0	53.0	48.0	37.0	36.0
Mountain Province	22.0	22.0	19.0	19.0	19.0	20.0	20.0	21.0	21.0	21.0	22.2
Pineapple											
CAR	115.0	117.0	117.0	114.0	117.0	111.0	109.0	109.4	107.0	92.0	93.9
Abra	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Apayao	30.0	32.0	32.0	34.0	38.0	40.0	40.0	41.4	42.0	38.0	39.9
Benguet	41.0	41.0	41.0	40.0	40.0	40.0	40.0	40.0	38.0	30.0	31.0
Ifugao	11.0	11.0	11.0	11.0	11.0	11.0	12.0	12.0	12.0	12.0	12.0
Kalinga	21.0	21.0	21.0	18.0	18.0	10.0	8.0	8.0	7.0	4.0	4.0
Mountain Province	9.0	9.0	9.0	8.0	7.0	7.0	6.0	5.0	5.0	5.0	4.0
Rambutan											
CAR	31.0	31.0	32.0	32.0	46.0	51.0	60.0	66.0	59.0	60.0	55.4
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	30.0	30.0	30.0	30.0	40.0	45.0	50.0	50.0	43.0	44.0	39.4
Benguet	...	...	...	...	...	...	...	5.0	5.0	5.0	5.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	1.0	1.0	2.0	2.0	6.0	6.0	10.0	11.0	11.0	11.0	11.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Tamarind											
CAR	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	11.0
Abra	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	1.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Watermelon											
CAR	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.8
Abra	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Apayao	...	...	...	...	...	...	...	...	...	...	0.8
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Asparagus											
CAR	0.5	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	0.5	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Ampalaya											
CAR	103.0	103.5	104.5	103.5	107.0	111.0	113.2	111.9	105.3	105.8	104.5
Abra	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0
Apayao	4.0	3.5	4.0	3.0	7.0	11.0	13.0	13.2	10.1	11.2	11.1
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	13.0	13.0	12.0	12.0	12.0	12.0	12.2	12.2	12.2	12.2	12.2
Kalinga	16.0	17.0	18.5	18.5	18.0	18.0	18.0	17.5	14.0	13.5	12.2
Mountain Province	1.0	1.0	1.0	1.0	1.0	1.0	1.0	...	...	...	...
Bottle gourd/Upo											
CAR	176.0	175.0	176.5	176.5	179.5	180.0	181.0	181.3	179.3	179.3	180.2
Abra	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0
Apayao	1.0	1.0	1.0	1.0	4.0	4.5	5.5	5.7	4.2	4.6	4.5
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	19.0	18.0	17.0	17.0	17.0	17.0	17.0	17.0	16.5	16.5	17.0
Kalinga	...	...	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.3	2.7
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Broccoli											
CAR	158.0	159.0	158.0	163.0	166.0	166.0	166.0	157.0	150.0	170.0	148.3
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	157.0	158.0	158.0	159.0	159.0	159.0	159.0	152.0	145.0	164.0	141.5
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	1.0	1.0	...	4.0	7.0	7.0	7.0	5.0	5.0	6.0	6.8
Cabbage											
CAR	5,536.0	5,435.0	5,436.0	5,443.5	5,442.0	5,401.5	5,315.6	5,273.6	5,137.0	5,117.0	5,096.3
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	4,366.0	4,361.0	4,438.0	4,440.0	4,425.0	4,385.0	4,291.0	4,281.0	4,166.0	4,106.0	4,030.0
Ifugao	30.0	30.0	28.5	28.5	29.0	29.0	29.6	29.6	28.0	28.0	28.0

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kalinga	4.0	4.0	5.5	6.0	7.0	7.5	7.0	8.0	7.0	6.0	5.3
Mountain Province	1,136.0	1,040.0	964.0	969.0	981.0	980.0	988.0	955.0	936.0	977.0	1,033.1
Carrots											
CAR	3,382.0	3,373.0	3,453.0	3,359.0	3,356.0	3,328.0	3,318.3	3,277.3	3,243.8	3,257.2	3,189.6
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	2,800.0	2,795.0	2,926.0	2,927.0	2,938.0	2,913.0	2,903.0	2,889.0	2,876.0	2,889.0	2,840.0
Ifugao	49.0	49.0	48.0	48.0	48.0	48.0	48.3	48.3	46.8	46.8	46.8
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	533.0	529.0	479.0	384.0	370.0	367.0	367.0	340.0	321.0	321.4	302.8
Cassava											
CAR	307.0	312.0	316.6	312.6	489.0	632.0	654.8	659.0	877.4	1,171.0	1,098.5
Abra	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Apayao	79.0	85.0	85.0	84.0	290.0	438.0	443.0	445.0	445.0	447.5	445.1
Benguet	152.0	151.0	156.0	153.0	121.0	112.0	112.0	112.0	111.0	108.0	107.0
Ifugao	18.0	18.0	17.6	17.6	18.0	19.0	35.8	31.0	266.1	562.1	502.1
Kalinga	24.0	25.0	26.0	26.0	28.0	31.0	32.0	38.0	23.3	19.6	12.5
Mountain Province	18.0	17.0	16.0	16.0	16.0	16.0	16.0	17.0	16.0	17.8	15.8
Cauliflower											
CAR	345.0	344.0	340.0	340.5	338.5	333.5	331.5	329.4	323.8	350.8	323.5
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	342.0	341.0	337.0	338.0	337.0	332.0	330.0	328.0	323.0	350.0	323.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	3.0	3.0	3.0	2.5	1.5	1.5	1.5	1.4	0.8	0.8	0.5
Eggplant											
CAR	135.0	134.0	133.8	132.8	137.0	142.0	147.0	147.3	154.9	156.6	158.8
Abra	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0
Apayao	7.0	6.0	6.0	5.0	11.0	16.0	21.0	22.8	20.1	20.5	26.8
Benguet	2.0	2.0	2.3	2.3	2.0	2.0	2.0	2.5	2.5	4.0	4.5
Ifugao	29.0	29.0	28.5	28.5	29.0	29.0	30.0	30.0	43.3	43.3	43.3
Kalinga	33.0	34.0	34.0	34.0	33.0	33.0	32.0	31.0	28.0	28.0	23.5
Mountain Province	5.0	4.0	4.0	4.0	3.0	3.0	3.0	2.0	2.0	1.8	1.8
Garlic											
CAR	13.5	13.0	12.4	8.0	8.0	7.0	7.0	6.5	6.0	6.0	2.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	5.5	5.0	4.4	...	...	...	...	...	...	...	...
Kalinga	8.0	8.0	8.0	8.0	8.0	7.0	7.0	6.5	6.0	6.0	2.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ginger											
CAR	154.0	154.5	150.5	144.8	142.5	139.3	136.8	135.8	130.6	132.6	127.2
Abra	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Apayao	12.0	13.0	13.0	11.8	9.0	8.8	9.5	9.5	9.0	8.8	8.8
Benguet	46.0	45.0	41.0	39.0	39.0	39.0	36.0	34.0	31.0	33.0	25.0
Ifugao	72.0	72.0	72.0	70.0	70.0	67.0	66.8	66.8	62.1	61.5	61.5
Kalinga	4.0	4.5	4.5	4.5	5.0	5.0	5.0	6.0	9.0	9.9	10.0
Mountain Province	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	4.0
Greater yam/Ubi											
CAR	25.0	26.5	28.0	29.0	31.0	32.5	33.5	33.0	32.8	35.0	32.8
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	1.0	2.0	2.0	3.0	3.0	4.0	4.0	4.0	4.0	4.3	3.8
Benguet	22.0	22.5	24.0	24.0	24.0	24.0	24.0	23.0	23.0	25.0	24.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	2.0	2.0	2.0	2.0	4.0	4.5	5.5	6.0	5.8	5.8	5.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Lady's finger/Okra											
CAR	15.0	15.5	15.5	15.5	18.5	21.0	21.0	21.5	18.8	19.5	18.8
Abra	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Apayao	1.0	1.0	1.0	1.0	4.0	7.0	8.0	8.0	6.0	6.8	6.7
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	7.0	7.5	7.5	7.5	7.5	7.0	6.0	6.5	5.8	5.8	5.1
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Lettuce											
CAR	151.0	149.0	160.0	159.0	165.0	168.0	167.0	157.0	162.0	161.0	148.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	132.0	131.0	143.0	143.0	148.0	148.0	145.0	136.0	138.0	141.0	127.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	19.0	18.0	17.0	16.0	17.0	20.0	22.0	21.0	24.0	20.0	21.0
Mung bean/Mongo											
CAR	172.0	172.0	168.0	183.5	183.0	172.0	167.0	163.0	157.0	134.8	127.2
Abra	...	...	...	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Apayao	8.0	8.0	6.0	6.5	7.0	7.0	8.0	8.0	9.0	6.8	6.2
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	77.0	77.0	76.0	76.0	76.0	76.0	72.0	67.0	59.0	52.0	48.0
Kalinga	44.0	43.0	43.0	43.0	43.0	44.0	44.0	45.0	47.0	34.0	31.0
Mountain Province	43.0	44.0	43.0	43.0	42.0	30.0	28.0	28.0	27.0	27.0	27.0
Onion											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Peanut											
CAR	254.0	253.0	254.0	252.0	249.0	249.5	239.4	229.0	224.4	211.6	209.5
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	4.0	4.4
Benguet	22.0	22.0	26.0	26.0	24.0	24.0	23.0	23.0	23.0	23.0	21.0
Ifugao	96.0	94.0	92.0	92.0	92.0	92.0	92.4	92.0	92.1	92.1	92.1
Kalinga	25.0	25.0	25.0	25.0	17.0	17.5	15.0	14.0	10.8	9.5	9.0
Mountain Province	105.0	106.0	106.0	104.0	111.0	111.0	104.0	95.0	94.0	83.0	83.0
Pechay, Chinese											
CAR	2,878.0	2,827.0	2,819.0	2,791.0	2,791.0	2,786.0	2,787.0	2,770.0	2,749.0	2,684.8	2,646.8
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	0.1	0.1
Benguet	2,550.0	2,537.0	2,584.0	2,584.0	2,584.0	2,579.0	2,580.0	2,572.0	2,561.0	2,500.0	2,460.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	2.0	2.0	2.0	2.0	2.0	1.0	...	...	...	...	...
Mountain Province	326.0	288.0	233.0	205.0	205.0	206.0	207.0	198.0	188.0	184.7	186.7
Pechay, Native											
CAR	563.5	559.9	535.6	528.8	530.3	525.8	522.5	506.6	501.3	467.7	437.1
Abra	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Apayao	1.0	1.9	2.2	1.8	2.3	2.8	2.8	2.9	1.8	2.0	2.0
Benguet	475.5	472.0	447.0	440.0	442.0	437.0	434.5	421.5	418.5	386.0	355.0
Ifugao	23.0	23.0	22.4	23.0	24.0	24.0	24.2	24.2	25.0	24.0	24.0
Kalinga	21.0	21.0	21.0	21.0	20.0	21.0	22.0	22.0	22.0	20.8	20.0
Mountain Province	32.0	31.0	32.0	32.0	31.0	30.0	28.0	25.0	23.0	24.0	25.1
Radish											
CAR	131.0	130.0	135.0	133.0	130.0	128.0	132.0	128.0	125.2	130.0	118.1
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	120.0	120.0	125.0	123.0	120.0	118.0	123.0	120.0	118.2	123.0	110.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	11.0	10.0	10.0	10.0	10.0	10.0	9.0	8.0	7.0	7.0	8.1
Snap beans/Habitchuelas											
CAR	1,287.0	1,267.0	1,289.0	1,291.9	1,285.5	1,282.5	1,283.3	1,234.8	1,171.8	1,159.8	1,104.7
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	4.0	5.0	4.0	3.9	4.0	4.5	5.8	5.8	4.8	5.8	5.7
Benguet	669.0	659.0	694.0	695.0	694.0	690.0	690.5	685.0	671.0	663.0	645.0
Ifugao	405.0	395.0	392.0	392.0	392.0	392.0	393.0	378.0	364.0	362.0	347.0

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kalinga	26.0	26.0	26.0	26.0	25.5	26.0	27.0	29.0	25.0	19.0	17.3
Mountain Province	183.0	182.0	173.0	175.0	170.0	170.0	167.0	137.0	107.0	110.1	89.8
Stringbeans											
CAR	175.0	177.3	174.0	172.0	181.0	187.0	191.0	184.5	173.7	168.0	155.7
Abra	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Apayao	7.0	7.3	7.0	6.0	11.0	15.0	20.0	20.5	12.7	13.0	13.3
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	108.0	108.0	106.0	106.0	106.0	106.0	104.0	96.0	93.0	87.0	77.0
Kalinga	29.0	31.0	31.0	31.0	34.0	36.0	37.0	38.0	38.0	38.0	36.3
Mountain Province	6.0	6.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	4.1
Squash Fruit											
CAR	242.5	243.0	247.0	238.0	252.0	272.0	274.5	274.8	252.5	253.6	251.2
Abra	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	122.0	122.0	122.0
Apayao	11.0	12.0	20.0	13.0	28.0	50.0	54.0	55.3	46.7	47.0	50.4
Benguet	19.5	20.0	19.0	18.0	18.0	18.0	18.0	17.0	16.5	16.5	15.5
Ifugao	23.0	23.0	22.0	22.0	22.0	22.0	22.5	22.5	20.3	20.0	20.0
Kalinga	19.0	19.0	19.0	19.0	17.0	15.0	13.0	13.0	12.0	11.7	11.5
Mountain Province	39.0	38.0	36.0	35.0	36.0	36.0	36.0	36.0	35.0	36.4	31.8
Sweet Potato											
CAR	3,165.0	3,167.0	3,033.5	3,018.0	3,069.0	3,049.0	3,021.0	2,891.8	2,806.2	2,599.6	2,194.2
Abra	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0
Apayao	12.0	15.0	15.0	15.0	18.0	21.0	27.0	28.8	23.2	21.0	24.5
Benguet	870.0	871.0	791.7	792.0	769.0	759.0	763.0	761.0	748.0	719.0	670.0
Ifugao	1,721.0	1,712.0	1,712.0	1,712.0	1,712.0	1,712.0	1,698.0	1,600.0	1,573.0	1,443.0	1,175.0
Kalinga	50.0	51.0	52.8	53.0	55.0	55.0	58.0	58.0	57.0	42.8	42.0
Mountain Province	449.0	455.0	399.0	383.0	452.0	439.0	412.0	381.0	342.0	310.8	219.6
Swamp cabbage/Kangkong											
CAR	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.5	5.8	5.8
Abra	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.5	2.8	2.8
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Taro/Gabi											
CAR	446.0	449.0	421.0	419.7	425.0	434.0	441.2	440.2	436.4	437.0	420.1
Abra	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
Apayao	8.0	11.0	12.0	12.2	15.0	22.0	27.0	27.0	25.8	26.0	26.2
Benguet	376.0	377.0	349.0	348.5	349.0	349.0	349.0	348.0	345.5	346.0	332.0
Ifugao	27.0	27.0	26.0	26.0	26.0	26.0	26.2	26.2	25.6	25.6	25.4
Kalinga	12.0	12.0	12.0	12.0	15.0	17.0	19.0	19.0	19.5	19.4	16.5
Mountain Province	4.0	3.0	3.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Tomato											

Table 2.9
Other Crops: Area Planted/Harvested by Crop and Geolocation
2008 to 2018 (in hectares)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CAR	379.0	366.0	356.9	359.8	359.0	355.0	356.1	342.1	335.8	335.0	301.2
Abra	53.0	53.0	53.0	53.0	53.0	53.0	53.0	53.0	53.0	50.0	50.0
Apayao	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.5	2.3
Benguet	240.0	238.0	229.1	230.0	230.0	229.0	231.0	229.5	223.5	203.0	163.0
Ifugao	4.0	4.0	3.8	3.8	4.0	4.0	4.1	6.6	11.0	16.0	16.0
Kalinga	22.0	22.0	21.0	21.0	19.0	16.0	16.0	14.0	12.0	12.0	13.5
Mountain Province	58.0	47.0	48.0	50.0	51.0	51.0	50.0	37.0	34.0	51.5	56.5
White/Irish Potato											
CAR	5,932.0	5,824.0	6,068.5	6,115.5	6,083.0	5,892.0	5,884.9	5,893.5	5,787.6	5,819.8	5,587.1
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	4,844.0	4,833.0	5,174.0	5,176.0	5,157.0	4,969.0	4,969.0	5,014.0	4,981.0	4,997.0	4,795.0
Ifugao	10.0	10.0	9.5	9.5	10.0	10.0	9.9	9.5	8.6	7.5	6.3
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	1,078.0	981.0	885.0	930.0	916.0	913.0	906.0	870.0	798.0	815.3	785.9

Source: Philippine Statistics Authority

Table 2.10
Palay and Corn: Volume of Production by Ecosystem/Croptype and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Palay											
CAR	445,156	431,656	400,415	428,949	453,461	460,170	452,609	400,911	382,848	445,006	391,105
Abra	75,528	76,302	77,611	80,428	82,333	79,444	75,500	66,716	65,159	69,477	62,120
Apayao	101,632	100,379	96,689	98,489	105,891	106,741	101,158	96,453	86,430	103,335	76,346
Benguet	17,142	16,221	15,780	15,790	16,696	17,491	17,355	18,144	18,145	20,276	19,918
Ifugao	63,546	64,036	60,350	61,903	62,465	63,379	63,076	63,362	60,866	62,387	60,077
Kalinga	168,117	156,187	134,266	155,895	168,854	174,012	176,529	41,094	137,784	173,292	156,269
Mountain Province	19,191	18,531	15,719	16,444	17,222	19,103	18,991	15,142	14,464	16,239	16,376
Irrigated Palay											
CAR	372,282	362,841	335,343	364,657	385,958	394,671	389,732	345,847	334,494	389,558	349,285
Abra	48,585	50,676	51,656	53,373	55,219	54,639	52,363	47,320	44,332	48,119	42,945
Apayao	69,045	69,747	67,715	71,224	76,320	77,589	72,925	71,204	68,741	81,192	62,938
Benguet	15,112	14,370	13,843	14,038	14,560	15,295	15,201	15,905	15,588	17,816	17,590
Ifugao	61,678	62,184	58,482	60,202	60,660	61,566	61,263	61,551	59,102	60,591	58,384
Kalinga	161,424	149,750	129,611	151,020	163,961	168,616	171,213	136,463	133,565	167,849	153,133
Mountain Province	16,438	16,114	14,036	14,800	15,238	16,966	16,767	13,404	13,166	13,991	14,296
Rainfed Palay											
CAR	72,874	68,815	65,072	64,292	67,503	65,499	62,877	55,064	48,354	55,448	41,820
Abra	26,943	25,626	25,955	27,055	27,114	24,805	23,137	19,396	20,827	21,358	19,175
Apayao	32,587	30,632	28,974	27,265	29,571	29,152	28,233	25,249	17,689	22,143	13,408
Benguet	2,030	1,851	1,937	1,752	2,136	2,196	2,154	2,239	2,557	2,460	2,328
Ifugao	1,868	1,852	1,868	1,701	1,805	1,813	1,813	1,811	1,764	1,796	1,693
Kalinga	6,693	6,437	4,655	4,875	4,893	5,396	5,316	4,631	4,219	5,443	3,136
Mountain Province	2,753	2,417	1,683	1,644	1,984	2,137	2,224	1,738	1,298	2,248	2,080
Corn											
CAR	196,421	201,773	172,195	218,788	225,135	242,074	244,576	237,823	199,355	242,850	207,439
Abra	9,238	11,737	12,102	15,841	16,139	16,153	16,618	16,170	16,152	16,262	16,167
Apayao	17,162	17,845	16,666	22,946	26,001	32,748	32,211	31,885	29,323	35,986	26,281
Benguet	38	38	38	34	34	36	37	37	42	40	348
Ifugao	88,938	83,511	84,285	93,847	97,183	106,449	119,409	111,658	93,265	103,540	98,072
Kalinga	55,207	65,193	46,112	65,505	64,166	64,944	54,975	53,771	44,145	63,076	43,346
Mountain Province	25,838	23,449	12,992	20,615	21,612	21,744	21,326	24,302	16,428	23,946	23,225
White Corn											
CAR	15,224	16,688	15,677	20,147	20,345	20,256	20,680	19,871	17,993	17,888	16,673
Abra	8,479	10,850	11,193	14,937	15,260	15,278	15,733	15,333	15,287	15,397	15,302
Apayao	1,637	1,373	835	1,351	1,057	997	918	922	840	984	706
Benguet	33	33	33	31	31	33	34	34	30	30	19
Ifugao	2,501	1,773	1,527	1,395	1,765	1,747	1,830	1,768	760	222	280
Kalinga	2,269	2,388	1,802	2,184	1,933	1,912	1,860	1,724	1,016	1,068	323
Mountain Province	305	271	287	249	299	289	305	90	60	187	43

Table 2.10
Palay and Corn: Volume of Production by Ecosystem/Croptype and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Yellow Corn											
CAR	181,197	185,085	156,518	198,641	204,790	221,818	223,896	217,952	181,362	224,962	190,766
Abra	759	887	909	904	879	875	885	837	865	865	865
Apayao	15,525	16,472	15,831	21,595	24,944	31,751	31,293	30,963	28,483	35,002	25,575
Benguet	5	5	5	3	3	3	3	3	12	10	329
Ifugao	86,437	81,738	82,758	92,452	95,418	104,702	117,579	109,890	92,505	103,318	97,792
Kalinga	52,938	62,805	44,310	63,321	62,233	63,032	53,115	52,047	43,129	62,008	43,023
Mountain Province	25,533	23,178	12,705	20,366	21,313	21,455	21,021	24,212	16,368	23,759	23,182

Source: Philippine Statistics Authority

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Abaca											
CAR	13.1	13.3	13.4	13.1	13.2	13.0	11.2	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	13.1	13.3	13.4	13.1	13.2	13.0	11.2	...	...	...	...
Cacao											
CAR	13.4	14.0	13.8	14.0	14.5	21.1	27.7	31.0	30.9	22.4	27.2
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	7.3	7.7	7.6	7.3	7.4	12.8	19.6	21.9	21.3	15.2	16.1
Benguet	4.1	4.1	4.0	3.9	3.4	3.2	3.0	3.2	3.1	3.2	3.3
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	2.0	2.2	2.2	2.9	3.7	5.1	5.1	6.0	5.5	2.9	6.4
Mountain Province	...	...	...	...	...	...	...	...	1.0	1.1	1.4
Cashew (ripe fruit with nut)											
CAR	1.3	1.3	1.3	1.3	1.3	1.2	1.0	0.9	0.2	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	1.3	1.3	1.3	1.3	1.3	1.2	1.0	0.9	0.2	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Chrysanthemum											
CAR	1,268.7	1,326.9	1,360.9	1,358.0	1,401.4	1,419.6	1,364.4	1,323.0	1,186.2	1,283.0	1,348.5
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	1,268.7	1,326.9	1,360.9	1,358.0	1,401.4	1,419.6	1,364.4	1,320.8	1,186.1	1,283.0	1,348.5
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	2.2	0.1	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Coconut (with husk)											
CAR	865.8	906.1	914.0	907.2	952.2	1,078.8	1,173.0	1,165.1	1,037.4	981.4	942.3
Abra	185.3	189.0	191.9	190.5	202.8	212.8	220.0	214.9	208.3	203.9	191.6
Apayao	235.6	255.2	254.9	248.5	267.7	324.5	374.8	393.1	347.7	324.7	295.6
Benguet	15.6	15.5	15.1	15.4	15.1	15.2	15.3	15.0	14.8	15.1	15.0
Ifugao	75.6	80.2	86.8	90.3	94.7	104.0	131.1	135.3	141.7	148.7	154.5
Kalinga	191.2	192.9	192.2	190.4	195.8	243.0	257.0	238.1	160.4	134.5	134.4
Mountain Province	162.5	173.3	173.1	172.3	176.2	179.4	174.7	168.6	164.5	154.6	151.2

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coffee (dried berries)											
CAR	5,949.5	5,700.3	5,608.1	5,627.1	5,673.2	5,464.8	5,251.5	5,210.0	3,735.9	1,886.2	2,199.0
Abra	55.1	54.4	54.4	54.1	53.5	52.4	51.5	52.4	54.7	56.3	58.9
Apayao	15.7	16.0	14.4	13.4	12.8	16.0	19.9	23.0	23.2	17.1	16.7
Benguet	477.7	484.5	487.6	486.6	491.7	501.0	535.6	540.8	523.3	520.8	515.1
Ifugao	1,103.4	1,091.4	1,075.8	1,053.8	1,061.4	1,052.4	1,029.4	985.4	943.4	893.6	722.8
Kalinga	3,977.0	3,852.0	3,803.0	3,857.2	3,898.5	3,698.5	3,470.0	3,480.4	2,080.0	311.2	801.2
Mountain Province	320.7	202.0	173.0	162.2	155.4	144.6	145.1	128.1	111.3	87.1	84.3
Coffee Arabica (dried berries)											
CAR	535.3	547.6	550.3	549.8	555.1	548.3	578.6	582.1	531.3	521.4	518.6
Abra	24.8	24.5	24.5	24.6	24.4	23.9	23.2	23.2	24.8	25.4	27.3
Apayao	5.5	5.7	5.1	4.5	4.3	6.5	6.0	5.7	5.6	3.6	3.5
Benguet	388.0	395.2	399.1	397.8	403.0	411.0	445.3	451.7	437.6	436.0	431.0
Ifugao	16.4	17.6	18.6	16.7	16.9	16.5	15.4	15.0	13.7	12.4	11.1
Kalinga	59.0	58.0	57.0	58.2	56.5	40.0	36.0	35.0	...	...	...
Mountain Province	41.7	46.7	46.1	48.2	50.0	50.6	52.6	51.6	49.6	44.1	45.7
Coffee Excelsa (dried berries)											
CAR	89.9	87.2	84.6	86.4	88.4	84.1	78.6	77.5	58.0	31.3	28.2
Abra	6.8	6.7	6.6	6.6	6.5	6.4	6.4	6.9	7.2	7.4	7.5
Apayao	1.6	1.6	1.5	1.9	1.7	2.0	1.8	1.7	1.7	0.9	0.9
Benguet	23.5	23.2	22.5	22.2	21.8	22.1	21.4	20.1	19.2	18.8	18.6
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	56.0	54.0	53.0	55.0	58.0	53.5	49.0	48.8	30.0	4.2	1.2
Mountain Province	2.1	1.7	1.0	0.9	0.3	...	...	...	...	...	...
Coffee Liberica (dried berries)											
CAR	17.7	17.5	17.6	17.3	16.9	16.6	16.4	16.2	16.1	16.5	16.9
Abra	17.7	17.5	17.6	17.3	16.9	16.6	16.4	16.2	16.1	16.5	16.9
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Coffee Robusta (dried berries)											
CAR	5,114.0	4,862.3	,772.1	4,973.6	5,012.8	4,815.9	4,577.9	4,534.3	3,130.5	1,316.9	1,635.3
Abra	5.9	5.8	5.7	5.7	5.6	5.5	5.5	6.1	6.7	7.0	7.1
Apayao	8.0	8.1	7.3	7.0	6.8	7.5	12.1	15.6	16.0	12.6	12.4
Benguet	66.2	66.1	66.0	66.7	66.9	67.9	68.9	69.1	66.4	66.0	65.5
Ifugao	1,087.0	1,073.9	1,057.2	1,037.2	1,044.5	1,035.9	1,014.0	970.5	929.7	881.2	711.7
Kalinga	3,670.0	3,555.0	3,510.0	3,744.0	3,784.0	3,605.0	3,385.0	3,396.6	2,050.0	307.0	800.0
Mountain Province	276.9	153.5	125.9	113.1	105.0	94.0	92.5	76.5	61.7	43.1	38.6

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cotton											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Gladiola											
CAR	1,064.3	1,011.9	972.3	894.0	832.9	739.6	515.6	406.2	294.3	275.5	216.3
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	1,064.3	1,011.9	972.3	894.0	832.9	739.6	515.6	406.2	294.3	275.5	216.3
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Oil Palm (fresh fruit bunch)											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Orchids											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Pili Nut (with shell)											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Roses											
CAR	1,433.6	1,400.0	1,405.5	1,406.9	1,447.4	1,475.7	1,466.6	1,379.3	1,283.6	1,444.8	1,594.4
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	1,433.6	1,400.0	1,405.5	1,406.9	1,447.4	1,475.7	1,466.6	1,379.3	1,283.6	1,444.8	1,594.4
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Rubber (cuplump)											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Sugarcane											
CAR	9,842.4	10,215.1	6,992.4	7,977.0	7,567.6	12,895.2	49,709.2	51,787.0	41,816.1	24,870.4	28,977.9
Abra	...	176.3	178.1	178.9	180.9	184.2	187.2	153.2	173.2	178.0	174.6
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	10.0	9.7	10.5	14.1	13.1
Ifugao	...	...	...	...	...	103.3	190.0	114.0	93.8	49.6	12.1
Kalinga	9,045.0	9,236.0	6,000.0	6,960.0	6,530.0	11,750.0	48,461.0	50,640.8	40,736.5	23,816.0	28,107.0
Mountain Province	797.4	802.8	814.3	838.1	856.7	857.7	861.1	869.4	802.1	812.7	671.1
Tobacco											
CAR	912.1	929.3	940.8	925.8	948.7	963.5	1,256.7	1,484.1	1,804.7	1,777.4	1,618.8
Abra	902.8	922.2	934.7	919.8	942.6	957.2	1,250.2	1,477.6	1,696.3	1,757.2	1,613.4
Apayao	0.8	0.7	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.4
Benguet	2.4	...	...	...	...	...	...	...	...	...	...
Ifugao	1.2	1.6	1.2	1.3	1.3	1.4	1.9	1.8	1.6	1.8	1.0
Kalinga	4.9	4.8	4.8	4.5	4.6	4.6	4.2	4.3	106.4	17.9	4.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Tobacco Native											
CAR	5.7	5.5	5.0	4.7	17.4	10.1	14.0	14.8	14.8	13.5	14.2
Abra	...	...	...	...	12.6	5.1	9.4	10.1	10.0	10.1	9.8
Apayao	0.8	0.7	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.4
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	4.9	4.8	4.8	4.5	4.6	4.6	4.2	4.3	4.4	2.9	4.0
Mountain Province	...	...	...	...	...	...	...	...	...	...	...

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tobacco Virginia											
CAR	905.2	922.2	934.7	919.8	930.0	944.3	1,226.0	1,452.1	1,671.1	1,731.3	1,588.6
Abra	902.8	922.2	934.7	919.8	930.0	944.3	1,226.0	1,452.1	1,671.1	1,731.3	1,588.6
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	2.4	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Banana											
CAR	26,699.7	26,981.1	25,668.9	25,082.5	25,100.1	27,194.6	26,254.0	26,576.4	25,584.5	21,104.5	20,866.5
Abra	7,711.2	7,730.6	7,782.1	7,617.4	7,685.0	7,615.6	7,054.1	7,408.6	6,539.1	6,519.6	6,148.4
Apayao	7,197.0	7,577.6	6,442.6	6,404.8	6,405.5	9,440.0	8,916.4	8,838.0	9,072.4	5,443.4	5,216.8
Benguet	2,267.6	2,270.8	2,193.5	2,094.4	2,011.5	2,039.7	2,065.2	1,973.0	1,853.8	1,711.7	1,548.7
Ifugao	6,688.6	6,758.0	6,699.6	6,553.8	6,510.3	5,424.1	5,445.1	5,502.2	5,486.1	5,493.2	5,077.7
Kalinga	1,195.0	1,210.4	1,175.2	1,193.4	1,200.9	1,287.5	1,245.9	1,270.4	1,117.8	616.3	1,412.4
Mountain Province	1,640.4	1,433.7	1,375.9	1,218.8	1,287.0	1,387.7	1,527.4	1,584.3	1,515.4	1,320.3	1,462.5
Banana Cavendish											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Banana Lakatan											
CAR	4,804.3	4,929.7	4,318.0	4,231.3	4,146.0	4,829.3	4,603.6	4,457.6	4,276.2	2,962.3	2,736.5
Abra	260.9	254.4	256.0	254.9	257.3	269.0	271.4	282.1	240.2	255.5	231.0
Apayao	2,611.0	2,780.0	2,233.0	2,191.0	2,216.0	3,174.0	2,968.7	2,927.6	2,872.1	1,694.5	1,593.8
Benguet	414.1	402.1	384.5	377.7	357.7	355.6	347.5	297.6	261.8	247.6	221.2
Ifugao	1,149.0	1,133.3	1,105.6	1,068.6	1,021.5	759.7	770.8	730.3	733.2	722.9	638.6
Kalinga	331.0	332.8	322.0	328.4	283.4	262.5	240.8	219.1	169.0	41.8	52.0
Mountain Province	38.3	27.1	16.9	10.7	10.1	8.5	4.4	0.9	...	...	...
Banana Saba											
CAR	8,989.4	9,090.1	9,020.8	8,768.6	8,909.9	9,552.8	8,913.8	9,214.7	8,844.3	7,558.0	7,570.9
Abra	4,742.5	4,786.8	4,835.4	4,694.8	4,744.6	4,615.7	4,031.3	4,313.9	3,850.0	3,787.6	3,607.7
Apayao	1,723.0	1,765.0	1,583.0	1,590.0	1,596.0	2,356.7	2,193.6	2,132.3	2,308.5	1,388.7	1,295.0
Benguet	566.7	577.9	565.7	549.5	529.1	541.2	555.9	526.9	505.9	464.9	417.6
Ifugao	1,004.5	1,025.3	1,032.8	1,011.6	1,022.3	857.1	861.1	882.0	880.4	892.5	850.4
Kalinga	220.3	221.2	210.5	215.9	250.0	310.0	275.4	297.5	262.0	165.9	401.2
Mountain Province	732.5	714.1	793.4	706.7	767.9	872.2	996.5	1,062.2	1,037.6	858.4	999.1

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Calamansi											
CAR	438.2	426.4	420.8	418.7	420.2	417.8	444.6	445.4	435.5	440.7	437.5
Abra	85.4	86.9	86.8	85.8	87.0	87.6	105.8	112.0	116.8	120.7	116.7
Apayao	62.5	57.0	56.0	55.5	56.4	52.9	55.8	60.1	57.1	51.1	52.7
Benguet	218.6	210.6	206.3	205.2	202.6	204.9	210.4	199.7	192.1	194.5	191.3
Ifugao	44.8	47.9	45.2	44.5	45.4	45.0	44.7	45.3	45.7	46.6	43.8
Kalinga	8.4	8.9	8.8	9.2	10.1	11.5	14.5	15.4	14.5	12.1	16.3
Mountain Province	18.6	15.1	17.8	18.6	18.8	15.9	13.3	12.8	9.3	15.7	16.7
Durian											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Lanzones											
CAR	17.4	15.4	16.6	12.1	15.6	38.5	46.2	50.3	43.0	35.5	30.2
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	16.7	14.7	15.6	11.0	14.0	34.8	41.2	41.4	33.6	27.7	21.5
Benguet	...	...	...	...	...	...	...	5.0	5.1	5.6	5.1
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	0.7	0.8	1.0	1.1	1.6	3.8	5.0	3.9	4.3	2.3	3.6
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Mandarin											
CAR	884.9	878.0	796.3	796.9	807.8	845.5	890.0	872.2	711.2	653.9	564.3
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	28.3	32.7	37.3	33.0	41.0	71.5	100.7	107.7	83.5	86.3	72.3
Benguet	717.1	710.0	630.8	616.5	611.9	619.0	629.4	576.5	458.5	418.0	345.0
Ifugao	30.8	33.5	30.3	30.9	28.8	28.4	28.9	27.0	27.5	29.5	19.9
Kalinga	12.7	13.0	12.2	12.9	15.8	14.0	13.0	11.3	3.8	6.5	2.7
Mountain Province	96.0	88.9	85.7	103.6	110.3	112.7	117.9	149.7	138.0	113.6	124.4
Mango											
CAR	3,704.8	3,737.7	3,721.2	3,709.1	3,317.6	3,421.8	3,609.8	3,332.4	3,101.6	2,878.0	2,718.4
Abra	415.9	420.9	428.5	422.6	427.2	435.8	673.5	723.8	790.5	1,096.8	1,090.0
Apayao	18.3	15.3	20.6	19.5	18.8	16.3	23.3	25.0	25.9	8.9	9.4
Benguet	2,401.0	2,415.1	2,382.1	2,377.0	1,985.9	2,012.0	1,911.4	1,591.6	1,276.3	1,251.5	983.7
Ifugao	644.3	640.1	643.4	637.6	643.8	648.8	660.8	645.5	653.1	364.7	396.6
Kalinga	96.7	92.6	88.4	86.3	79.7	148.8	183.7	204.0	205.6	15.0	95.0
Mountain Province	128.6	153.7	158.2	166.2	162.3	160.2	157.2	142.6	150.2	141.1	143.8

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mango Carabao											
CAR	3,605.0	3,635.0	3,615.6	3,595.0	3,204.4	3,283.3	3,465.4	3,204.0	2,970.9	2,792.7	2,613.1
Abra	415.9	420.9	428.5	422.6	427.2	435.8	673.5	723.8	790.5	1,096.8	1,090.0
Apayao	10.9	8.5	13.0	12.0	11.5	10.0	16.8	18.3	18.9	4.3	3.6
Benguet	2,401.0	2,415.1	2,382.1	2,377.0	1,985.9	2,012.0	1,911.4	1,591.6	1,276.3	1,251.5	983.7
Ifugao	625.2	622.0	624.3	620.3	625.4	630.2	638.3	623.6	630.5	349.3	378.2
Kalinga	63.0	60.0	57.0	56.0	52.0	98.0	130.0	160.0	165.0	8.0	75.0
Mountain Province	89.0	108.5	110.8	107.1	102.4	97.3	95.5	86.8	89.8	82.8	82.7
Mangosteen											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Orange											
CAR	1,012.8	990.5	933.2	892.9	861.8	842.3	838.6	781.7	675.0	612.6	546.5
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	3.1	3.3	3.5	2.9	3.2	3.8	4.4	4.6	3.8	3.6	2.8
Benguet	810.1	796.7	757.9	741.0	734.0	738.1	747.2	705.0	616.5	556.2	497.3
Ifugao	18.2	20.4	17.3	17.7	16.8	16.4	16.7	16.7	17.0	15.8	8.7
Kalinga	23.8	24.4	23.3	24.2	17.7	11.0	10.3	8.6	2.1	4.1	0.8
Mountain Province	157.7	145.7	131.2	107.1	90.1	73.1	60.1	46.9	35.7	32.9	37.0
Papaya											
CAR	1,666.9	1,674.8	1,643.9	1,586.9	1,590.1	1,627.4	1,730.1	1,764.9	1,688.4	1,635.3	1,522.7
Abra	703.8	712.9	711.0	694.0	703.3	731.2	828.1	888.3	873.8	877.7	856.9
Apayao	27.1	24.7	21.3	20.3	20.8	27.5	25.3	25.1	23.5	20.3	20.2
Benguet	312.0	312.7	305.0	290.0	272.3	275.7	281.9	268.3	257.4	252.0	246.0
Ifugao	406.5	401.3	383.7	349.1	346.2	326.3	331.3	319.9	310.3	301.3	222.3
Kalinga	78.7	80.8	78.6	79.5	83.6	86.9	81.0	75.5	55.9	25.2	20.0
Mountain Province	138.9	142.5	144.2	154.0	164.0	179.8	182.6	187.8	167.6	158.9	157.3
Pineapple											
CAR	711.2	715.7	682.6	687.2	711.5	770.6	804.7	813.9	831.1	750.3	749.3
Abra	50.3	51.3	52.4	51.2	51.8	52.8	68.0	72.0	70.0	71.3	70.2
Apayao	282.0	298.0	273.0	284.0	320.0	385.0	406.0	425.0	463.4	383.8	383.8
Benguet	215.3	213.1	209.7	208.7	195.8	198.0	202.0	198.6	184.5	189.7	191.3
Ifugao	55.2	57.3	55.0	56.5	58.8	54.8	57.7	59.5	58.9	66.1	66.8
Kalinga	38.0	35.8	34.0	35.6	38.8	34.5	30.5	29.3	22.8	8.7	7.5
Mountain Province	70.5	60.1	58.4	51.3	46.4	45.5	40.5	29.5	31.5	30.8	29.8

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Rambutan											
CAR	39.9	40.7	43.3	31.4	46.3	46.5	63.6	79.5	87.1	74.9	69.8
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	38.8	39.5	42.0	30.0	43.0	43.0	56.5	59.5	66.0	55.4	45.4
Benguet	...	...	...	...	...	...	...	14.0	14.1	14.6	13.1
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	1.1	1.2	1.3	1.4	3.3	3.5	7.1	6.0	7.0	4.9	11.4
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Tamarind											
CAR	12.7	12.9	13.2	13.5	13.6	13.9	8.0	8.5	8.9	10.0	10.3
Abra	12.7	12.9	13.2	13.5	13.6	13.9	8.0	8.5	8.9	10.0	10.1
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	0.2
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Watermelon											
CAR	372.8	376.8	377.7	376.4	375.0	372.0	117.6	141.0	140.2	141.8	142.0
Abra	372.8	376.8	377.7	376.4	375.0	372.0	117.6	141.0	140.2	141.8	140.5
Apayao	...	...	...	...	...	...	...	...	...	...	1.5
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Asparagus											
CAR	0.9	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	0.9	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Ampalaya Fruit											
CAR	447.3	454.0	453.8	455.1	472.3	490.7	471.3	475.0	442.3	453.8	419.9
Abra	316.1	322.5	328.4	328.3	331.8	326.5	301.7	308.0	302.2	311.0	296.6
Apayao	8.6	8.1	7.8	7.9	14.9	24.0	30.2	34.8	27.4	32.1	29.8
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	65.5	64.5	55.7	56.0	55.6	55.7	56.8	58.9	57.4	58.7	49.9
Kalinga	53.4	55.2	58.2	59.2	66.3	81.0	79.0	73.4	55.3	52.0	43.6
Mountain Province	3.7	3.7	3.7	3.7	3.7	3.6	3.7	...	...	...	...

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Rambutan											
CAR	39.9	40.7	43.3	31.4	46.3	46.5	63.6	79.5	87.1	74.9	69.8
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	38.8	39.5	42.0	30.0	43.0	43.0	56.5	59.5	66.0	55.4	45.4
Benguet	...	...	...	...	...	...	...	14.0	14.1	14.6	13.1
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	1.1	1.2	1.3	1.4	3.3	3.5	7.1	6.0	7.0	4.9	11.4
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Tamarind											
CAR	12.7	12.9	13.2	13.5	13.6	13.9	8.0	8.5	8.9	10.0	10.3
Abra	12.7	12.9	13.2	13.5	13.6	13.9	8.0	8.5	8.9	10.0	10.1
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	0.2
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Watermelon											
CAR	372.8	376.8	377.7	376.4	375.0	372.0	117.6	141.0	140.2	141.8	142.0
Abra	372.8	376.8	377.7	376.4	375.0	372.0	117.6	141.0	140.2	141.8	140.5
Apayao	...	...	...	...	...	...	...	...	...	...	1.5
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Asparagus											
CAR	0.9	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	0.9	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Ampalaya Fruit											
CAR	447.3	454.0	453.8	455.1	472.3	490.7	471.3	475.0	442.3	453.8	419.9
Abra	316.1	322.5	328.4	328.3	331.8	326.5	301.7	308.0	302.2	311.0	296.6
Apayao	8.6	8.1	7.8	7.9	14.9	24.0	30.2	34.8	27.4	32.1	29.8
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	65.5	64.5	55.7	56.0	55.6	55.7	56.8	58.9	57.4	58.7	49.9
Kalinga	53.4	55.2	58.2	59.2	66.3	81.0	79.0	73.4	55.3	52.0	43.6
Mountain Province	3.7	3.7	3.7	3.7	3.7	3.6	3.7	...	...	...	...

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bottle gourd/Upo											
CAR	1,287.8	1,289.5	1,307.1	1,308.3	1,315.6	1,292.8	1,323.8	1,200.3	1,176.8	1,211.1	1,165.1
Abra	1,082.2	1,094.3	1,115.0	1,114.0	1,114.4	1,084.7	1,111.0	979.8	961.2	998.2	953.3
Apayao	3.2	2.6	2.3	2.4	8.6	11.6	15.2	16.8	15.3	20.3	18.7
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	202.4	192.6	181.8	183.7	183.9	186.5	187.0	192.5	188.5	183.7	182.7
Kalinga	...	...	8.0	8.2	8.8	10.0	10.7	11.2	11.8	8.9	10.4
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Broccoli											
CAR	1,851.8	1,858.0	1,846.9	1,864.0	1,919.3	1,948.4	1,984.1	1,890.1	1,820.6	2,077.0	1,790.6
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	1,839.9	1,846.0	1,846.9	1,830.8	1,859.3	1,886.8	1,921.8	1,851.6	1,777.5	2,026.0	1,741.8
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	11.9	12.0	...	33.2	60.0	61.6	62.4	38.5	43.1	51.0	48.8
Cabbage											
CAR	102,894.4	99,155.2	102,343.6	98,942.8	99,361.7	99,957.6	99,520.1	97,306.8	94,727.8	94,233.0	93,032.5
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	84,547.2	84,246.3	88,796.9	85,206.6	85,480.9	85,874.2	85,139.3	84,472.4	81,778.0	80,634.0	79,010.0
Ifugao	560.2	537.9	497.1	490.3	500.7	504.1	510.4	504.9	475.9	495.0	478.3
Kalinga	15.3	14.7	16.9	19.1	20.8	27.7	26.3	29.7	24.3	23.9	19.8
Mountain Province	17,771.7	14,356.4	13,032.7	13,226.9	13,359.4	13,551.6	13,844.1	12,299.7	12,449.7	13,080.1	13,524.4
Carrots											
CAR	60,302.8	59,023.8	63,352.5	58,766.1	60,126.1	60,038.4	60,507.3	59,526.8	58,695.0	58,319.4	57,779.4
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	52,918.8	52,617.5	57,706.0	53,964.6	55,471.0	55,399.5	55,786.5	55,133.6	54,499.9	54,387.1	54,088.8
Ifugao	593.2	567.9	519.0	508.4	512.6	514.2	518.8	515.8	503.7	511.7	490.0
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	6,790.8	5,838.4	5,127.5	4,293.1	4,142.6	4,124.7	4,202.1	3,877.3	3,691.3	3,420.7	3,200.6
Cassava											
CAR	1,864.8	1,839.4	1,812.8	1,670.6	2,194.0	11,621.2	12,196.6	13,377.5	16,833.0	22,287.1	22,606.0
Abra	35.1	36.1	36.3	35.4	36.3	39.3	46.6	48.3	47.2	48.7	49.2
Apayao	320.2	324.0	304.3	304.5	1,056.6	10,480.5	10,929.0	12,098.0	11,432.0	11,301.7	11,823.9
Benguet	1,204.7	1,184.7	1,184.3	1,045.6	816.5	779.1	787.4	748.2	1,074.9	1,070.1	1,039.4

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ifugao	76.5	78.9	77.1	70.6	73.6	77.6	187.3	140.1	3,881.7	9,507.3	9,441.7
Kalinga	90.5	92.2	94.8	97.4	101.4	131.0	127.0	212.4	272.0	211.1	115.1
Mountain Province	137.9	123.6	116.1	117.0	109.7	113.7	119.3	130.5	125.2	148.2	136.8
Cauliflower											
CAR	4,971.5	4,957.2	5,209.8	5,290.3	5,302.2	5,206.7	5,144.1	5,178.7	5,045.7	5,432.5	4,866.6
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	4,945.7	4,932.2	5,185.8	5,270.1	5,289.6	5,193.7	5,130.8	5,167.1	5,040.6	5,427.0	4,863.3
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	25.9	24.9	24.0	20.2	12.7	13.0	13.4	11.6	5.1	5.5	3.3
Eggplant											
CAR	789.2	790.9	795.7	805.0	823.2	891.5	956.7	974.7	946.3	992.7	963.7
Abra	603.3	611.7	623.0	631.1	635.2	642.9	675.2	684.5	662.7	685.6	672.1
Apayao	29.1	26.5	24.8	24.2	38.6	79.6	113.0	131.3	137.0	145.7	134.1
Benguet	12.8	12.9	12.6	11.8	12.0	12.1	12.4	13.6	13.7	22.4	24.7
Ifugao	23.0	24.6	22.0	23.3	23.6	23.5	23.8	23.6	28.1	29.4	29.4
Kalinga	97.3	94.7	92.6	93.7	98.0	117.5	117.0	109.6	92.7	99.1	93.9
Mountain Province	23.9	20.5	20.9	21.0	15.8	15.9	15.3	12.2	12.1	10.5	9.5
Garlic (dried bulb)											
CAR	16.9	15.8	14.4	13.5	14.5	12.6	11.2	12.0	10.4	1.0	0.8
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	3.0	2.4	1.7	...	...	...	...	...	...	...	...
Kalinga	14.0	13.4	12.7	13.5	14.5	12.6	11.2	12.0	10.4	1.0	0.8
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Ginger											
CAR	1,053.3	1,040.0	996.1	959.8	955.4	940.2	946.3	924.4	886.4	906.6	917.2
Abra	116.0	118.5	120.5	117.0	119.3	119.9	136.0	142.0	131.4	134.4	131.2
Apayao	61.5	62.0	54.9	53.1	39.5	36.8	40.2	42.8	42.4	45.6	43.3
Benguet	273.4	266.3	251.1	237.1	237.0	237.9	222.3	188.2	180.1	202.8	190.5
Ifugao	560.2	549.7	528.3	514.2	519.8	505.4	507.8	504.8	473.4	451.5	459.9
Kalinga	28.0	29.9	27.8	28.4	29.7	30.5	30.3	36.6	48.1	57.4	60.3
Mountain Province	14.2	13.7	13.4	10.1	10.2	9.7	9.8	10.1	11.0	14.9	32.1
Greater yam/Ubi											
CAR	155.6	160.8	160.4	158.8	158.1	166.3	170.0	166.9	157.2	171.3	164.9
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	2.3	5.0	4.8	7.8	7.7	11.0	13.9	15.7	16.0	16.7	15.2
Benguet	147.8	150.5	150.1	145.3	142.9	144.3	145.4	139.5	130.8	145.0	140.8

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	5.5	5.4	5.5	5.7	7.5	11.0	10.8	11.7	10.4	9.6	8.9
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Lady's finger/Okra											
CAR	31.3	31.7	33.7	33.8	39.6	47.3	49.8	50.0	45.9	48.9	42.8
Abra	21.8	22.2	22.6	22.4	22.3	22.3	25.3	25.6	24.8	25.5	25.2
Apayao	0.8	0.8	0.7	0.7	6.0	11.7	12.7	13.2	11.6	13.0	8.2
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	8.7	8.7	10.5	10.7	11.3	13.4	11.8	11.2	9.6	10.3	9.4
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Lettuce											
CAR	1,404.4	1,394.9	1,486.2	1,233.2	1,269.7	1,283.4	1,290.9	1,203.6	1,188.0	1,209.3	1,098.9
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	1,278.0	1,268.6	1,371.8	1,128.8	1,157.4	1,161.1	1,155.5	1,082.3	1,049.2	1,082.3	983.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	126.3	126.3	114.4	104.3	112.3	122.3	135.4	121.3	138.8	127.0	115.9
Mung bean/Mongo											
CAR	142.2	139.0	130.9	140.5	140.8	134.1	133.0	128.4	124.2	111.2	93.3
Abra	...	...	...	12.0	12.2	12.4	13.0	13.2	13.0	13.2	12.9
Apayao	4.9	4.4	3.4	3.9	3.9	4.6	5.4	5.9	6.3	6.7	5.3
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	77.4	75.8	72.7	68.5	70.4	69.0	68.1	63.3	55.4	50.3	37.4
Kalinga	25.7	24.6	23.6	24.6	24.7	25.3	25.9	28.0	29.7	20.8	18.3
Mountain Province	34.3	34.2	31.2	31.5	29.6	22.8	20.7	18.0	19.9	20.2	19.4
Onion											
CAR	...	...	...	...	...	...	...	...	...	...	...
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	...	...	...	...	...	...	...	...	...	...	...
Peanut											
CAR	130.6	124.2	122.2	121.2	122.7	125.5	123.8	110.0	102.6	96.5	75.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	5.4	4.6	3.4	3.5	3.5	4.1	4.2	4.4	4.1	4.3	3.6
Benguet	10.0	9.9	10.1	9.6	9.3	9.2	8.7	7.5	8.1	8.4	6.6

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ifugao	38.0	35.4	33.5	34.5	34.6	34.6	34.8	35.8	36.0	36.3	30.1
Kalinga	10.0	9.8	9.5	9.7	10.0	11.1	10.6	9.9	9.0	6.7	7.0
Mountain Province	67.2	64.7	65.7	63.9	65.3	66.6	65.5	52.4	45.4	40.8	27.7
Pechay, Chinese											
CAR	44,971.0	43,879.1	46,497.3	44,388.6	45,170.0	45,058.4	45,145.3	44,676.8	43,983.9	43,376.0	42,566.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	0.7	0.7
Benguet	40,079.4	39,727.3	43,234.5	41,492.2	42,349.0	42,118.8	42,166.5	41,914.5	41,208.9	40,418.5	39,765.0
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	12.8	12.9	12.2	12.6	12.8	5.5	...	...	...	...	...
Mountain Province	4,878.8	4,139.0	3,250.6	2,883.7	2,808.2	2,934.1	2,978.8	2,762.3	2,775.0	2,956.8	2,800.3
Pechay, Native											
CAR	4,357.9	4,329.2	4,132.8	4,101.8	4,109.6	4,063.5	3,972.0	3,783.5	3,641.4	3,359.0	3,082.6
Abra	7.5	7.7	7.8	7.8	8.0	8.4	10.3	10.1	9.8	10.0	9.1
Apayao	1.8	3.0	2.6	2.5	2.7	4.7	5.1	6.0	4.6	4.8	3.9
Benguet	3,907.7	3,914.2	3,747.7	3,717.7	3,722.0	3,659.2	3,568.3	3,379.2	3,263.9	3,000.1	2,753.0
Ifugao	177.6	164.1	145.3	149.3	150.3	149.9	151.3	155.3	150.0	139.0	131.6
Kalinga	74.2	73.7	70.4	72.4	79.5	99.0	101.3	100.6	87.4	83.6	71.9
Mountain Province	189.1	166.5	159.0	152.2	147.1	142.3	135.8	132.4	125.8	121.6	113.1
Radish											
CAR	1,593.2	1,586.3	1,606.9	1,520.9	1,501.6	1,462.5	1,509.9	1,441.4	1,365.4	1,411.2	1,267.0
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	1,411.4	1,420.4	1,440.9	1,362.4	1,343.6	1,303.7	1,361.0	1,311.8	1,258.9	1,285.8	1,149.5
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	181.8	165.9	166.0	158.5	158.1	158.9	149.0	129.6	106.5	125.4	117.5
Snap beans/Habitchuelas											
CAR	8,373.6	8,119.1	8,196.0	7,960.6	8,108.0	8,119.8	8,092.1	7,756.9	7,429.3	7,169.6	6,982.1
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	5.5	6.0	5.5	5.7	5.9	7.4	8.7	9.7	9.2	13.1	11.9
Benguet	5,578.3	5,467.6	5,730.7	5,550.9	5,713.5	5,714.3	5,686.9	5,583.1	5,456.4	5,439.7	5,364.5
Ifugao	1,623.1	1,598.3	1,554.3	1,507.5	1,513.0	1,512.4	1,536.1	1,471.5	1,446.9	1,257.7	1,202.5
Kalinga	59.4	57.5	55.9	57.4	63.3	70.6	68.0	65.8	41.3	47.1	38.9
Mountain Province	1,107.4	989.8	849.7	839.1	812.3	815.2	792.4	626.9	475.5	412.0	364.2
Stringbeans											
CAR	493.5	494.2	470.2	463.6	483.0	509.9	535.9	541.7	531.6	546.2	470.3
Abra	53.5	55.1	55.6	54.6	55.3	56.2	67.0	72.4	71.6	73.0	72.4
Apayao	21.5	21.8	20.8	20.1	28.0	43.4	61.5	69.3	72.7	75.7	72.3

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)
(continued)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	270.5	264.0	247.9	242.4	244.2	243.8	241.3	226.5	216.9	221.4	164.6
Kalinga	124.0	131.5	128.7	133.2	141.0	151.1	150.5	158.4	156.2	162.3	151.5
Mountain Province	24.1	21.8	17.2	13.3	14.5	15.4	15.6	15.3	14.3	13.8	9.6
Squash Fruit											
CAR	6,351.3	6,377.4	6,438.8	6,250.4	6,308.5	6,286.1	5,891.2	5,830.6	4,759.4	4,842.1	4,699.4
Abra	3,701.1	3,764.4	3,783.2	3,762.0	3,770.0	3,726.0	3,264.8	3,348.1	2,377.4	2,458.1	2,345.6
Apayao	122.2	107.2	258.7	157.6	217.8	530.3	664.3	684.7	742.4	740.4	864.7
Benguet	1,324.6	1,325.8	1,278.4	1,205.0	1,203.4	1,212.0	1,221.7	1,078.6	1,009.3	987.1	915.0
Ifugao	202.1	191.9	165.3	167.1	170.7	173.4	178.0	178.1	175.4	164.7	174.6
Kalinga	660.8	646.7	636.7	647.8	631.0	327.5	240.0	232.7	149.7	149.7	94.4
Mountain Province	340.6	341.4	316.6	311.0	315.7	316.9	322.4	308.4	305.2	342.2	305.1
Sweet Potato											
CAR	17,353.3	17,186.9	16,519.7	15,976.1	15,710.6	15,560.3	15,610.2	15,142.5	14,460.4	13,315.6	11,525.3
Abra	641.4	650.2	656.8	644.8	652.0	660.3	683.6	694.5	695.0	704.5	701.4
Apayao	70.0	73.3	65.0	64.2	73.5	103.7	132.1	147.5	139.0	139.5	130.6
Benguet	6,806.4	6,798.4	6,422.8	6,005.3	5,645.0	5,552.2	5,669.8	5,570.5	5,453.9	5,200.5	4,847.2
Ifugao	7,418.8	7,377.8	7,327.9	7,323.8	7,341.5	7,181.5	7,251.4	6,989.1	6,842.3	6,167.8	4,995.8
Kalinga	162.5	164.8	168.6	172.4	182.0	225.0	224.0	221.1	215.5	173.7	150.2
Mountain Province	2,254.2	2,122.5	1,878.7	1,765.8	1,816.6	1,837.6	1,649.3	1,519.7	1,114.8	929.6	700.1
Swamp cabbage/Kangkong											
CAR	7.1	7.2	7.1	7.1	7.6	8.2	8.7	8.3	8.6	8.3	8.3
Abra	6.5	6.7	6.7	6.7	6.9	7.0	7.7	7.4	7.5	7.4	7.4
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	...	...	...	...	...	...	...	...	...	...	...
Ifugao	...	...	...	...	...	...	...	...	...	...	...
Kalinga	0.5	0.5	0.5	0.5	0.7	1.2	1.0	0.9	1.2	0.9	0.9
Mountain Province	0.1	...	...	...	...	...	...	...	...	...	...
Taro/Gabi											
CAR	5,147.8	5,182.0	4,723.1	4,733.9	4,776.0	4,856.6	4,923.6	4,880.0	4,789.5	4,848.3	4,697.1
Abra	111.0	112.5	114.5	112.1	114.0	113.7	118.8	120.1	108.6	110.3	109.6
Apayao	37.5	42.5	39.7	39.3	47.7	88.6	110.9	122.8	119.6	121.1	101.2
Benguet	4,622.2	4,647.0	4,207.4	4,221.6	4,244.8	4,270.0	4,304.6	4,249.1	4,195.7	4,245.5	4,118.0
Ifugao	323.3	328.2	309.0	310.1	313.8	317.7	320.1	321.2	307.7	313.0	311.4
Kalinga	43.7	43.5	43.6	44.8	52.5	63.3	66.2	63.8	54.5	55.3	53.6
Mountain Province	10.0	8.2	9.0	6.1	3.2	3.3	3.1	3.1	3.3	3.2	3.4
Tomato											
CAR	3,973.9	3,809.9	3,903.8	3,855.8	3,899.4	3,898.0	3,984.0	3,911.5	3,724.5	3,656.8	3,283.3
Abra	378.6	384.5	393.1	388.0	392.5	386.0	430.0	464.0	455.4	468.5	467.4
Apayao	7.5	8.1	7.3	7.7	8.0	9.1	9.2	10.0	10.7	9.3	10.3

Table 2.11
Other Crops: Volume of Production by Crop and Geolocation
2008 to 2018 (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Benguet	2,810.9	2,778.4	2,885.4	2,874.4	2,915.7	2,920.1	2,976.7	2,943.6	2,837.2	2,580.0	2,107.0
Ifugao	16.6	16.6	15.1	15.2	15.6	15.9	16.7	26.8	34.9	56.7	49.2
Kalinga	97.9	95.0	90.2	92.3	92.9	91.9	92.5	76.5	60.8	58.8	57.2
Mountain Province	662.5	527.4	512.9	478.3	474.8	475.0	458.9	390.7	325.7	483.5	592.4
White/Irish Potato											
CAR	103,303.1	101,060.7	107,182.0	103,135.4	102,433.7	100,758.1	102,255.2	101,828.5	99,980.9	100,422.7	99,200.8
Abra	...	...	...	...	...	...	...	...	...	...	...
Apayao	...	...	...	...	...	...	...	...	...	...	...
Benguet	87,932.0	87,475.7	95,778.6	90,815.6	90,148.0	88,372.8	89,918.4	90,094.6	88,771.1	89,892.5	89,250.0
Ifugao	177.3	164.3	138.8	135.3	138.9	141.1	141.8	132.6	120.1	106.3	82.7
Kalinga	...	...	...	...	...	...	...	...	...	...	...
Mountain Province	15,193.9	13,420.7	11,264.6	12,184.5	12,146.8	12,244.2	12,195.0	11,601.4	11,089.7	10,424.0	9,868.1

Source: Philippine Statistics Authority

Table 2.12
Palay: Estimated Area Applied Receiving and Area Harvested Receiving Inorganic Fertilizer, CAR
2008 to 2014
(in hectares)

	2008	2009	2010	2011	2012	2013	2014
Area Applied	121,561.0	85,245.0	87,071.2	76,220.5	108,711.6	96,310.9	95,614.7
Area Harvested	119,816.0	119,368.0	117,057.0	118,779.0	120,100.0	119,919.0	118,476.4

Source: Philippine Statistics Authority

Table 2.13
Corn: Estimated Area Applied Receiving and Area Harvested Receiving Inorganic Fertilizer, CAR
2008 to 2014
(in hectares)

	2008	2009	2010	2011	2012	2013	2014
Area Applied	52,963.0	44,201.0	47,846.0	56,051.0	57,294.9	61,639.0	56,118.8
Area Harvested	52,698.0	55,212.0	48,991.0	56,051.0	57,289.5	61,639.0	64,832.0

Source: Philippine Statistics Authority

Table 2.14
Palay: Average Quantity Applied of Inorganic Fertilizer by Grade, CAR
2008 to 2014
(in bags of 50 kilograms)

	2008	2009	2010	2011	2012	2013	2014
Average Quantity Applied	3.7	4.7	5.2	5.0	4.9	5.1	5.8
Urea	2.4	3.1	3.4	3.2	2.8	3.0	3.4
Ammosul	0.2	0.1	0.2	0.1	0.2	0.2	0.2
Ammophos	0.3	0.2	0.3	0.4	0.4	0.4	0.5
Complete	0.8	1.2	1.3	1.4	1.5	1.6	1.7
Others	0.0	...	...	...	0.0	...	...

Source: Philippine Statistics Authority

Table 2.15
Corn: Average Quantity Applied of Inorganic Fertilizer by Grade, CAR
2008 to 2014
(in bags of 50 kilograms)

	2008	2009	2010	2011	2012	2013	2014
Average Quantity Applied	4.9	4.5	4.6	4.4	5.3	4.8	6.2
Urea	2.8	2.4	2.4	2.5	2.8	2.4	3.3
Ammosul	0.3	0.1	0.2	0.0	0.3	0.2	0.1
Ammophos	0.6	1.0	0.8	0.8	0.9	1.0	1.4
Complete	1.1	1.0	1.2	1.1	1.4	1.2	1.3
Others	0.1	0.0	...	...	...	...	...

Source: Philippine Statistics Authority

Table 2.16
Livestock: Inventory by Animal Type, Farm Type, Provinces
2008 to 2018
(in heads)

	2008			2009			2010		
	Backyard	Commercial	Total	Backyard	Commercial	Total	Backyard	Commercial	Total
Carabao									
CAR	86,845	439	87,284	86,296	384	86,680	82,953	369	83,322
Abra	37,746	26	37,772	36,433	16	36,449	37,512	20	37,532
Apayao	10,183	...	10,183	10,905	...	10,905	9,671	...	9,671
Benguet	12,522	...	12,522	12,648	...	12,648	11,846	...	11,846
Ifugao	5,736	353	6,089	6,180	347	6,527	6,328	349	6,677
Kalinga	9,318	60	9,378	10,151	21	10,172	11,243	...	11,243
Mountain Province	11,340	...	11,340	9,979	...	9,979	6,353	...	6,353
Cattle									
CAR	47,154	8,318	55,472	45,673	7,796	53,469	45,778	7,705	53,483
Abra	16,896	364	17,260	16,812	405	17,217	18,328	430	18,758
Apayao	2,178	273	2,451	2,033	107	2,140	1,904	121	2,025
Benguet	11,619	117	11,736	10,546	79	10,625	8,615	59	8,674
Ifugao	5,226	6,169	11,395	6,067	5,932	11,999	6,260	5,688	11,948
Kalinga	1,445	945	2,390	1,043	922	1,965	1,498	1,075	2,573
Mountain Province	9,790	450	10,240	9,172	351	9,523	9,173	332	9,505
Goat									
CAR	60,908	72	60,980	62,405	73	62,478	64,584	75	64,659
Abra	44,523	...	44,523	43,851	...	43,851	45,117	...	45,117
Apayao	2,722	...	2,722	2,957	...	2,957	2,785	...	2,785
Benguet	3,977	...	3,977	4,288	...	4,288	4,034	...	4,034
Ifugao	5,109	72	5,181	6,100	73	6,173	6,828	75	6,903
Kalinga	3,927	...	3,927	4,434	...	4,434	5,129	...	5,129
Mountain Province	650	...	650	775	...	775	691	...	691
Swine									
CAR	203,650	2,500	206,150	207,794	1,931	209,725	196,383	2,010	198,393
Abra	50,770	730	51,500	50,164	799	50,963	58,501	667	59,168
Apayao	25,090	...	25,090	29,205	...	29,205	24,325	...	24,325
Benguet	22,150	850	23,000	21,870	264	22,134	8,615	144	8,759
Ifugao	27,960	690	28,650	28,611	603	29,214	29,590	940	30,530
Kalinga	38,910	230	39,140	43,959	265	44,224	41,748	259	42,007
Mountain Province	38,770	...	38,770	33,985	...	33,985	33,604	...	33,604

Source: Philippine Statistics Authority

	2011			2012			2013		
	Backyard	Commercial	Total	Backyard	Commercial	Total	Backyard	Commercial	Total
Carabao									
CAR	84,717	678	85,395	87,405	701	88,106	87,834	960	88,794
Abra	39,186	26	39,212	40,976	26	41,002	41,599	30	41,629
Apayao	10,813	...	10,813	11,620	...	11,620	11,851	...	11,851
Benguet	8,805	...	8,805	8,964	...	8,964	9,141	...	9,141
Ifugao	7,866	248	8,114	7,669	253	7,922	7,600	589	8,189
Kalinga	12,196	404	12,600	12,362	422	12,784	11,833	341	12,174
Mountain Province	5,851	...	5,851	5,814	...	5,814	5,810	...	5,810
Cattle									
CAR	49,932	7,303	57,235	49,056	8,518	57,574	49,386	7,692	57,078
Abra	17,970	460	18,430	18,479	415	18,894	18,751	357	19,108
Apayao	1,983	100	2,083	2,294	115	2,409	2,339	46	2,385
Benguet	8,804	40	8,844	7,420	40	7,460	6,856	29	6,885
Ifugao	6,355	4,563	10,918	6,371	4,565	10,936	6,405	4,442	10,847
Kalinga	6,411	1,403	7,814	6,187	2,590	8,777	6,767	2,018	8,785
Mountain Province	8,409	737	9,146	8,305	793	9,098	8,268	800	9,068
Goat									
CAR	66,946	62	67,008	72,595	101	72,696	73,406	140	73,546
Abra	45,506	...	45,506	47,673	...	47,673	45,512	...	45,512
Apayao	3,305	...	3,305	3,976	...	3,976	4,054	...	4,054
Benguet	4,840	...	4,840	7,855	...	7,855	9,141	...	9,141
Ifugao	7,243	62	7,305	7,006	68	7,074	7,473	113	7,586
Kalinga	5,199	...	5,199	5,104	33	5,137	6,110	27	6,137
Mountain Province	853	...	853	981	...	981	1,116	...	1,116
Swine									
CAR	187,676	1,916	189,592	207,022	3,091	210,113	207,932	3,954	211,886
Abra	53,364	661	54,025	55,336	925	56,261	54,343	912	55,255
Apayao	19,374	...	19,374	23,423	...	23,423	24,326	...	24,326
Benguet	9,905	142	10,047	12,326	689	13,015	16,286	978	17,264
Ifugao	30,836	951	31,787	34,782	1,183	35,965	26,467	1,852	28,319
Kalinga	39,221	162	39,383	46,167	204	46,371	50,991	212	51,203
Mountain Province	34,976	...	34,976	34,988	90	35,078	35,519	...	35,519

Table 2.16
Livestock: Inventory by Animal Type, Farm Type, Provinces
2008 to 2018 (continued)
(in heads)

	2014			2015			2016		
	Backyard	Commercial	Total	Backyard	Commercial	Total	Backyard	Commercial	Total
Carabao									
CAR	86,403	870	87,273	85,094	929	86,023	85,338	927	86,265
Abra	39,957	27	39,984	36,854	21	36,875	34,750	20	34,770
Apayao	12,227	...	12,227	12,657	...	12,657	13,014	...	13,014
Benguet	9,482	...	9,482	10,260	...	10,260	11,300	...	11,300
Ifugao	7,166	556	7,722	7,020	628	7,648	7,038	605	7,643
Kalinga	11,486	287	11,773	12,354	280	12,634	13,397	302	13,699
Mountain Province	6,085	...	6,085	5,949	...	5,949	5,839	...	5,839
Cattle									
CAR	50,365	7,676	58,041	52,157	7,699	59,856	53,150	7,214	60,364
Abra	19,837	360	20,197	20,574	337	20,911	21,300	331	21,631
Apayao	2,541	33	2,574	2,884	38	2,922	2,928	46	2,974
Benguet	6,510	38	6,548	6,340	30	6,370	6,213	25	6,238
Ifugao	6,267	4,582	10,849	6,850	4,972	11,822	6,900	4,770	11,670
Kalinga	6,817	1,873	8,690	7,251	1,771	9,022	8,040	1,707	9,747
Mountain Province	8,393	790	9,183	8,258	551	8,809	7,769	335	8,104
Goat									
CAR	71,715	137	71,852	70,538	77	70,615	68,229	58	68,287
Abra	42,456	...	42,456	39,376	...	39,376	36,855	...	36,855
Apayao	4,129	...	4,129	4,166	...	4,166	3,742	...	3,742
Benguet	10,472	...	10,472	11,150	...	11,150	11,550	...	11,550
Ifugao	6,893	103	6,996	7,426	38	7,464	7,000	32	7,032
Kalinga	6,864	34	6,898	7,474	39	7,513	8,046	26	8,072
Mountain Province	901	...	901	946	...	946	1,036	...	1,036
Swine									
CAR	205,835	3,788	209,623	192,731	3,654	196,385	192,381	5,994	198,375
Abra	46,735	633	47,368	32,710	466	33,176	23,930	455	24,385
Apayao	24,930	...	24,930	25,475	...	25,475	26,680	...	26,680
Benguet	20,300	963	21,263	24,540	438	24,978	28,810	2,484	31,294
Ifugao	27,260	1,795	29,055	23,170	1,935	25,105	23,780	2,253	26,033
Kalinga	51,459	200	51,659	50,900	545	51,445	54,678	531	55,209
Mountain Province	35,151	197	35,348	35,936	270	36,206	34,503	271	34,774

Source: Philippine Statistics Authority

	2017			2018		
	Backyard	Commercial	Total	Backyard	Commercial	Total
Carabao						
CAR	85,562	947	86,509	85,904	904	86,808
Abra	33,300	20	33,320	31,973	16	31,989
Apayao	13,216	...	13,216	13,810	...	13,810
Benguet	11,806	...	11,806	11,655	...	11,655
Ifugao	7,050	618	7,668	7,239	605	7,844
Kalinga	14,570	309	14,879	15,920	283	16,203
Mountain Province	5,620	...	5,620	5,307	...	5,307
Cattle						
CAR	51,717	7,496	59,213	50,135	7,661	57,796
Abra	20,715	239	20,954	19,758	112	19,870
Apayao	2,936	78	3,014	2,993	50	3,043
Benguet	5,976	18	5,994	5,797	...	5,797
Ifugao	6,558	4,690	11,248	6,247	4,596	10,843
Kalinga	8,170	2,066	10,236	8,270	2,306	10,576
Mountain Province	7,362	405	7,767	7,070	597	7,667
Goat						
CAR	62,988	47	63,035	60,351	86	60,437
Abra	32,416	...	32,416	30,364	...	30,364
Apayao	3,801	...	3,801	3,768	...	3,768
Benguet	10,794	...	10,794	10,675	...	10,675
Ifugao	7,200	26	7,226	8,480	65	8,545
Kalinga	7,755	21	7,776	6,164	21	6,185
Mountain Province	1,022	...	1,022	900	...	900
Swine						
CAR	184,541	4,396	188,937	201,627	3,637	205,264
Abra	16,030	468	16,498	15,550	384	15,934
Apayao	26,924	...	26,924	26,656	...	26,656
Benguet	27,290	2,202	29,492	33,965	1,572	35,537
Ifugao	22,590	1,090	23,680	31,173	1,106	32,279
Kalinga	58,150	459	58,609	58,730	454	59,184
Mountain Province	33,557	177	33,734	35,553	121	35,674

Table 2.17.1
Poultry: Chicken Inventory by Animal Type, Farm Type, Provinces
2008 to 2018 (in heads)

	2008				2009			
	Broiler	Layer	Native	Total	Broiler	Layer	Native	Total
CAR	160,001	51,654	1,330,254	1,541,909	191,530	66,169	1,333,941	1,591,640
Abra	...	1,677	488,085	489,762	5,030	1,212	438,728	444,970
Apayao	...	...	143,989	143,989	...	...	177,803	177,803
Benguet	...	12,127	141,592	153,719	16,000	31,492	159,613	207,105
Ifugao	155,000	37,850	259,162	452,012	169,000	33,465	253,031	455,496
Kalinga	5,001	...	143,039	148,040	1,500	...	165,825	167,325
Mountain Province	...	...	154,387	154,387	...	...	138,941	138,941

Source: Philippine Statistics Authority

Table 2.17.1
Poultry: Chicken Inventory by Animal Type, Farm Type, Provinces
2008 to 2018 (in heads)
(continued)

	2012				2013			
	Broiler	Layer	Native	Total	Broiler	Layer	Native	Total
CAR	3,141	61,079	1,458,879	1,523,099	4,898	70,654	1,541,796	1,617,348
Abra	3,141	...	444,037	447,178	4,898	...	436,283	441,181
Apayao	...	...	169,054	169,054	...	...	179,712	179,712
Benguet	...	21,861	222,994	244,855	...	33,803	257,091	290,894
Ifugao	...	37,218	289,195	326,413	...	34,891	287,965	322,856
Kalinga	...	...	182,766	182,766	...	...	229,484	229,484
Mountain Province	...	2,000	150,833	152,833	...	1,960	151,261	153,221

Source: Philippine Statistics Authority

Table 2.17.1
Poultry: Chicken Inventory by Animal Type, Farm Type, Provinces
2008 to 2018 (in heads)
(continued)

	2016				2017			
	Broiler	Layer	Native	Total	Broiler	Layer	Native	Total
CAR	4,300	137,734	1,422,218	1,564,252	11,888	130,697	1,327,960	1,470,545
Abra	4,300	...	271,640	275,940	4,297	...	254,900	259,197
Apayao	...	...	177,399	177,399	7,591	...	142,697	150,288
Benguet	...	23,335	181,365	204,700	...	13,942	174,777	188,719
Ifugao	...	94,949	418,780	513,729	...	101,503	437,555	539,058
Kalinga	...	4,000	212,040	216,040	...	3,991	163,467	167,458
Mountain Province	...	15,450	160,994	176,444	...	11,261	154,564	165,825

Source: Philippine Statistics Authority

2010				2011			
Broiler	Layer	Native	Total	Broiler	Layer	Native	Total
37,500	69,593	1,369,198	1,476,291	319,374	59,147	1,416,794	1,795,315
2,000	540	431,053	433,593	6,374	250	432,237	438,861
...	...	165,162	165,162	...	...	168,815	168,815
18,000	34,378	146,928	199,306	9,000	22,442	209,103	240,545
16,000	34,675	286,277	336,952	304,000	35,275	281,266	620,541
1,500	...	185,925	187,425	...	...	176,475	176,475
...	...	153,853	153,853	...	1,180	148,898	150,078

2014				2015			
Broiler	Layer	Native	Total	Broiler	Layer	Native	Total
1,008	80,021	1,436,999	1,518,028	28,494	138,196	1,416,356	1,583,046
1,008	...	338,152	339,160	4,494	...	275,260	279,754
...	...	178,176	178,176	24,000	...	179,163	203,163
...	28,721	212,939	241,660	...	29,314	181,979	211,293
...	43,350	292,404	335,754	...	86,812	367,350	454,162
...	...	263,600	263,600	...	11,300	257,768	269,068
...	7,950	151,728	159,678	...	10,770	154,836	165,606

2018			
Broiler	Layer	Native	Total
3,143	136,933	1,595,438	1,735,514
3,143	...	272,273	275,416
...	...	169,866	169,866
...	24,071	201,852	225,923
...	92,000	555,805	647,805
...	7,900	226,606	234,506
...	12,962	169,036	181,998

Table 2.17.2
Poultry: Duck Inventory by Animal Type, Farm Type, Provinces
2008 to 2018 (in heads)

	2008			2009			2010	
	Backyard	Commercial	Total	Backyard	Commercial	Total	Backyard	Commercial
CAR	204,322	800	205,122	221,465	110	221,575	201,742	...
Abra	10,257	...	10,257	10,662	...	10,662	10,197	...
Apayao	23,269	800	24,069	23,103	110	23,213	21,101	...
Benguet	9,632	...	9,632	8,582	...	8,582	7,538	...
Ifugao	76,106	...	76,106	86,571	...	86,571	75,234	...
Kalinga	79,846	...	79,846	85,590	...	85,590	81,581	...
Mountain Province	5,212	...	5,212	6,957	...	6,957	6,091	...

Table 2.17.2
Poultry: Duck Inventory by Animal Type, Farm Type, Provinces
2008 to 2018 (in heads)
(continued)

	2013			2014			2015	
	Backyard	Commercial	Total	Backyard	Commercial	Total	Backyard	Commercial
CAR	192,850	...	192,850	192,025	305	192,330	205,027	...
Abra	11,192	...	11,192	10,290	...	10,290	8,883	...
Apayao	24,637	...	24,637	24,771	305	25,076	24,834	...
Benguet	3,530	...	3,530	4,654	...	4,654	7,044	...
Ifugao	68,754	...	68,754	61,880	...	61,880	75,980	...
Kalinga	77,810	...	77,810	80,140	...	80,140	81,293	...
Mountain Province	6,927	...	6,927	10,290	...	10,290	6,993	...

Source: Philippine Statistics Authority

2011			2012			
Total	Backyard	Commercial	Total	Backyard	Commercial	Total
201,742	217,325	...	217,325	210,857	...	210,857
10,197	10,692	...	10,692	11,601	...	11,601
21,101	22,077	...	22,077	23,855	...	23,855
7,538	5,503	...	5,503	3,362	...	3,362
75,234	83,433	...	83,433	81,940	...	81,940
81,581	89,439	...	89,439	83,341	...	83,341
6,091	6,181	...	6,181	6,758	...	6,758

2016			2017				2018		
Total	Backyard	Commercial	Total	Backyard	Commercial	Total	Backyard	Commercial	Total
205,027	209,051	...	209,051	248,155	...	248,155	297,038	...	97,038
8,883	8,410	...	8,410	7,990	...	7,990	6,994	...	6,994
24,834	25,541	...	25,541	25,068	...	25,068	26,763	...	26,763
7,044	7,310	...	7,310	5,839	...	5,839	5,487	...	5,487
75,980	76,000	...	76,000	113,065	...	113,065	159,765	...	159,765
81,293	84,963	...	84,963	89,210	...	89,210	91,254	...	91,254
6,993	6,827	...	6,827	6,983	...	6,983	6,775	...	6,775

Table 2.18 Volume of Evaporation by Month, Benguet State University Monitoring Station
2008 to 2018
(in millimeters)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2008	105.3	77.5	121.3	115.4	86.0	115.4	90.3	69.8	83.4	125.5	96.8	108.6	1,195.3
2009	104.5	100.6	112.1	107.5	105.1	79.8	100.9	84.2	64.8	77.3	112.1	129.0	1,177.9
2010	151.9	152.3	182.6	181.4	147.3	138.9	131.2	143.8	144.5	142.7	148.9	163.2	1,828.7
2011	162.9	82.1	163.6	169.6	158.8	166.3	126.4	89.1	107.7	141.6	160.1	171.2	1,699.4
2012	180.8	175.5	201.1	202.7	208.9	183.3	155.6	47.4	147.5	175.2	190.3	210.8	2,079.1
2013	185.2	204.3	227.3	234.3	221.4	226.6	249.6	157.4	221.6	244.6	241.7	234.7	2,648.7
2014	120.0	86.5	110.5	82.9	87.3	94.5	…	…	…	…	80.8	80.4	742.9
2015	88.4	79.2	109.5	100.3	103.5	86.0	40.2	65.5	78.7	73.7	102.4	87.8	1,015.2
2016	99.7	89.2	111.9	131.4	100.6	95.5	76.8	48.9	84.0	75.5	77.6	86.3	1,077.4
2017	86.0	83.7	106.2	122.9	87.9	114.7	96.0	84.9	82.6	75.1	76.5	…	1,016.5
2018	81.7	91.6	125.2	93.1	93.7	65.1	70.9	46.0	67.4	88.4	90.0	80.3	993.4

Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

Table 2.19
Summary of Water Permit Grants by Water Source, Type and Use
2008 to 2018
(in cubic meters per day)

Type	Source	2008	2009	2010	2011	2012	2013	2014
Municipal	GW	204.2	224.5	228.9	228.9	228.9	228.9	228.9
	SW	5,405.3	5,405.4	5,411.2	5,411.2	5,411.2	5,411.2	5,411.2
Industrial	GW	24.1	37.1	37.1	37.1	37.1	37.1	37.1
	SW	...	...	...	...	...	...	...
Irrigation	GW	11,544.8	11,544.8	11,544.8	11,544.8	11,544.8	11,544.8	11,518.3
	SW	192,147.2	192,147.2	192,147.2	192,147.2	192,147.2	192,147.2	191,807.1
Power	GW	..	..	..	..	..	..	..
	SW	332,167.2	332,167.2	332,167.2	332,167.2	278,946.1	278,946.1	278,946.1
Domestic	GW	20,296.2	20,296.2	20,296.2	20,296.2	20,295.9	20,295.9	20,203.4
	SW	4,965.6	4,965.6	4,965.6	4,965.6	4,965.6	4,965.6	4,965.6
Livestock	GW	…	…	…	…	…	…	…
	SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recreation	GW	8.6	8.6	8.6	8.6	8.6	8.6	8.5
	SW	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Commercial	GW	206.4	206.4	206.4	206.4	206.4	206.4	201.1
	SW	1,447.2	1,447.2	1,447.2	1,447.2	1,447.2	1,447.2	1,447.2
Total	GW	32,284.2	32,317.5	32,321.9	32,321.9	32,321.6	32,321.6	32,197.2
	SW	536,139.6	536,139.6	536,145.5	536,145.5	482,924.3	482,924.3	482,584.3

Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration, Department of Science and Technology

2015	2016	2017	2018
430.0	494.9	494.9	494.9
5,411.2	5,411.2	5,411.2	5,411.2
37.1	39.1	39.1	39.1
...	...	...	...
11,447.0	11,447.0	11,447.0	11,447.0
185,034.3	181,418.8	181,418.8	181,418.8
..	..	..	..
278,946.1	278,946.1	278,946.1	278,946.1
20,181.2	20,181.0	20,181.0	20,181.0
4,948.2	4,948.2	4,948.2	4,948.2
…	…	…	…
0.0	0.0	0.0	0.0
8.0	8.0	8.0	8.0
7.0	7.0	7.0	7.0
199.3	199.3	199.3	199.3
1,447.2	1,447.2	1,447.2	1,447.2
32,302.6	32,369.3	32,369.3	32,369.3
475,794.0	472,178.6	472,178.6	472,178.6

Philex mining tailings pond
Tuba, Benguet
Photo by: PSA-CAR

COMPONENT THREE
RESIDUALS

This component contains statistics on the amount and characteristics of residuals generated by human production and consumption processes, their management, and their final release to the environment. Residuals are flows of solid, liquid and gaseous materials, and energy, that are discarded, discharged or emitted by establishments and households through processes of production, consumption or accumulation. Residuals may be discarded, discharged or emitted directly to the environment or be captured, collected, treated, recycled or reused (UN FDES, 2013).

Residuals can have different impacts and effects on human and the environment. They could get absorbed into the environment and continue to exist depending on their nature, scale, and local environmental dynamics, such as wind and currents, as well as characteristics of land, air, and water masses. The volume and characteristics of residuals such as type, source, location and trends over time could be used for evidence-based policymaking specifically on the mitigation of their impact to humans and the ecosystem.

Component three covers emissions to air, generation and management of wastewater, generation and management of waste, and release of chemical substances. Its core statistics generally report on the amount, characteristics, treatment and management of these residuals. At present, it excludes statistics on release of chemical substances.

There are 19 core statistics under this component but only nine were gathered and reported in this compendium. The remaining statistics were not included due to unavailability of data. These are total emissions of greenhouse gases by gas such as, carbon dioxide; methane; and nitrous oxide; total volume of wastewater discharged after treatment; and without treatment; total municipal waste collected, amount of municipal waste treated by type of treatment and disposal; number of municipal waste treatment and disposal facilities; number of hazardous waste treatment and disposal facilities; and amount of recycled waste.

Statistics under this component have links to the different Sustainable Development Goals such as: Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture; Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable; Goal 12: Ensure sustainable consumption and production patterns; Goal 13: Take urgent action to combat climate change and its impacts; Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development; Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reserve land degredation and halt biodiversity loss (Sustainable Development Knowledge Platform).

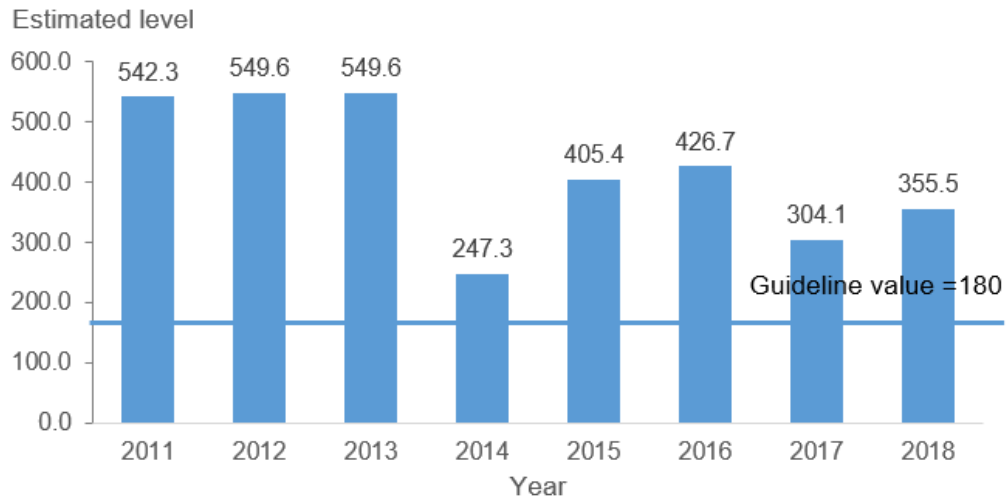
3.1. Emissions to air

Air pollution can be caused by natural as well as anthropogenic factors. The FDES focuses on the emission of pollutants from anthropogenic factors that are socioeconomic processes. Emissions to air are gaseous and particulate substance released to the atmosphere by establishments and households as results of production, consumption and accumulation processes (UN FDES, 2013). Indicators on fuel and other material input data and emission factors can be used as indicators to measure or estimate air emissions. Statistics on greenhouse gas emission are useful for research, program and policy formulation. Greenhouse gas tends to increase the capacity of the atmosphere to hold heat, one of the drivers of

global climate change. (UN FDES, 2013). Greenhouse gas emission inventories are compiled based on the guidelines developed by the Intergovernmental Panel on Climate Change, under the auspices of the United Nations Framework Convention on Climate Change (UNFCC). The Philippines ranks third globally when it comes to climate change vulnerability, and is more exposed due to its geographical location and environmental situation. In addition, the Philippines is seen to be more susceptible to extreme events and natural calamities due to climate change (Second National Communication to the United Nations Framework Convention on Climate Change, 1999).

The national ambient air quality guideline for nitrogen dioxide is set at 180 micrograms per normal cubic meters. Based on the result of the estimated nitrogen oxide emission from all sources in CAR, none of the years covered (2011 to 2018) fell below the indicated threshold. The highest estimated level was recorded in 2012 and 2013 both with 549.6 micrograms per normal cubic meter. The lowest was estimated in 2014 with 247.3 micrograms per normal cubic meter which was also higher by 64.9 percent than the national guideline.

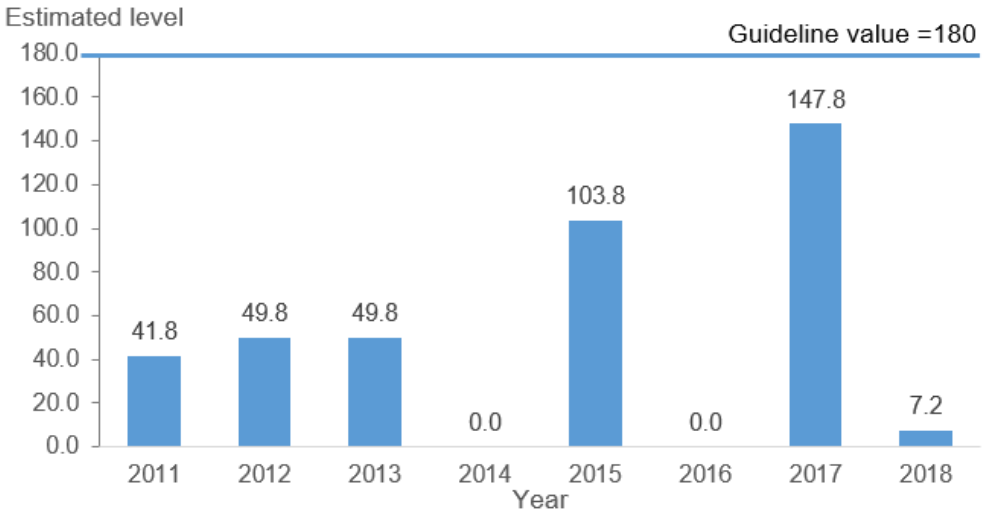
Figure 3.1 Estimated Nitrogen Oxide Emission from All Sources: 2011 to 2018, in micrograms per noral cubic meter



Source of basic data: Environmental Management Bureau

From 2011 to 2018, the estimated level of sulfur oxide were below the guideline set at 180 micrograms per normal cubic meters. The highest recorded level was seen in 2017 with 147.8 micrograms per normal cubic meters while the lowest was in 2018 with 7.2 micrograms per normal cubic meters. There were no estimated level of sulfur oxides in the years 2014 and 2016.

Figure 3.2 Estimated Sulfur Oxide Emission from All Sources: 2011 to 2018, in micrograms per noral cubic meter



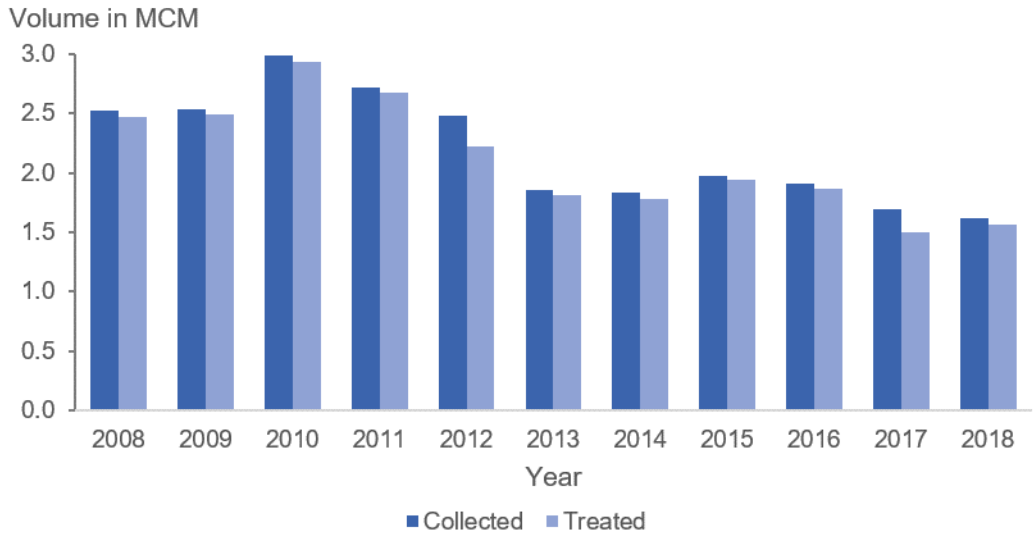
Note: No estimates in 2014 and 2016
Source of basic data: Environmental Management Bureau

3.2. Generation and management of wastewater

This subcomponent deals with generation and management of wastewater. The framework defined wastewater as discarded water no longer required by the owner or user. They are either discharged into sewers, received by treatment facilities, discarded to the environment or reused without prior treatment. The data presented in this compendium only covers the households with access to the Baguio Sewerage Facility. It includes volume of wastewater collected, and wastewater treated. The framework also suggests to collect statistics on the number of wastewater disposal facilities but it is not yet included in this report.

In the span of 11 years, the volume of wastewater collected from households in the City of Baguio amounted to 24.1 million cubic meters. The highest volume was recorded in 2010 with 3.0 million cubic meters. On the average, 96.2 percent of the total volume collected were treated and discharged back to the environment.

Figure 3.3 Volume of Wastewater Collected and Treated, Domestic Water, Baguio City: 2008-2018, (In million cubic meters)



Source of basic data: City Environment and Parks Management Office, Baguio City

3.3. Generation and management of waste

The framework defined waste as discarded material for which the owner or user has no further use. Humans generate waste in their daily activities such as in the course of production and consumption processes. It includes materials in solid or liquid state but excludes wastewater and emissions to air, water or soil.

It is imperative to compile statistics in the generation of waste because disposed solid waste on land and water have negative effects on human and the ecosystems. Human activities directly affect the environment and often lead to environmental changes in the form of depletion and degradation. To reduce the volume of generated waste, it is important to increase the amount of recycled waste and reuse them as material or source of energy. This is essential to ensure sustainable consumption, production and natural resource management.

The Environmental Management Bureau is mandated in the implementation of Republic Act No. 9003 or the Ecological Solid Waste Management Act of 2000 particularly, its Solid Waste Management Division (SWMD). This subcomponent reports only on the amount of hazardous waste generated and amount of hazardous waste treated. Other statistics under generation and management of waste are not available for compilation.

Table 3.3 shows the amount of generated hazardous waste by type of hazardous waste. Based on the available data, the amount of generated hazardous waste increased from 45,804 tons in 2015 to 124,993 tons in 2018 an average increment of 26,396.4 tons of waste yearly. Wastes with cyanide topped the hazardous wastes with 123,398 tons. Alkali wastes came second with 1,369 tons.

Philex mining tailings pond spill way
Tuba, Benguet
Photo by: PSA-CAR

STATISTICAL TABLES
Residuals

Table 3.1
Estimated Nitrogen Oxide Emission (NOx) from All Sources
2011 to 2018
(in micrograms per normal cubic meter)

Region	2011	2012	2013	2014	2015	2016	2017	2018
CAR	542.3	549.6	549.6	247.3	405.4	426.7	304.1	355.5

Source: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 3.2
Estimated Sulfur Oxide Emission (SOx) from All Sources
2011 to 2018
(in micrograms per normal cubic meter)

Region	2011	2012	2013	2014	2015	2016	2017	2018
CAR	41.8	49.8	49.8	0.0	103.8	0.0	147.8	7.2

Source: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 3.3
Volume of Wastewater Collected, Domestic Water, Baguio City
2008 to 2018
(in cubic meters)

	2008	2009	2010	2011	2012	2013	2014	2015
January	186,523.1	173,297.3	245,795.9	268,091.2	203,116.7	186,729.4	132,080.5	156,985.8
February	196,237.7	168,797.7	252,961.2	227,027.3	240,173.7	179,598.1	137,519.7	164,132.3
March	195,138.3	150,116.9	287,139.2	244,437.1	249,091.3	168,073.4	134,153.0	181,926.6
April	198,944.6	185,586.1	241,228.8	249,357.3	196,169.5	140,789.2	136,201.3	109,092.3
May	199,676.0	175,272.0	237,270.0	229,227.9	195,248.1	129,583.7	133,129.7	103,732.5
Jun	194,667.8	195,922.5	205,369.3	249,089.5	207,506.0	123,538.6	143,944.0	114,534.1
July	248,708.2	247,349.2	272,809.4	226,738.7	237,867.1	179,824.2	157,004.3	226,318.3
August	245,134.4	234,084.7	263,693.2	205,798.0	245,657.8	178,867.6	167,957.0	179,445.4
September	230,924.0	239,328.5	262,065.6	235,701.1	210,039.2	175,930.6	215,510.2	200,122.1
October	249,778.8	268,328.1	239,618.0	197,297.0	186,873.8	156,313.7	180,867.6	216,086.7
November	206,716.3	263,745.1	231,131.4	170,489.3	152,572.5	144,062.2	157,565.5	155,264.3
December	166,417.7	235,774.6	246,213.0	210,168.0	149,385.4	96,968.2	136,052.6	168,613.0

Source: City Environment and Parks Management Office, Baguio City

2016	2017	2018
144,791.0	159,859.4	116,492.1
133,972.5	145,870.5	160,479.3
156,243.3	144,418.6	185,100.3
159,068.2	123,460.5	160,076.7
137,319.0	156,579.8	166,629.8
143,704.9	131,523.5	108,304.0
108,122.6	141,754.1	122,382.8
213,915.0	158,660.6	179,836.9
195,618.1	137,852.6	125,179.1
163,370.0	135,685.1	111,022.3
175,605.5	131,350.1	91,731.7
177,333.2	122,680.2	89,110.3

Table 3.4
Volume of Wastewater Treated, Domestic Water, Baguio City
2008 to 2018
(in cubic meters)

	2008	2009	2010	2011	2012	2013	2014	2015
January	186,523.1	173,297.3	245,795.9	268,091.2	203,116.7	186,729.4	132,080.5	156,985.8
February	196,237.7	168,797.7	252,961.2	227,027.3	240,173.7	179,598.1	137,519.7	164,132.3
March	195,138.3	150,116.9	287,139.2	244,437.1	249,091.3	168,073.4	134,153.0	181,926.6
April	198,944.6	185,586.1	241,228.8	249,357.3	196,169.5	140,789.2	136,201.3	109,092.3
May	199,676.0	175,272.0	237,270.0	229,227.9	195,248.1	129,583.7	133,129.7	103,732.5
June	194,667.8	195,922.5	205,369.3	249,089.5	207,506.0	123,538.6	143,944.0	114,534.1
July	248,708.2	247,349.2	272,809.4	226,738.7	237,867.1	179,824.2	157,004.3	226,318.3
August	245,134.4	234,084.7	263,693.2	205,798.0	245,657.8	178,867.6	167,957.0	179,445.4
September	230,924.0	239,328.5	262,065.6	235,701.1	210,039.2	175,930.6	215,510.2	200,122.1
October	249,778.8	268,328.1	239,618.0	197,297.0	186,873.8	156,313.7	180,867.6	216,086.7
November	206,716.3	263,745.1	231,131.4	170,489.3	152,572.5	144,062.2	157,565.5	155,264.3
December	166,417.7	235,774.6	246,213.0	210,168.0	149,385.4	96,968.2	136,052.6	168,613.0

Source: City Environment and Parks Management Office, Baguio City

Table 3.5
Amount of Generated Hazardous Waste by Type of Hazardous Waste
2015 to 2019
(in tons)

YEAR	Wastes with Cyanide	Acid Wastes	Alkali Wastes	Inorganic Chemical Wastes	Reactive Chemical Wastes	Organic Solvent	Putrescible/ Organic Wastes
2015	44,792.4	0.0	908.3	4.1	0.0	18.1	8.0
2016	5,234.7	77.0	671.5	9.5	0.2	7.0	8.0
2017	47,804.6	0.3	244.7	18.7	2.7	7.4	11.9
2018	123,398.0	1.5	1,369.2	73.2	19.1	10.8	6.6

Source: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

Table 3.6
Amount of Treated Hazardous Waste by Type of Hazardous Waste
2015 to 2019
(in tons)

YEAR	Wastes with Cyanide	Acid Wastes	Alkali Wastes	Inorganic Chemical Wastes	Reactive Chemical Wastes	Organic Solvent	Putrescible/ Organic Wastes
2015	57,261.2	-	0.3	2.8	-	17.2	0.0
2016	5,234.7	0.4	359.1	20.2	-	75.3	3.5
2017	47,639.1	0.1	2.7	14.1	0.0	5.4	6.9
2018	124,451.4	1.7	1,401.2	369.7	2.3	9.0	3.9

Source: Environmental Management Bureau, Department of Environment and Natural Resources - Cordillera Administrative Region

2016	2017	2018
144,791.0	159,859.4	116,492.1
133,972.5	145,870.5	160,479.3
156,243.3	144,418.6	185,100.3
159,068.2	123,460.5	160,076.7
137,319.0	156,579.8	166,629.8
143,704.9	131,523.5	108,304.0
108,122.6	141,754.1	122,382.8
213,915.0	158,660.6	179,836.9
195,618.1	137,852.6	125,179.1
163,370.0	135,685.1	111,022.3
175,605.5	131,350.1	91,731.7
177,333.2	122,680.2	89,110.3

Oil	Containers	Immobilized Wastes	Organic Chemicals	Miscellanous Wastes	Total
5.3	1.6	-	62.4	3.9	45,804.1
21.8	3.4	-	72.9	3.0	6,109.2
45.6	5.6	-	68.0	10.1	48,219.6
95.2	1.5	2.9	2.4	12.9	124,993.3

Oil	Containers	Immobilized Wastes	Organic Chemicals	Miscellanous Wastes	Total
6.6	3.9	-	61.1	3.6	57,356.6
20.9	0.5	-	-	2.0	5,716.6
96.3	4.4	-	-	11.0	47,780.0
103.9	2.8	3.2	15.7	11.9	126,376.8


Photo Credits: The Cordillera Post

COMPONENT FOUR EXTREME EVENTS AND DISASTERS

This component organizes statistics regarding the occurrence of extreme events and disasters and their impacts on human well-being and on the infrastructure of the human subsystem. It contains two subcomponents, namely, (1) natural extreme events and disasters and (2) technological disasters. There are four core statistics identified under the first subcomponent, two of which have available data and are included in this report. The data were gathered from the subnational authority responsible for disaster risk reduction and management which is the Office of the Civil Defense (OCD).

Natural extreme events and disasters takes into account the frequency and intensity of extreme events and disasters that resulted from natural phenomena (e.g. typhoons and earthquakes) and their impact on human lives and habitats and the environment as a whole. The four core statistics under this subcomponent are (1) type of natural disaster, (2) location of the event, (3) number of people killed during the event, and (4) economic loss incurred during the event. However, data on the exact location of the natural extreme events and disasters is not available in national and subnational level and data for the economic loss in the region follow a different format of reporting.

The Centre for Research on the Epidemiology of Disasters (CRED) defines a disaster as an unforeseen and often sudden event that causes great damage, destruction and human suffering (UN FDES, 2013). In the country, the National Disaster Risk Reduction Management Council (NDRRMC) identifies events as disasters when they become "serious disruptions of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources."

Technological disasters, on the other hand, consider disasters that resulted from human intent, negligence or error, or from faulty or failed technological applications. CRED recognizes three types of technological disasters namely, (1) industrial disasters that cover leakages of fluid toxic chemicals, oil spills and explosions; (2) transport disasters that cover accidents associated with the mechanized transport of chemicals, volatile materials or other hazardous substance by road, rail, water or pipeline; and (3) miscellaneous disasters such as arson fires and other disasters of varied origin.

The statistics presented in this component have links to the Sustainable Development Goals (SDGs): Goal 1: End poverty in all its forms everywhere; Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture; Goal 11: Make cities and human settlement inclusive, safe, resilient and sustainable; and Goal 13: Take urgent action to combat climate change and its impact (Sustainable Development Knowledge Platform).

4.1. Natural extreme events and disasters

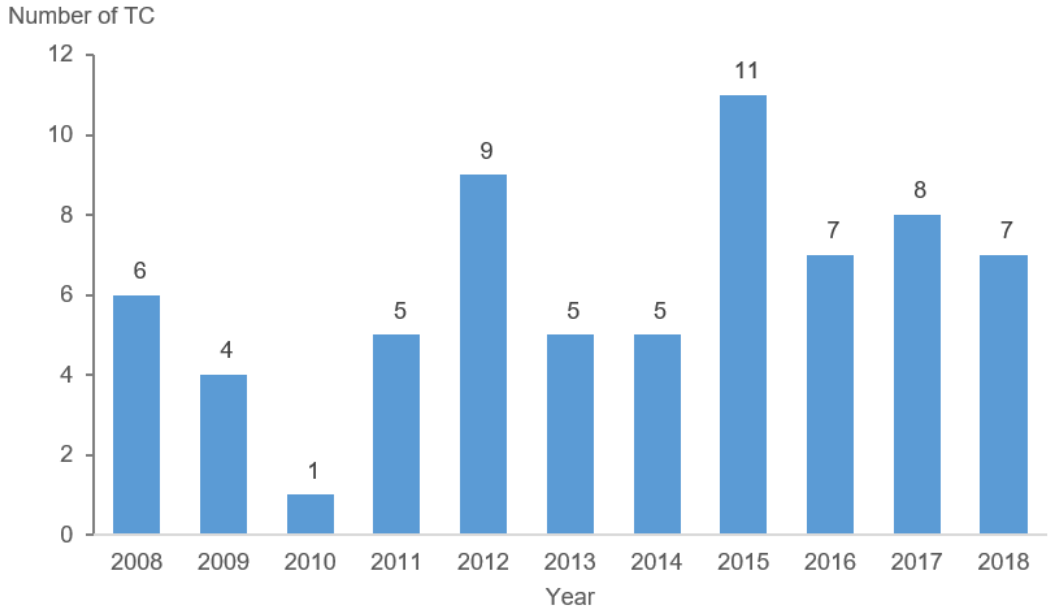
Statistics on natural extreme events and disasters are important to policy-makers, analysts and civil society not only to assess the impact of an ongoing disaster, but also to monitor the frequency, intensity and impact of disasters over time (UN FDES, 2013). Two topics were discussed under this subcomponent. These are the occurence and the impact of natural extreme events and disasters.

4.1.1. Occurence of natural extreme events and disasters

The core statistics included in this topic are type of natural extreme event and disaster, and location. The CRED Emergency Events Database (CRED EM-DAT) classified natural disasters into five subgroups, namely: geophysical, climatological, meteorological, hydrological and biological disasters. Geophysical disasters are events originating from the solid earth. Climatological disasters are events caused by long-lived processes in the spectrum from intra-seasonal to multi-decadal climate variability. Meteorological disasters are events caused by short-lived processes in the spectrum from minutes to days. Hydrological disasters are events caused by deviations in the normal water cycle and/or overflow of bodies of water caused by wind setup. Lastly, biological disasters are events caused by exposure of living organisms to germs and toxic substances.

However, due to limited data in the region, the only statistics presented in this topic is the number of tropical cyclones from 2008 to 2018. The data provided by the Office of the Civil Defense – CAR (OCD-CAR) showed that the region recorded the highest number of tropical cyclones in 2015 with a total of 11 times. On the other hand, 2010 recorded the least with only one tropical cyclone.

Figure 4.1 Number of Tropical Cyclones, CAR: 2008-2018



Source of basic data: Office of Civil Defense

4.1.2. Impact of natural extreme events and disasters

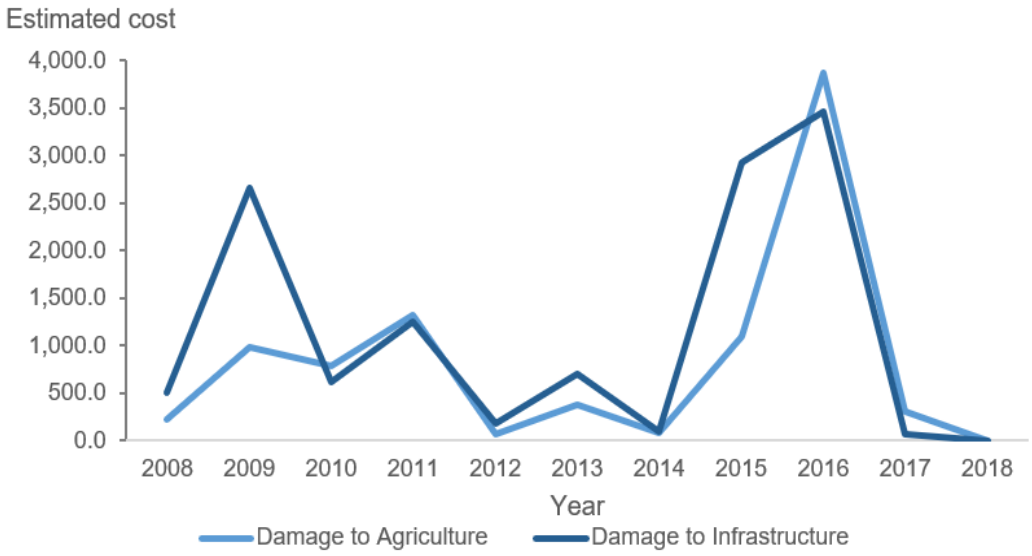
Number of people killed and economic loss due to natural extreme events and disasters are the two core statistics under this topic to measure the impact of natural extreme disasters and events.

According to FDES, economic loss may pertain to damages to buildings and other economic assets, number of transportation networks affected, economic disruption or loss of revenue to commercial services and utility disruption. Loss is measured according to currency.

Economic loss data from OCD-CAR reported number of damage houses and the cost of damage to agriculture and infrastructure due to tropical cyclones. The data showed that 2016 posted the biggest economic loss with a total of 43,470 damaged houses of which 93.3 percent or 40,553 were partially damaged and the remaining 6.7 percent or 2,917 were totally damaged. A total of Php 7.3 billion was also recorded in 2016 of which 52.8 percent or 3.9 billion pesos were the damage to agriculture and 47.2 percent or 3.4 billion were the damage to infrastructure.

Although 2016 posted the biggest economic loss, it was in 2009 where the affected population and casualties reported the highest. There were a total of 444,944 persons and 91,610 families affected due to the 4 tropical cyclones recorded in 2009. The recorded casualties totaled to 577 persons where 354 of them were dead, 211 were injured and 12 were missing.

Figure 4.2 Estimated Cost of Damage Due to Tropical Cyclones, CAR: 2008-2018 (In million pesos)



Source of basic data: Office of Civil Defense

4.2. Human-induced disasters

Compiling statistics on human-induced disasters is important to identify the immediate and potential impacts, to understand who is ultimately responsible and to assess and mitigate future risks. Records of technological disasters in the global setting show increasing frequency and impact on humans, infrastructure and the environment.

The occurrence and impact of technological disasters are the two topics presented in this subcomponent. The framework did not identify the core statistics for this subcomponent and there were also no collected data due to the limitation of the reporting tool being used by OCD-CAR.

4.2.1. Occurence of technological disasters

This topic gathers information on the frequency and nature of technological disasters. These disasters impact human lives, habitats and ecosystems in various ways, depending on the nature and intensity of the disaster. The duration of their effects may last in a short period or may be significant or unknown. There is sometimes no precedent for a given disaster for technological disasters. Therefore, the full impact of such disasters cannot always be fully anticipated or measured.

4.2.2. Impact of technological disasters

Technological disasters may also affect the economy of a country. Economic loss is also measured by the damages of infrastructures and other economic assets. economic loss aside from damaged houses.

Fallen tree
Besao, Mountain Province
Photo by: Winsky Salisa

STATISTICAL TABLES
Extreme Events and Disasters

Table 4.1
Number of Tropical Cyclones, Affected Population and Casualties
2008 to 2018

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Number of Tropical Cyclones	6	4	1	5	9	5	5	11	7	8	7
Affected Population											
Families	19,938	91,610	66,540	21,484	2,851	10,372	16,646	51,945	221	154	9,051
Persons	103,931	444,944	357,476	107,638	10,504	48,045	73,760	350,521	827	562	84,124
Casualties											
Dead	30	354	6	30	8	3	-	57	16	2	101
Injured	48	211	25	46	6	35	5	27	4	1	45
Missing	4	12	-	4	-	3	2	2	1	-	9

Source: Office of Civil Defense

Table 4.2
Estimated Cost of Damage Due to Tropical Cyclones
2008 to 2018
(Damage to Agriculture and Infrastructure in million pesos)

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Damage to Houses											
Totally damaged houses	137	1,238	2,048	219	22	322	84	343	2917	-	408
Partially damaged houses	1,275	6,607	11,899	3,239	154	3,681	2,191	3,355	40,553	8	2,737
Damage to Agriculture	221.8	983.3	791.5	1,321.5	68.5	379.9	81.7	1,103.3	3,873.6	312.8	-
Damage to Infrastructure	498.5	2,666.4	613.7	1,249.3	177.9	704.9	94.7	2,933.8	3,456.9	63.4	-
Total Cost of Damage	720.3	3,649.6	1,405.2	2,570.8	246.5	1,084.7	176.4	4,037.1	7,330.5	376.1	-

Source: Office of Civil Defense

View of Baguio City atop Sto. Tomas
Photo by:

COMPONENT FIVE HUMAN SETTLEMENTS AND ENVIRONMENTAL HEALTH

Component 5 covers statistics on environment where humans live and work, specifically on their living conditions and environmental health. This component has two subcomponents: (1) human settlements and (2) environmental health. Human settlements include statistics that describes the basic services and infrastructure where humans live and work. FDES further defined human settlement as the human population that resides in a settlement, physical elements (e.g., shelter and infrastructure), services (e.g., water, sanitation, waste disposal, and transport), and the exposure of humans to potentially deleterious environmental conditions.

The other subcomponent is environmental health that focuses on how environmental factors and processes impact and change human health. It organizes statistics on mortality, morbidity, and incidence associated with specific types of diseases and conditions that are heavily influenced by environmental conditions. The World Health Organization (2012) defined environmental health as "those aspects of the human health and disease that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health."

This component contains 12 core statistics, seven of which are reported in this compendium. Falling under human settlements are (1) population using an improved drinking water source; (2) population using an improved sanitation facility; and (3) number of private and public vehicles. For environmental health, available data are (1) incidence of water-related diseases; (2) mortality of water related diseases; (3) incidence of vector-borne diseases; and (4) mortality of vector-borne diseases.

The statistics in component five can be used as indicators to monitor the achievement of the Sustainable Development Goals, specifically, to ensure healthy lives and promote well-being for all at all ages (SDG 3), to ensure access to water and sanitation for all (SDG 6), and to make cities inclusive, safe, resilient and sustainable (SDG 11). The subcomponents also contains statistics related to ensuring access to affordable, reliable, sustainable and modern energy for all (SDG 7) and taking urgent action to combat climate change and its impacts (SDG 13).

5.1. Human settlements

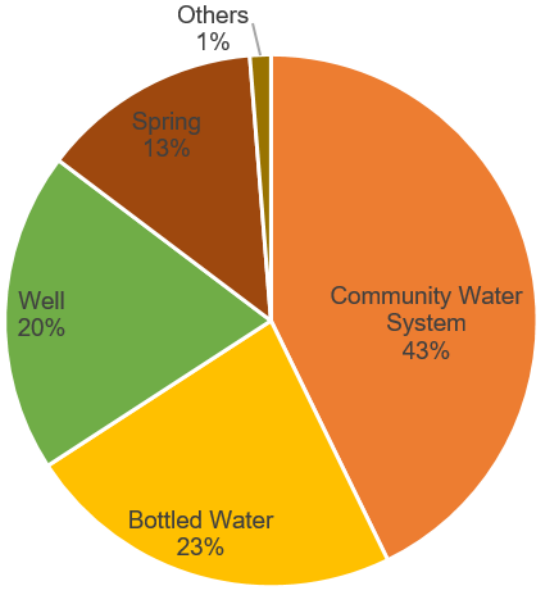
Human settlements include relevant statistics on basic services and infrastructure. Statistics gathered for this subcomponent give information to policymakers, analysts and civil society on how the residents work and live in their settlements, how they transform the landscape and supporting ecosystem and how it affects the resident's well-being and health. Out of the five topics under this subcomponent, only two topics (i.e. access to selected basic services and environmental concerns specific to urban habitats) is presented in this compendium. The data are gathered from the census of population and housing of PSA.

5.1.1. Access to water, sanitation and energy (Access to selected basic services)

Statistics regarding water and sanitation describe the access of the population to safe water sources and adequate sanitation facilities. The data for this subcomponent were taken from the 2010 Census of Population and Housing of PSA. It includes access to improved drinking water quality and improved sanitation facility.

In 2010, majority of the households in the region sourced their drinking water supply from community water system. Bottled water came second with 23 percent share. Households who get their dinking water from wells and springs comprised 20 percent and 13 percent of the total households, respectively.

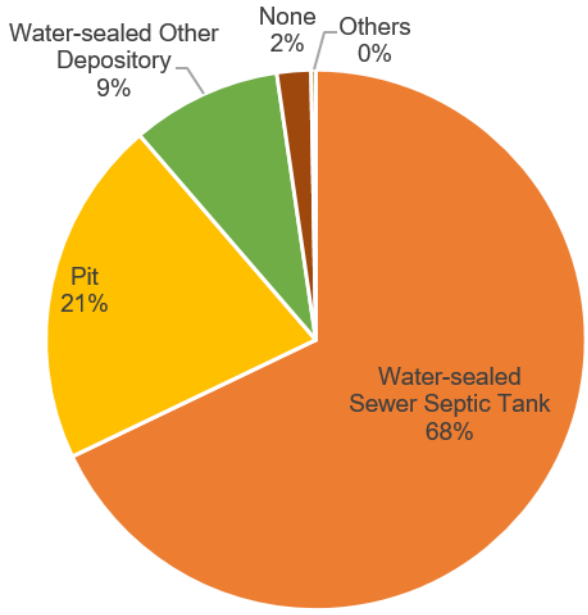
Figure 5.1 Distribution of Households by Source of Drinking Water Supply, CAR: 2010



Source: Philippine Statistics Authority, 2010 Census of Population and Housing

Households with access to water-sealed sewer septic tank were 68 percent of the total 352,403 households in CAR. Out of the 21 percent of the total household who classified their toilet facility used as pit, 42.9 percent of them responded that they were still using open pit while 57.1 were using closed pit. Meanwhile, two percent or 7,203 households still had no access to any toilet facility in 2010.

Figure 5.2 Distribution of Households by Toilet Facility Used, CAR: 2010



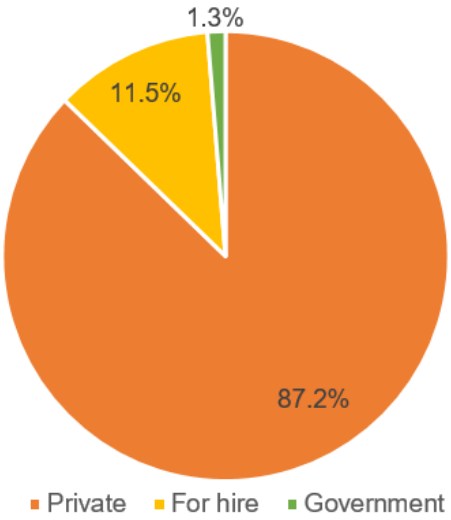
Source: Philippine Statistics Authority, 2010 Census of Population and Housing

5.1.2. Environmental concerns specific to urban habitats

This topic has only one core statistics, that is, the number of private and public vehicles. The number of motor vehicles registered by type of registration for the years 2015 to 2018 was gathered as an indicator for this subcomponent. Data were gathered from the Department of Transportation - Land Transportation Office (DOTr – LTO).

The DOTr-LTO reports seven types of motor vehicles including cars, utility vehicles (UV), sports utility vehicle (SUV), trucks, buses, trailers and motorcycles/tricycles. In 2018, a total of 169,235 vehicles were registered of which 90 percent where renewed and 10 percent were newly registered. Out of the total registered vehicles, 87.2 percent were private vehicles, 11.5 percent were vehicles that are for hire and only 1.3 percent were government vehicles.

Figure 5.3 Distribution of Registered Vehicles by Type of Vehicle, CAR: 2018



Source of basic data: Department of Transportation

5.2. Environmental health

Environmental health focuses on how the environmental factors and processes affect and alter the health of an individual. Statistics that are usually gathered here are morbidity (incidence and prevalence) and mortality of certain types of diseases.

The subcomponent has five topics wherein only water related diseases and conditions, and vector borne diseases have core statistics.

5.2.1. Water-related diseases and conditions

This topic includes all water related diseases and conditions that resulted from the ingestion of chemicals and micro-organisms. These include diseases caused by bacteria, viruses, protozoa, water-borne parasite infection and chemical contamination of water.

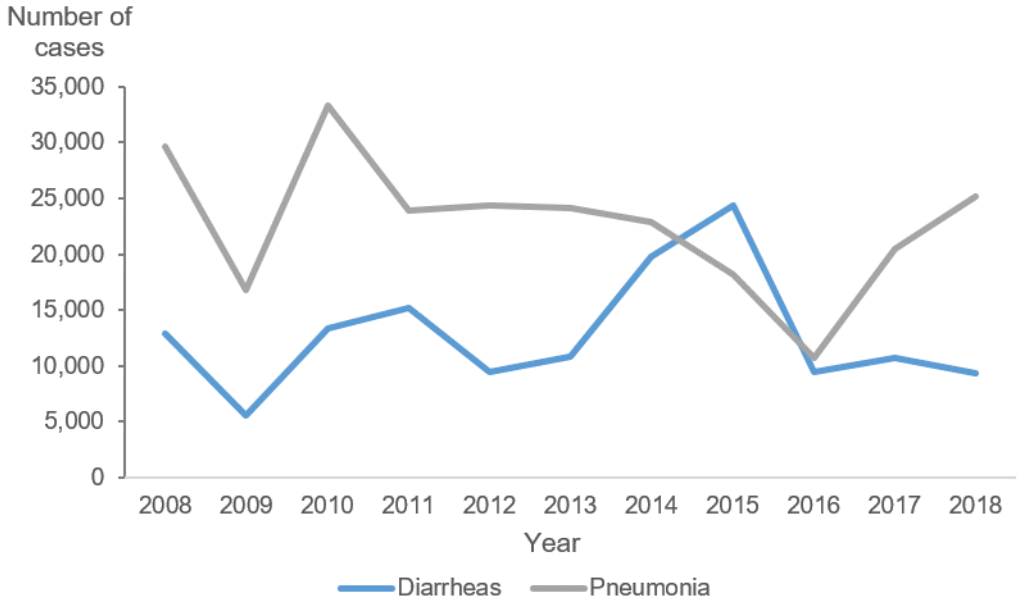
The framework recommends to compile statistics on the incidence (the rate of occurrence of new cases of disease), prevalence (part of population with a disease at a given time period) and mortality (number of deaths by place, time and cause) of water-borne diseases. However, only data on prevalence and mortality were compiled for this publication.

There are eight diseases and conditions presented in this compendium. These pertain to the number of

cases and deaths of diarrheas, acute respiratory tract infection and pneumonia, typhoid and paratyphoid fever, viral hepatitis, leprosy schistosomiasis, filariasis and leptospirosis. These data were gathered from the Department of Health (DOH) covering the period 2008-2018.

Diarrhea and pneumonia were the most prevalent water-borne diseases in the region. Pneumonia recorded the highest in 2010 with 33,305 cases, where 41.6 percent or 13,850 cases were diagnosed in the province of Benguet. The lowest recorded number of pneumonia was observed in 2016 with 10,715 cases. Meanwhile, diarrhea recorded the highest in 2015 with 24,412 number of cases of which majority of the recorded cases was seen in Baguio City with 7,460 persons affected. The least number of diarrhea cases was recorded in 2009 with 5,529 cases.

Figure 5.4 Number of Cases of Diarrhea and Pneumonia, CAR: 2008-2018



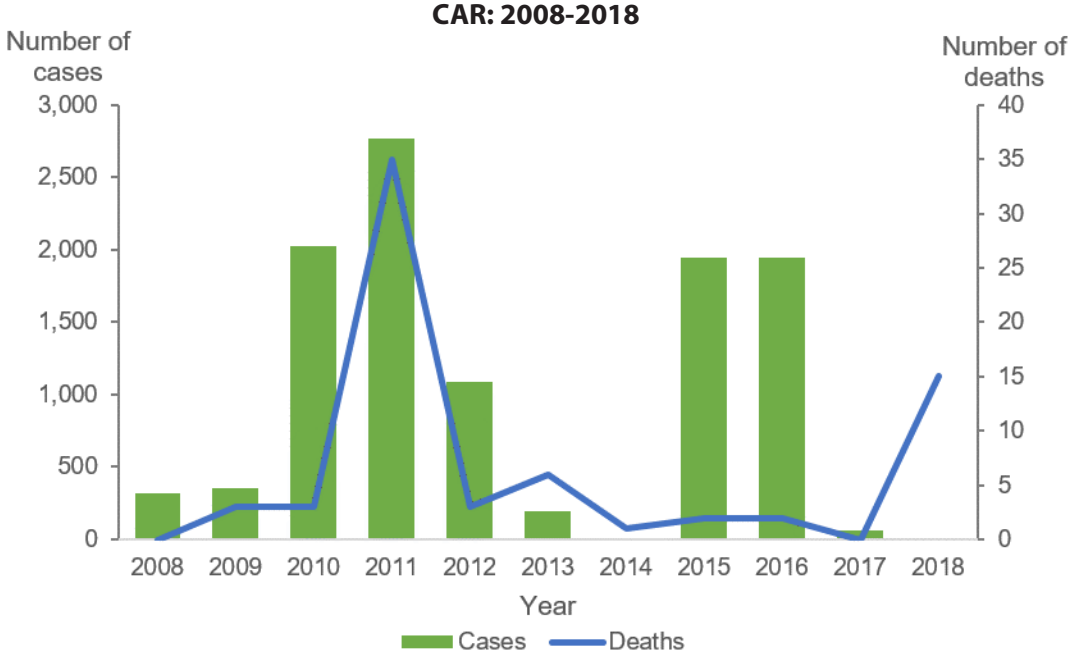
Source of basic data: Department of Health – CAR

5.2.2. Vector borne diseases

The framework defined vector-borne diseases as those diseases that are transmitted by organisms such as insects and arachnids that carry viruses, bacteria, protozoa and other pathogens. Statistics on vector-borne diseases were gathered from the Department of Health (DOH). These include the number of cases and deaths for dengue and malaria.

Number of cases and deaths from dengue posted the highest in 2011 with 2,767 and 35, respectively. The total reported cases of dengue was 10,705 from 2008 to 2018. There were no cases recorded for the years 2014 and 2018. Malaria, on the other hand, posted the highest in 2008 with 150 cases and nine deaths.

Figure 5.5 Number of Cases and Deaths from Dengue, CAR: 2008-2018



Source of basic data: Department of Health – CAR

Batad Rice Terraces
Ifugao
Photo by: Winsky Salisa

STATISTICAL TABLES
Human Settlements and Environmental Health

Table 5.1
Number of Households by Main Source of Water Supply for Drinking and/or Cooking of Households by Kind of Toilet Facility Used and by Region
2000 and 2010

Region	Total Number of Households		Sources of Water Supply for Drinking					
			Own Use Faucet, Community Water System		Shared Faucet, Community Water System		Own Use Tubed/Piped Deep Well	
	2000	2010	2000	2010	2000	2010	2000	2010
CAR	263,851	352,403	90,530	94,451	70,764	56,279	13,066	16,111

Source: Philippine Statistics Authority

Table 5.1
Number of Households by Main Source of Water Supply for Drinking and/or Cooking of Households by Kind of Toilet Facility Used and by Region (continued)
2000 and 2010

Region	Sources of Water Supply for Drinking					
	Spring, Lake, River, Rain, etc.	Protected Spring	Unprotected Spring	Lake, river, rain and others	Peddler	
	2000	2010	2010	2000	2000	2010
CAR	32,392	32,391	12,201	2,729	4,241	2,887

Source: Philippine Statistics Authority

Table 5.2
Number of Households by Kind of Toilet Facility Used and by Region
2000 and 2010

Region	Total Number of Households		Kind of Toilet Facility			
			Water-sealed Sewer Septic Tank Used Exclusively by Household		Water-sealed Sewer Septic Tank Used Shared with Other Households	
	2000	2010	2000	2010	2000	2010
CAR	263,851	352,403	96,578	200,930	23,330	38,331

Source: Philippine Statistics Authority

Table 5.2
Number of Households by Kind of Toilet Facility Used and by Region (continued)
2000 and 2010

Region	Kind of Toilet Facility					
	Closed Pit		Open Pit		Others (Pail System and Others)	
	2000	2010	2000	2010	2000	2010
CAR	38,891	41,855	53,377	31,415	1,764	973

Source: Philippine Statistics Authority

Shared Tubed/Piped Deep Well		Tubed/Piped Shallow Well		Dug Well	
2000	2010	2000	2010	2000	2010
25,930	31,956	10,528	8,730	10,613	11,800

Bottled Water		Others	
2000	2010	2000	2010
1,038	81,264	4,749	1,604

Water-sealed Other Depository Used Exclusively by Household		Water-sealed Other Depository Shared with Other Households	
2000	2010	2000	2010
28,580	21,552	11,972	10,145

None	
2000	2010
9,359	7,203

Table 5.3.1
Number of Motor Vehicles Registered by Type, Fuel Used, Year and Province
2018

District Office	First Quarter			Second Quarter			Third Quarter			Fourth Quarter	
	Gas	Diesel	LPG	Gas	Diesel	LPG	Gas	Diesel	LPG	Gas	Diesel
CAR	17,045	13,119	3	26,632	20,985	9	27,841	21,014	12	17,101	10,425
Cars	2,107	420	3	3,095	186	6	3,426	12	2	1,618	27
Utility Vehicles	1,626	11,310	-	2,552	18,422	3	2,700	19,043	4	1,216	9,203
Motorcycles/Tricycles	13,310	-	-	0,985	303	-	21,715	-	-	14,267	-
Trucks	2	1,341	-	-	2,004	-	-	1,906	-	-	1,161
Trailers	-	13	-	-	6	-	-	4	-	-	-
Buses	-	35	-	-	64	-	-	49	6	-	34
Abra	3,367	675	-	5,461	1,069	-	7,151	1,202	-	3,717	536
Cars	181	29	-	271	6	-	400	-	-	166	
Utility Vehicles	195	559	-	333	601	-	376	1,034	-	162	455
Motorcycles/Tricycles	2,991	-	-	4,857	303	-	6,375	-	-	3,389	
Trucks	-	84	-	-	157	-	-	164	-	-	80
Trailers	-	2	-	-	-	-	-	-	-	-	-
Buses	-	1	-	-	2	-	-	4	-	-	1
Apayao	1,126	314	-	2,370	598	-	1,914	562	-	1,327	252
Cars	77	2	-	136	1	-	126		-	79	1
Utility Vehicles	25	251	-	60	486	-	48	461	-	36	203
Motorcycles/Tricycles	1,024		-	2,174	-	-	1,740		-	1,212	
Trucks	-	58	-	-	108	-	-	101	-	-	46
Trailers	-	1	-	-	-	-	-	-	-	-	-
Buses	-	2	-	-	3	-	-	-	-	-	2
Baguio	4,161	4,607	3	6,539	7,231	9	6,292	7,362	12	3,589	3,482
Cars	1,447	313	3	2,227	2	6	2,226		2	1,058	1
Utility Vehicles	905	3,951	-	1,422	6,799	3	1,483	6,948	4	615	3,209
Motorcycles/Tricycles	1,809	-	-	2,890	-	-	2,583	-	-	1,916	-
Trucks	-	323	-	-	413	-	-	407	-	-	259
Trailers	-	6	-	-	-	-	-	-	-	-	
Buses	-	14	-	-	17	-	-	7	6	-	13
Benguet	2,103	4,762	-	3,288	7,908	-	3,317	7,415	-	2,093	3,901
Cars	274	6	-	333	158	-	506	6		235	4
Utility Vehicles	348	4,161	-	551	6,865	-	616	6,649		297	3,366
Motorcycles/Tricycles	1,479		-	2,404		-	2,195			1,561	
Trucks	2	581	-		867	-		736			518
Trailers	-	1	-			-					
Buses	-	13	-		18	-		24			13
Ifugao	1,344	591	-	2,657	1,060	-	2,849	1,222	-	1,458	571
Cars	42	14	-	76	2	-	96	6	-	32	2
Utility Vehicles	34	500	-	80	925	-	50	1,054	-	25	504
Motorcycles/Tricycles	1,268	-	-	2,501	-	-	2,703		-	1,401	
Trucks	-	73	-	-	129	-	-	154	-	-	63
Trailers	-	2	-	-	2	-	-	-	-	-	-
Buses	-	2	-	-	2	-	-	8	-	-	2

		Total	
LPG	Gas	Diesel	LPG
2	88,619	65,543	26
1	10,246	645	12
1	8,094	57,978	8
-	70,277	303	-
-	2	6,412	-
-	-	23	-
-	-	182	6
-	19,696	3,482	-
-	1,018	35	-
-	1,066	2,649	-
-	17,612	303	-
-	-	485	-
-	-	2	-
-	-	8	-
-	6,737	1,726	-
-	418	4	-
-	169	1,401	-
-	6,150	-	-
-	-	313	-
-	-	1	-
-	-	7	-
2	20,581	22,682	26
1	6,958	316	12
1	4,425	20,907	8
-	9,198	-	-
-	-	1,402	-
-	-	6	-
-	-	51	6
-	10,801	23,986	-
-	1,348	174	-
-	1,812	21,041	-
-	7,639	-	-
-	2	2,702	-
-	-	1	-
-	-	68	-
-	8,308	3,444	-
-	246	24	-
-	189	2,983	-
-	7,873	-	-
-	-	419	-
-	-	4	-
-	-	14	-

Table 5.3.1
Number of Motor Vehicles Registered by Type, Fuel Used, Year and Province
2018

District Office	First Quarter			Second Quarter			Third Quarter			Fourth Quarter	
	Gas	Diesel	LPG	Gas	Diesel	LPG	Gas	Diesel	LPG	Gas	Diesel
Kalinga	1,199	829	-	1,660	1,227	-	1,485	1,296	-	846	578
Cars	19	25	-		2	-	-	-	-	-	19
Utility Vehicles	-	699	-		1,043	-		1,125	-	-	476
Motorcycles/Tricycles	1,180	-	-	1,660		-	1,485		-	846	
Trucks	-	104	-		177	-	-	167	-	-	82
Trailers	-	1	-		4	-	-	4	-	-	-
Buses	-		-		1	-	-	-	-	-	1
Mt. Province	522	1,060	-	840	1,633	-	992	1,685	-	649	802
Cars	7	31	-	14	15	-	19		-	12	
Utility Vehicles	34	908	-	51	1,445	-	60	1,502	-	22	687
Motorcycles/Tricycles	481		-	775		-	913		-	615	
Trucks	-	118	-	-	152	-	-	177	-	-	113
Trailers	-	-	-	-	-	-	-	-	-	-	-
Buses	-	3	-	-	21	-	-	6	-	-	2
NRU	3,223	281	-	3,817	259	-	3,841	270	-	3,422	303
Cars	60	-	-	38	-	-	53	-	-	36	-
Utility Vehicles	85	281	-	55	258	-	67	270	-	59	303
Motorcycles/Tricycles	3,078	-	-	3,724	-	-	3,721		-	3,327	-
Trucks	-	-	-	-	1	-	-	-	-	-	-
Trailers	-	-	-	-	-	-	-	-	-	-	-
Buses	-	-	-	-	-	-	-	-	-	-	-

Source: Philippine Statistics Authority

		Total	
LPG	Gas	Diesel	LPG
-	5,190	3,930	-
-	19	46	-
-	-	3,343	-
-	5,171	-	-
-	-	530	-
-	-	9	-
-	-	2	-
-	3,003	5,180	-
-	52	46	-
-	167	4,542	-
-	2,784	-	-
-	-	560	-
-	-	-	-
-	-	32	-
-	14,303	1,113	-
-	187	-	-
-	266	1,112	-
-	13,850	-	-
-	-	1	-
-	-	-	-
-	-	-	-

Table 5.3.2
Number of Motor Vehicles Registered by Type of Registration by Province and by Type of Vehicle 2015 to 2018

	New	Abra	Apayao	Baguio	Benguet	Ifugao	Kalinga	Mt. Province	Total
2015	14,173	18,234	6,347	36,585	27,672	7,511	7,158	4,395	122,075
Private	14,119	13,359	5,127	30,401	25,720	4,940	5,143	3,681	102,490
Car	173	749	237	6,565	1,313	143	99	50	9,329
SUV	272	370	95	3,760	1,816	162	100	147	6,722
UV	799	2,861	935	13,070	14,813	1,673	2,310	2,123	38,584
Truck	3	434	206	1,347	2,296	280	293	352	5,211
Bus	-	3	-	66	15	9	3	1	97
MC/mtc	12,872	8,915	3,644	5,539	5,463	2,669	2,329	1,002	42,433
Trailer	-	27	10	54	4	4	9	6	114
Government	54	92	108	607	495	203	166	91	1,816
Car	-	-	-	9	12	1	-	-	22
SUV	11	3	1	34	24	19	22	4	118
UV	28	67	54	427	322	95	96	79	1,168
Truck	-	11	13	56	77	12	5	5	179
Bus	-	10	-	7	3	1	1	-	22
MC/mtc	15	1	40	74	57	75	40	3	305
Trailer	-	-	-	-	-	-	2	-	2
For Hire	-	4,783	1,112	5,577	1,457	2,368	1,849	623	17,769
Taxi-Sedan	-	-	-	293	36	-	-	-	329
Taxi-UV	-	-	-	1,586	204	-	-	-	1,790
SUV	-	-	-	11	-	-	-	-	11
UV-PUJ	-	264	29	3,290	820	165	237	162	4,967
Sch. Serv.	-	4,384	-	220	1	1	-	-	4,606
TB-PUB	-	-	7	56	63	10	1	16	153
TC	-	-	1,074	-	200	2,186	1,609	433	5,502
UV Express/VFH	-	-	2	-	57	-	-	-	59
TH	-	125	-	99	76	6	2	12	320
Trailer	-	10	-	22	-	-	-	-	32
2016	12,312	13,004	4,523	31,624	22,834	6,509	5,256	4,549	100,611
Private	12,237	9,140	3,641	25,706	21,280	4,288	3,796	3,895	83,983
Car	117	690	225	5,435	1,062	137	118	43	7,827
SUV	394	368	113	3,802	1,801	210	137	175	7,000
UV	786	2,320	858	11,187	13,388	1,627	1,746	2,490	34,402
Truck	1	322	214	1,028	1,925	278	291	350	4,409
Bus	-	2	1	12	14	-	96	-	125
MC/mtc	10,939	5,426	2,218	4,204	3,087	1,932	1,400	829	30,035
Trailer	-	12	12	38	3	104	8	8	185
Government	75	44	75	437	401	146	119	82	1,379
Car	-	-	1	12	8	-	-	1	22
SUV	-	3	2	38	21	8	10	5	87
UV	20	33	44	329	279	85	69	67	926
Truck	1	3	6	21	56	7	2	6	102
Bus	-	1	22	8	3	-	2	-	36

Table 5.3.2
Number of Motor Vehicles Registered by Type of Registration by Province and by Type of Vehicle 2015 to 2018

	New	Abra	Apayao	Baguio	Benguet	Ifugao	Kalinga	Mt. Province	Total
MC/mtc	54	3	-	29	34	46	36	3	205
Trailer	-	1		-	-	-	-	-	1
For Hire	-	3,820	807	5,481	1,153	2,075	1,341	572	15,249
Taxi-Sedan	-	-	-	7	3	-	-	-	10
Taxi-UV	-	-	-	2,469	209	-	-	-	2,678
SUV	-	-	-	-	-	-	-	-	-
UV-PUJ	-	186	26	2,610	618	90	168	106	3,804
Sch. Serv.	-	-	-	30	-	-	-	-	30
TB-PUB	-	6	6	60	49	10	2	27	160
TC	-	3,619	770	-	173	1,973	1,169	435	8,139
UV Express/VFH	-	-	-	183	29	-	-	-	212
TH	-	8	5	122	68	2	2	4	211
Trailer	-	1	-	-	4	-	-	-	5
2017	7,479	19,037	6,944	43,228	33,242	9,474	8,338	6,595	134,337
Private	7,444	13,870	5,689	35,321	31,054	6,468	6,246	5,707	111,799
Car	91	932	348	7,331	1,492	198	183	52	10,627
SUV	301	497	166	5,277	2,536	278	219	250	9,524
UV	598	3,228	1,222	14,733	19,133	2,320	2,740	3,602	47,576
Truck	1	443	299	1,418	2,749	398	439	469	6,216
Bus	-	3	1	18	20	-	5	-	47
MC/mtc	6,453	8,744	3,639	6,470	5,116	3,138	2,649	1,334	37,543
Trailer	-	23	14	74	8	136	11	-	266
Government	35	83	109	669	560	201	171	115	1,943
Car	-	1	2	16	10	-	2	-	31
SUV	-	5	4	46	32	10	13	6	116
UV	13	56	60	481	380	109	103	95	1,297
Truck	-	7	11	54	80	12	6	7	177
Bus	-	1	-	8	3	-	1	-	13
MC/mtc	22	12	32	64	55	70	46	7	308
Trailer	-	1	-	-	-	-	-	-	1
For Hire	-	5,084	1,146	7,238	1,628	2,805	1,921	773	20,595
Taxi-Sedan	-	-	-	28	4	-	-	-	32
Taxi-UV	-	-	-	3,160	280	-	-	-	3,440
SUV	-	-	-	-	-	-	-	-	-
UV-PUJ	-	256	38	3,588	904	121	241	157	5,305
Sch. Serv.	-	-	-	37	-	-	-	-	37
TB-PUB	-	8	10	84	61	16	4	28	211
TC	-	4,802	1,092	-	245	2,666	1,672	582	11,059
UV Express/VFH	-	-	-	192	37	-	-	-	229
TH	-	17	6	149	97	2	2	6	279
Trailer	-	1	-	-	-	-	2	-	3
2018	16,950	25,732	9,131	47,365	38,427	12,731	10,023	8,876	169,235
Private	16,816	20,484	7,803	40,134	36,300	9,444	8,529	8,061	147,571

Table 5.3.2
Number of Motor Vehicles Registered by Type of Registration by Province and by Type of Vehicle 2015 to 2018

	New	Abra	Apayao	Baguio	Benguet	Ifugao	Kalinga	Mt. Province	Total
Car	213	1,101	455	7,607	1,633	283	207	66	11,565
SUV	449	615	223	5,924	3,109	344	450	350	11,464
UV	1,030	3,516	1,386	15,245	20,590	2,870	2,745	4,613	51,995
Truck	1	486	326	1,346	2,860	431	563	603	6,616
Bus	-	3	-	11	13	-	-	1	28
MC/mtc	15,123	14,734	5,397	9,919	8,083	5,512	4,553	2,428	65,749
Trailer	-	29	16	82	12	4	11	-	154
Government	134	86	122	733	538	246	210	126	2,195
Car	-	-	2	15	9	-	1	0	27
SUV	6	8	4	47	35	18	23	7	148
UV	32	56	53	515	354	106	114	106	1,336
Truck	-	7	10	52	71	10	10	3	163
Bus	-	1	-	7	1	-	-	0	9
MC/mtc	96	13	53	97	68	112	62	10	511
Trailer	-	1	-	-	-	-	-	-	1
For Hire	-	5,162	1,206	6,498	1,589	3,041	1,284	689	19,469
Taxi-Sedan	-	-	-	-	4	-	-	-	4
Taxi-UV	-	-	-	2,661	262	-	23	-	2,946
SUV	-	-	-	-	-	-	-	-	-
UV-PUJ	-	257	44	3,411	864	109	231	133	5,049
Sch. Serv.	-	-	-	41	-	-	-	-	41
TB-PUB	-	5	7	74	56	16	1	29	188
TC	-	4,887	1,037	-	289	2,916	1,029	522	10,680
UV Express/VFH	-	-	-	172	40	-	-	-	212
TH	-	13	118	139	74	-	-	5	349
Trailer	-	-	-	-	-	-	-	-	-

Source: Philippine Statistics Authority

Table 5.4
Notifiable Diseases: Reported Cases and Deaths, CAR
2008 to 2018

Year	Diarrheas				Acute Hemorrhagic Fever Syndrome (Dengue)				Pneumonia			
	Cases		Deaths		Cases		Deaths		Cases		Deaths	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2008	12,922	795	-	-	320	20	-	-	29,657	1,824	-	-
2009	5,529	333	1	0	351	21	3	0	16,777	1,011	502	30
2010	13,353	788	3	0	2,026	120	3	0	33,305	1,966	682	40
2011	15,136	910	1,768	106	2,767	166	35	2	23,869	1,435	2,487	150
2012	9,430	559	-	-	1,086	64	3	0	24,332	1,442	904	54
2013	10,858	635	3	0	198	12	6	0	24,148	1,411	229	13
2014	19,782	1,141	13	1	-	-	1	0	22,861	1,319	805	46
2015	24,412	1,408	23	1	1,948	112	2	0	18,148	1,047	1,046	60
2016	9,504	530	16	1	1,948	109	2	0	10,715	598	626	35
2017	10,694	579	-	-	61	3	-	-	20,460	1,108	938	51
2018	9,357	525	38	2	-	-	15	1	25,108	1,407	826	46

Source: Philippine Statistics Authority

Table 5.4
Notifiable Diseases: Reported Cases and Deaths, CAR
2008 to 2018 (Continued)

Year	Leptospirosis				Malaria				Schistosomiasis			
	Cases		Deaths		Cases		Deaths		Cases		Deaths	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2008	1	0	-	-	150	9	-	-	-	-	-	-
2009	-	-	-	-	74	4	-	-	-	-	-	-
2010	-	-	-	-	21	1	-	-	-	-	-	-
2011	2	0	1	0	-	-	11	1	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-
2013	1	0	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	2	0	-	-	-	-	-	-
2015	2	0	1	0	-	-	-	-	-	-	-	-
2016	2	0	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-
2018	3	0	1	0	-	-	-	-	-	-	-	-

Source: Philippine Statistics Authority

Filariasis				Leprosy			
Cases		Deaths		Cases		Deaths	
Number	Rate	Number	Rate	Number	Rate	Number	Rate
-	-	-	-	5	0	-	-
-	-	-	-	1	0	-	-
-	-	-	-	1	0	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	1	0
-	-	-	-	-	-	-	-
-	-	-	-	2	0	-	-
-	-	-	-	1	0	-	-
-	-	-	-	1	0	-	-
-	-	-	-	-	-	-	-
-	-	-	-	15	1	-	-

Typhoid and parathyphoid				Acute Viral Hepatitis			
Cases		Deaths		Cases		Deaths	
Number	Rate	Number	Rate	Number	Rate	Number	Rate
1,288	79	-	-	45	3	-	-
275	17	2	0	32	2	-	-
336	20	2	0	2	0	1	0
386	23	3	0	5	0	1	0
818	48	-	-	8	0	-	-
403	24	1	0	-	-	-	-
107	6	4	0	3	0	-	-
240	14	5	0	75	4	1	0
240	13	-	-	86	5	-	-
182	10	-	-	5	0	-	-
130	7	-	-	1	0	9	1

Table 5.5
Notifiable Water-Related Diseases and Conditions, CAR
2008 to 2018

Year	Area	Diarrheas		Acute RTI and Pneuomonia		Acute Hemorrhagic Fever Syndrome (Dengue)		Malaria		Typhoid and Paratyphoid Fever	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2008	CAR	12,922.0	794.9	29,657.0	1,824.4	320.0	19.7	150.0	9.2	1,288.0	79.2
	Abra	2,684.0	1,129.6	3,456.0	1,454.5	3.0	1.3	-	-	389.0	163.7
	Apayao	399.0	339.3	1,411.0	1,199.8	-	-	21.0	17.9	-	-
	Benguet	4,447.0	1,117.2	5,957.0	1,496.6	-	-	-	-	311.0	78.1
	Baguio City	949.0	314.5	3,064.0	1,015.4	78.0	25.8	-	-	127.0	42.1
	Ifugao	247.0	127.6	11,186.0	5,780.9	184.0	95.1	-	-	223.0	115.2
	Kalinga	1,769.0	842.4	2,010.0	957.1	2.0	1.0	116.0	55.2	1.0	0.5
	Mt. Province	2,427.0	1,452.4	2,573.0	1,539.8	53.0	31.7	13.0	7.8	237.0	141.8
2009	CAR	5,529.0	333.1	16,777.0	1,010.8	351.0	21.1	74.0	4.5	275.0	16.6
	Abra	1,082.0	449.5	7,447.0	3,093.9	-	-	-	-	88.0	36.6
	Apayao	416.0	344.9	289.0	239.6	247.0	204.8	1.0	0.8	4.0	3.3
	Benguet	935.0	229.9	3,569.0	877.6	2.0	0.5	-	-	131.0	32.2
	Baguio City	2,310.0	749.2	3,280.0	1,063.9	100.0	32.4	-	-	-	-
	Ifugao	1.0	0.5	47.0	23.8	1.0	0.5	-	-	-	-
	Kalinga	-	-	-	-	-	-	-	-	-	-
	Mt. Province	785.0	459.1	2,145.0	1,254.4	1.0	0.6	73.0	42.7	52.0	30.4
2010	CAR	13,353.0	788.1	33,305.0	1,965.6	2,026.0	119.6	21.0	1.2	336.0	19.8
	Abra	1,389.0	568.8	1,768.0	724.0	4.0	1.6	-	-	101.0	41.4
	Apayao	241.0	195.0	614.0	496.8	52.0	42.1	10.0	8.1	-	-
	Benguet	2,878.0	692.5	13,850.0	3,332.4	282.0	67.9	-	-	142.0	34.2
	Baguio City	1,624.0	515.4	3,259.0	1,034.3	134.0	42.5	-	-	56.0	17.8
	Ifugao	2,909.0	1,443.7	11,815.0	5,863.5	1,460.0	724.6	-	-	-	-
	Kalinga	2,547.0	1,159.3	12.0	5.5	62.0	28.2	-	-	3.0	1.4
	Mt. Province	1,765.0	1,010.3	1,987.0	1,137.4	32.0	18.3	11.0	6.3	34.0	19.5
2011	CAR	15,136.0	910.2	23,869.0	1,435.4	2,767.0	166.4	-	-	386.0	23.2
	Abra	2,384.0	998.7	1,504.0	630.1	1.0	0.4	-	-	131.0	54.9
	Apayao	910.0	717.7	2,230.0	1,758.7	19.0	15.0	-	-	-	-
	Benguet	498.0	126.5	1,772.0	450.1	76.0	19.3	-	-	-	-
	Baguio City	2,488.0	750.1	3,487.0	1,051.3	489.0	147.4	-	-	255.0	76.9
	Ifugao	3,605.0	1,875.7	8,468.0	4,405.8	-	-	-	-	-	-
	Kalinga	2,338.0	1,039.1	2,497.0	1,109.8	1,985.0	882.2	-	-	-	-
	Mt. Province	2,913.0	1,881.8	3,911.0	2,526.5	197.0	127.3	-	-	-	-
2012	CAR	9,430.0	558.9	24,332.0	1,442.2	1,086.0	64.4	-	-	818.0	48.5
	Abra	258.0	107.1	1,873.0	777.5	6.0	2.5	-	-	153.0	63.5
	Apayao	463.0	357.0	1,143.0	881.3	105.0	81.0	-	-	-	-
	Benguet	-	-	12,544.0	3,152.6	168.0	42.2	-	-	647.0	162.6
	Baguio City	3,350.0	989.4	2,823.0	833.7	-	-	-	-	-	-
	Ifugao	569.0	292.4	2,913.0	1,496.9	238.0	122.3	-	-	16.0	8.2
	Kalinga	2,530.0	1,101.9	1,488.0	648.1	569.0	247.8	-	-	2.0	0.9
	Mt. Province	2,260.0	1,449.6	1,548.0	992.9	-	-	-	-	-	-

Viral Hepatitis		Leprosy		Schistoso-miasis		Filariasis		Leptospirosis	
Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
45.0	2.8	5.0	0.3	-	-	-	-	1.0	0.1
3.0	1.3	4.0	1.7	-	-	-	-	-	-
-	-	1.0	0.9	-	-	-	-	-	-
33.0	8.3	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
7.0	3.6	-	-	-	-	-	-	-	-
1.0	0.5	-	-	-	-	-	-	-	-
1.0	0.6	-	-	-	-	-	-	1.0	0.6
32.0	1.9	1.0	0.1	-	-	-	-	-	-
7.0	2.9	-	-	-	-	-	-	-	-
9.0	7.5	-	-	-	-	-	-	-	-
13.0	3.2	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
3.0	1.8	1.0	0.6	-	-	-	-	-	-
2.0	0.1	1.0	0.1	-	-	-	-	-	-
1.0	0.4	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	1.0	0.5	-	-	-	-	-	-
1.0	0.6	-	-	-	-	-	-	-	-
5.0	0.3	-	-	-	-	-	-	2.0	0.1
-	-	-	-	-	-	-	-	-	-
5.0	3.9	-	-	-	-	-	-	1.0	0.8
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	1.0	0.3
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
8.0	0.5	-	-	-	-	-	-	-	-
2.0	0.8	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
6.0	3.1	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Table 5.5
Notifiable Water-Related Diseases and Conditions, CAR
2008 to 2018

Year	Area	Diarrheas		Acute RTI and Pneuomonia		Acute Hemorrhagic Fever Syndrome (Dengue)		Malaria		Typhoid and Paratyphoid Fever	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2013	CAR	10,858.0	634.6	24,148.0	1,411.4	198.0	11.6	-	-	403.0	23.6
	Abra	1,961.0	807.3	4,531.0	1,865.4	-	-	-	-	223.0	91.8
	Apayao	2,575.0	1,941.9	1,071.0	807.7	143.0	107.8	-	-	34.0	25.6
	Benguet	1,917.0	476.9	6,132.0	1,525.4	53.0	13.2	-	-	43.0	10.7
	Baguio City	246.0	71.2	1,323.0	383.0	2.0	0.6	-	-	2.0	0.6
	Ifugao	1,670.0	848.2	5,135.0	2,607.9	-	-	-	-	35.0	17.8
	Kalinga	1,638.0	699.4	3,890.0	1,661.0	-	-	-	-	10.0	4.3
	Mt. Province	851.0	542.4	2,066.0	1,316.8	-	-	-	-	56.0	35.7
2014	CAR	19,782.0	1,141.2	22,861.0	1,318.8	-	-	2.0	0.1	107.0	6.2
	Abra	2,514.0	1,023.0	3,480.0	1,416.1	-	-	-	-	5.0	2.0
	Apayao	2,790.0	2,332.0	907.0	758.1	-	-	-	-	12.0	10.0
	Benguet	5,342.0	1,217.6	8,460.0	1,928.3	-	-	-	-	-	-
	Baguio City	2,190.0	624.5	4,042.0	1,152.6	-	-	-	-	46.0	13.1
	Ifugao	4,226.0	2,065.5	1,715.0	838.2	-	-	2.0	1.0	1.0	0.5
	Kalinga	2,147.0	1,003.0	2,955.0	1,380.4	-	-	-	-	-	-
	Mt. Province	573.0	358.2	1,302.0	813.9	-	-	-	-	43.0	26.9
2015	CAR	24,412.0	1,408.3	18,148.0	1,046.9	1,948.0	112.4	-	-	240.0	13.8
	Abra	2,496.0	1,015.7	3,323.0	1,352.2	-	-	-	-	1.0	0.4
	Apayao	3,376.0	2,821.8	105.0	87.8	76.0	63.5	-	-	22.0	18.4
	Benguet	2,906.0	662.4	5,463.0	1,245.2	895.0	204.0	-	-	-	-
	Baguio City	7,460.0	2,127.3	4,187.0	1,194.0	6.0	1.7	-	-	-	-
	Ifugao	5,090.0	2,487.8	3,255.0	1,590.9	888.0	434.0	-	-	206.0	100.7
	Kalinga	1,587.0	741.4	1,541.0	719.9	76.0	35.5	-	-	2.0	0.9
	Mt. Province	1,497.0	935.7	274.0	171.3	7.0	4.4	-	-	9.0	5.6
2016	CAR	9,504.0	530.3	10,715.0	597.9	1,948.0	108.7	-	-	240.0	13.4
	Abra	265.0	105.5	1,721.0	685.3	-	-	-	-	1.0	0.4
	Apayao	3,344.0	2,715.9	102.0	82.8	76.0	61.7	-	-	22.0	17.9
	Benguet	-	-	3,725.0	816.3	895.0	196.1	-	-	-	-
	Baguio City	3,756.0	1,023.3	136.0	37.1	6.0	1.6	-	-	-	-
	Ifugao	-	-	3,199.0	1,513.4	888.0	420.1	-	-	206.0	97.5
	Kalinga	1,587.0	720.5	1,558.0	707.4	76.0	34.5	-	-	2.0	0.9
	Mt. Province	552.0	339.1	274.0	168.3	7.0	4.3	-	-	9.0	5.5
2017	CAR	10,694.0	578.9	20,460.0	1,107.5	61.0	3.3	-	-	182.0	9.9
	Abra	834.0	325.7	2,970.0	1,160.0	58.0	22.7	-	-	5.0	2.0
	Apayao	618.0	471.2	1,098.0	837.2	-	-	-	-	30.0	22.9
	Benguet	2,154.0	463.6	1,635.0	351.9	-	-	-	-	-	-
	Baguio City	841.0	233.9	4,702.0	1,307.5	-	-	-	-	11.0	3.1
	Ifugao	1,839.0	823.4	3,668.0	1,642.3	3.0	1.3	-	-	82.0	36.7
	Kalinga	1,853.0	793.3	5,134.0	2,197.8	-	-	-	-	-	-
	Mt. Province	2,555.0	1,427.6	1,253.0	700.1	-	-	-	-	54.0	30.2

Viral Hepatitis		Leprosy		Schistoso-miasis		Filariasis		Leptospirosis	
Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
-	-	-	-	-	-	-	-	1.0	0.1
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	1.0	0.8
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
3.0	0.2	2.0	0.1	-	-	-	-	-	-
-	-	1.0	0.4	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
3.0	1.5	1.0	0.5	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
75.0	4.3	1.0	0.1	-	-	-	-	2.0	0.1
1.0	0.4	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	2.0	1.7
-	-	-	-	-	-	-	-	-	-
5.0	1.4	-	-	-	-	-	-	-	-
17.0	8.3	-	-	-	-	-	-	-	-
51.0	23.8	1.0	0.5	-	-	-	-	-	-
1.0	0.6	-	-	-	-	-	-	-	-
86.0	4.8	1.0	0.1	-	-	-	-	2.0	0.1
1.0	0.4	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	2.0	1.6
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
17.0	8.0	-	-	-	-	-	-	-	-
17.0	7.7	1.0	0.5	-	-	-	-	-	-
51.0	31.3	-	-	-	-	-	-	-	-
5.0	0.3	-	-	-	-	-	-	-	-
1.0	0.4	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
3.0	1.3	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
1.0	0.6	-	-	-	-	-	-	-	-

Table 5.5
Notifiable Water-Related Diseases and Conditions, CAR
2008 to 2018

Year	Area	Diarrheas		Acute RTI and Pneuomonia		Acute Hemorrhagic Fever Syndrome (Dengue)		Malaria		Typhoid and Paratyphoid Fever	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2018	CAR	9,357.0	524.5	25,108.0	1,407.5	-	-	-	-	130.0	7.3
	Abra	752.0	307.2	3,831.0	1,565.0	-	-	-	-	1.0	0.4
	Apayao	1,401.0	1,139.2	2,941.0	2,391.5	-	-	-	-	46.0	37.4
	Benguet	1,539.0	327.9	1,641.0	349.6	-	-	-	-	20.0	4.3
	Baguio City	910.0	250.5	4,271.0	1,175.7	-	-	-	-	-	-
	Ifugao	1,853.0	884.0	9,779.0	4,665.3	-	-	-	-	42.0	20.0
	Kalinga	838.0	382.5	1,299.0	592.9	-	-	-	-	-	-
	Mt. Province	2,064.0	1,333.2	1,346.0	869.4	-	-	-	-	21.0	13.6

Source: Philippine Statistics Authority

Viral Hepatitis		Leprosy		Schistoso-miasis		Filariasis		Leptospirosis	
Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1.0	0.1	15.0	0.8	-	-	-	-	3.0	0.2
-	-	5.0	2.0	-	-	-	-	-	-
-	-	4.0	3.3	-	-	-	-	2.0	1.6
-	-	1.0	0.2	-	-	-	-	-	-
-	-	5.0	1.4	-	-	-	-	-	-
-	-	-	-	-	-	-	-	1.0	0.5
-	-	-	-	-	-	-	-	-	-
1.0	0.6	-	-	-	-	-	-	-	-

Table 5.6
Mortality due to Water-Related Diseases and Conditions by Sex and Age Group
2015 to 2018

Year	Cause	Under 1			1-4 Years			5-9 Years	
		Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
2015	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	-	-	-	4	4	8	5	5
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	1,162	969	2,131	3,712	2,888	6,600	1,478	1,252
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	2,245	1,903	4,148	4,168	3,692	7,860	1,446	1,303
	Salmonella Infections	-	-	-	-	-	-	-	-
	Schistosomiasis	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	-	-	-	-	-	-	-
	Yellow Fever	…	…	…	…	…	…	…	…
2016	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	17	18	35	83	56	139	123	86
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	1,316	1,054	2,370	4,288	3,383	7,671	1,876	1,485
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	1,454	1,148	2,602	3,087	2,099	5,186	1,016	863
	Salmonella Infections	…	…	…	…	…	…	…	…
	Schistosomiasis	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	1	1	3	3	6	2	4
	Yellow Fever	…	…	…	…	…	…	…	…

10-14 Years			15-19 Years			20-24 Years			25-29 Years			
Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
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-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
10	5	7	12	6	3	9	6	7	13	8	4	12
2,730	706	622	1,328	362	398	760	292	424	716	328	421	749
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	1	-	1	-	-	-	1	-	1	-	-	-
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2,749	552	478	1,030	296	271	567	215	312	527	238	342	580
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-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-
209	154	146	300	123	124	247	99	101	200	62	82	144
3,361	916	736	1,652	602	665	1,267	455	735	-	419	543	962
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	-	1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
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1,879	409	379	788	201	306	507	172	368	540	184	342	526
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6	3	5	8	2	5	7	4	12	16	1	5	6
...	...	...	...	...	...	...	...	...	...	...	...	...

Table 5.6
Mortality due to Water-Related Diseases and Conditions by Sex and Age Group
2015 to 2018

Year	Cause	Under 1			1-4 Years			5-9 Years	
		Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
2017	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	1	-	1	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	17	18	35	83	56	139	123	86
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	621	484	1,105	2,151	1,633	3,784	1,146	828
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	1,379	1,084	2,463	2,950	2,019	4,969	1,092	942
	Salmonella Infections	…	…	…	…	…	…	…	…
	Schistosomiasis	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	-	-	-	-	-	-	-
	Yellow Fever	…	…	…	…	…	…	…	…
2018	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	2	2	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	86	95	181	123	148	271	161	163
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	454	385	839	1,782	1,443	3,225	661	562
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	1	-
	Malaria	-	-	-	-	-	-		
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	1,895	1,671	3,566	4,041	3,721	7,762	1,814	1,843
	Salmonella Infections	…	…	…	…	…	…	…	…
	Schistosomiasis	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	-	-	-	-	-	-	-
	Yellow Fever	…	…	…	…	…	…	…	…

10-14 Years			15-19 Years			20-24 Years			25-29 Years			
Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
...	...	...	...	...	...	...	...	...	...	...	...	...
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-	-	-	-			-	-	-	-	-	-	-
209	154	146	300	123	124	247	99	101	200	62	82	144
1,974	510	427	937	423	480	903	331	527	858	204	121	325
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
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2,034	481	404	885	211	206	417	167	253	420	152	238	390
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-	-	-	-	-	-	-	1	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
324	168	136	304	161	169	330	97	95	192	87	51	138
1,223	304	191	495	215	188	403	150	175	325	140	170	310
-	-	-	-	-	-	-	-	-		-	-	
	-	-	-	-	1	1	1	-		-	-	
	1	-	1	-	-	-	1	-		-	-	
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
3,657	652	714	1,366	287	377	664	257	402	659	257	450	707
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...

Table 5.6
Mortality due to Water-Related Diseases and Conditions by Sex and Age Group
2015 to 2018 (continued)

Year	Cause	30-34 Years			35-39 Years			40-44 Years	
		Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
2015	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	5	2	7	3	3	6	2	14
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	288	386	674	249	357	606	238	311
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	1	1	-	-
	Leptospirosis	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	191	368	559	219	323	542	212	204
	Salmonella Infections	-	-	-	-	-	-	-	-
	Schistosomiasis	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	1	1	-	-	-	-	
	Yellow Fever	…	…	…	…	…	…	…	…
2016	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	68	65	133	54	66	120	42	68
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	356	491	847	349	414	763	284	378
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	167	347	514	235	359	594	195	387
	Salmonella Infections	…	…	…	…	…	…	…	…
	Schistosomiasis	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis	1	1	2	1	5	6	3	2
	Yellow Fever	…	…	…	…	…	…	…	…

45-49 Years			50-54 Years			55-59 Years			60-64 Years			
Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
16	6	2	8	-	3	3	-	-	-	1	1	2
549	245	294	539	283	321	604	157	286	443	171	215	386
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	1	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
416	204	371	575	232	365	597	224	295	519	259	398	657
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
110	38	45	83	36	47	83	31	39	70	15	30	45
662	378	262	640	238	409	647	221	382	603	241	382	623
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
582	178	391	569	274	380	654	314	488	802	283	489	772
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
5	1	1	2	1	2	3	4	3	7	1	-	1
...	...	...	...	...	...	...	...	...	...	...	...	...

Table 5.6
Mortality due to Water-Related Diseases and Conditions by Sex and Age Group
2015 to 2018 (continued)

Year	Cause	30-34 Years			35-39 Years			40-44 Years	
		Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
2017	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	68	65	133	54	66	120	42	68
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	232	305	537	185	239	424	159	231
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	138	276	414	186	248	434	157	254
	Salmonella Infections	…	…	…	…	…	…	…	…
	Schistosomiasis		-	-		-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis		-	-		-	-	-	-
	Yellow Fever	…	…	…	…	…	…	…	…
2018	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	35	49	84	34	39	73	24	34
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	139	121	260	112	168	280	142	120
	Filariasis	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	1	-	1	-	1	1	-	1
	Leptospirosis	-	-	-	-	-	-	-	-
	Malaria								
	Other Helminthiasis	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…
	Pneumonia	261	431	692	234	395	629	238	382
	Salmonella Infections	…	…	…	…	…	…	…	…
	Schistosomiasis	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	-	-	-	-	-	-	-
	Yellow Fever	…	…	…	…	…	…	…	…

45-49 Years			50-54 Years			55-59 Years			60-64 Years			
Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
110	38	45	83	36	47	83	31	39	70	15	30	45
390	148	238	386	132	217	349	224	123	347	133	182	315
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
411	139	250	389	196	234	430	213	347	560	186	278	464
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	2	2	1	-	1	1	1	2	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
58	18	19	37	22	19	41	10	16	26	15	10	25
262	122	172	294	116	120	236	111	151	262	126	180	306
	-	-		-	-		-	-		-	-	
	-	-		-	-		1	1		3	-	
	-	-		-	-		-	-		-	-	
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
620	248	377	625	244	488	732	299	377	676	345	486	831
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...
-	-	-	-	-	-	-	-	-	-	-	-	-
...	...	...	...	...	...	...	...	...	...	...	...	...

Table 5.6
Mortality due to Water-Related Diseases and Conditions by Sex and Age Group
2015 to 2018 (continued)

Year	Cause	65-69 Years			70 Years and Over			Age Not Stated		
		Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
2015	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	1	3	2	…	…	…	…	…	…
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	422	545	967	…	…	…	…	…	…
	Filariasis	-	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…	…
	Pneumonia	643	782	1,425	…	…	…	…	…	…
	Salmonella Infections	-	-	-	-	-	-	-	-	-
	Schistosomiasis	-	-	-	-	-	-	-	-	-
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	-	-	-	-	-	-	-	-
	Yellow Fever	…	…	…	…	…	…	…	…	…
2016	Acute Poliomyelitis, including Late Effects	…	…	…	…	…	…	…	…	…
	Anemias	…	…	…	…	…	…	…	…	…
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	12	25	37	19	25	44	…	…	…
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	194	322	516	262	390	652	…	…	…
	Filariasis	-	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-	-
	Other Helminthiasis	…	…	…	…	…	…	…	…	…
	Other Intestinal Infectious Diseases	…	…	…	…	…	…	…	…	…
	Other Protein-calorie Malnutrition	…	…	…	…	…	…	…	…	…
	Pneumonia	250	290	540	464	629	1,093			
	Salmonella Infections	…	…	…	…	…	…	…	…	…
	Schistosomiasis	-	-	-	-	-	-			
	Shigellosis and Amoebiasis	…	…	…	…	…	…	…	…	…
	Viral Hepatitis	-	-	-	-	-	-			
	Yellow Fever	…	…	…	…	…	…	…	…	…

Table 5.6
Mortality due to Water-Related Diseases and Conditions by Sex and Age Group
2015 to 2018 (continued)

Year	Cause	65-69 Years			70 Years and Over			Age Not Stated		
		Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
2017	Acute Poliomyelitis, including Late Effects	...	...	...	...	...	...	...	...	...
	Anemias	...	...	...	...	...	...	...	...	...
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	26	50	76	...	...	...	...	...	...
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	183	282	465	...	...	...	...	...	...
	Filariasis	-	-	-	-	-	-	-	-	-
	Leprosy, including Late Effects	-	-	-	-	-	-	-	-	-
	Leptospirosis	-	-	-	-	-	-	-	-	-
	Malaria	-	-	-	-	-	-	-	-	-
	Other Helminthiasis	...	...	...	...	...	...	...	...	...
	Other Intestinal Infectious Diseases	...	...	...	...	...	...	...	...	...
	Other Protein-calorie Malnutrition	...	...	...	...	...	...	...	...	...
	Pneumonia	346	421	767						
	Salmonella Infections	...	...	...	...	...	...	...	...	...
	Schistosomiasis	-	-	-						
	Shigellosis and Amoebiasis	...	...	...	...	...	...	...	...	...
	Viral Hepatitis	-	-	-						
	Yellow Fever	...	...	...	...	...	...	...	...	...
2018	Acute Poliomyelitis, including Late Effects	...	...	...	...	...	...	...	...	...
	Anemias	...	...	...	...	...	...	...	...	...
	Arthropod-borne Viral Encephalitis, including Late Effects	-	-	-	-	-	-	-	-	-
	Cholera	-	-	-	-	-	-	-	-	-
	Dengue-hemorrhagic Fever	23	24	47	7	19	47	...	...	...
	Diarrheas and Gastroenteritis of Presumed Infectious Origin	127	178	305	64	101	165	...	...	...
	Filariasis	-	-		-	-	-	...	...	...
	Leprosy, including Late Effects	-	2		1	2	3	...	...	...
	Leptospirosis	-	-		-	-	-	...	...	...
	Malaria							...	...	...
	Other Helminthiasis	...	...	...	...	...	...	...	...	...
	Other Intestinal Infectious Diseases	...	...	...	...	...	...	...	...	...
	Other Protein-calorie Malnutrition	...	...	...	...	...	...	...	...	...
	Pneumonia	309	444	753	527	642	1,169			
	Salmonella Infections	...	...	...	...	...	...	...	...	...
	Schistosomiasis	-	-	-	-	-	-			
	Shigellosis and Amoebiasis	...	...	...	...	...	...	...	...	...
	Viral Hepatitis	-	-	-	-	-	-			
	Yellow Fever	...	...	...	...	...	...	...	...	...

Tappiyah Falls
Ifugao
Photo by: Winsky Salisa

COMPONENT SIX ENVIRONMENT PROTECTION, MANAGEMENT AND ENGAGEMENT

Component 6 tackles environment protection and resource management expenditure and economic and social instruments to regulate and manage various environmental issues and concerns. The component gathers statistics with the aim of improving the environment and maintaining the health of ecosystems. It comprises four subcomponents: (1) environment protection and resource management expenditure; (2) environmental governance and regulation; (3) extreme event preparedness and disaster management; and (4) environmental information and awareness. There are only three core statistics compiled for this component i.e., annual government environment protection expenditure, list of regulated pollutants and description, and list and description of multilateral environment agreements and other global environment conventions. All the three sets of statistics were available at the national level and is also presented in this compendium. These statistics were lifted from the 2016 CPES.

The component also includes information on the institutional strength of environmental authorities and other related agencies, as well as the regulations in place to preserve the environment by setting limits on pollution and extraction from the environment. These regulations act as instruments towards achieving the Sustainable Development Goals on clean energy (SDG 7), responsible consumption and production (SDG 12), protecting life below water and on land (SDG 14 and 15), and climate change mitigation (SDG 13). Component six also focuses on the engagement of the country on global partnership, which is anchored on SDG 17, "Partnership for Goal's".

6.1. Environmental protection and resource management expenditure

6.1.1. Annual government environmental protection expenditure

It is recommended in the FDES to compile information on the expenditures for both activities of private and public sectors on the expenditure on environmental protection but only the public expenditure is considered a core statistic. The Department of Budget and Management (DBM) provided information on funds allocated to each department for climate change related activities, waste and wastewater management, environmental protection research and development and other environmental protection related activities. Expenditure allocation for each priority of the National Climate Change Action Plan (NCCAP) was also compiled. The NCCAP is a plan translating the National Framework Strategy on Climate Change (NFSCC) in climate change resiliency, environmental and ecological stability, human security, sustainable energy, climate-smart industry and services, and knowledge and capacity development.

6.2. Environmental governance and regulation

6.2.1. List of regulated pollutants and description

Lists of regulated pollutants were gathered from existing laws and administrative orders of the Department of Environment and Natural Resources. These instruments are enforced to limit the amount of pollutants emitted to air and water.

The Philippine Republic Act No. 8749, also known as the Philippine Clean Air Act, was signed into law on 23 June 1999 to enforce the right to clean air. It sets standards on air pollutants by stationary

(i.e. buildings and other immobile structures) and mobile sources (i.e. vehicles), and sets the national ambient quality guidelines for criteria-specific and source-specific hazardous pollutants.

Pursuant to RA 7849, several Department Administrative Orders (DAOs) were also implemented to set limits on mobile vehicle emissions. DAO No. 2010-23 and 2010-24 are recent administrative orders that contain a revised set of guidelines for regulating emissions from compression-ignition (e.g. diesel engine) and spark-ignition (e.g. gasoline engine) motor vehicles and motorcycles/tricycles and mopeds, respectively. DAO 2013-13 establishes the national ambient air quality guideline for Particulate Matter 2.5, a type of pollutant. As of 2015, DAO No. 2015-04 enforces a set of emissions limits to be followed by Euro 4/IV and In-Use Vehicles. Euro IV vehicles are vehicles calibrated to release emissions following the European emission standards.

Apart from regulations on air emissions, the DENR issued administrative orders on regulating water quality. DAO No. 1994-26A revises the National Standards for Drinking Water of 1978 in pursuant of Presidential Decree No. 856, or the Code on Sanitation of the Philippines. It sets the acceptable values of parameters on the bacteriological, biological, chemical, physical and radiological quality for drinking water, as well as the guidelines for sampling and evaluation.

Furthermore, quality guidelines are enlisted in DAO No. 2016-08 for water bodies. The administrative order sets limits to primary and secondary parameters for each category of fresh and marine surface water and groundwater. Primary parameters include biochemical oxygen demand (BOD), chloride, color, minimum dissolved oxygen, fecal coliform, nitrate (as NO3 – N), pH, phospate, temperature and total suspended solids. Secondary parameters include several inorganics, organics and metals. The DAO also lists the significant parameters to be monitored for each industry, as well as the maximum allowable limits of effluents.

6.2.2. List and description of Multilateral Environmental Agreements (MEA) and other global environmental conventions

Table 6.4 lists 38 of the international conventions, agreements and organizations that the Philippines is engaged with, as well as their objectives and the dates of signature, ratification, approval, adoption and/or entry into force.

The oldest organization where the country is a member is the International Hydrographic Organization (IHO). The organization was established in 1921 aimed at nautical navigation safety and marine environment protection.

The Philippines is also part of the United Nations Environmental Assembly (UNEA), the world's highest authority for global environmental agenda. During its first assembly, the UNEA tackled issues on air pollution, waste and illegal wildfire trade.

STATISTICAL TABLES
Environment Protection, Management and Engagement

Table 6.1.1
Initial List and Values of Hazardous Air Pollutants for National Ambient Air Quality Guideline for Criteria Pollutants

Pollutants	Short Term[1]			Long Term[2]		
	µg/Ncm	ppm	Averaging Time	µg/Ncm	ppm	Averaging Time
Suspended Particulate Matter[3]						
TSP	230[4]		24 hours	90	…	1 year[5]
PM 10	150[6]		24 hours	60	…	1 year[5]
Sulfur Dioxide[3]	180	0.07	24 hours	80	0.03	1 year
Nitrogen Dioxide	150	0.08	24 hours	…	…	…
Photochemical Oxidants	140	0.07	1 hour	…	…	…
As Ozone	60	0.03	8 hours	…	…	…
Carbon Monoxide	35 mg/Ncm	30	1 hour	…	…	…
	10 mg/Ncm	9	8 hours	…	…	…
Lead[7]	1.5	…	3 months[7]	1	…	1 year

[1] *Maximum limits represented by ninety-eight percentile (98%) values not to be exceed more than once a year.*
[2] *Arithmetic mean*
[3] *SO2 and Suspended Particulate matter are sampled once every six days when using the manual methods. A minimum of twelve sampling days per quarter of forty-eight sampling days each year is required for these methods. Daily sampling may be done in the future once continuous analyzers are procured and become available.*
[4] *Limits for Total Suspended Particulate Matter with mass median diameter less than 25-50 um.*
[5] *Annual Geometric Mean*
[6] *Provisional limits for Suspended Particulate Matter with mass median diameter less than 10 microns and below until sufficient monitoring data are gathered to base a proper guideline.*

[7] *Evaluation of this guideline is carried out for 24-hour averaging time and averaged over three moving calendar months. The monitored average value for any three months shall not exceed the guideline value.*

Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.2
Initial List and Values of Hazardous Air Pollutants
For National Ambient Air Quality Standards for Source Specific Air Pollutants from Industrial Sources/ Operations

Pollutants[1]	Concentration[2]		Averaging time (in minutes)	Method of Analysis/ Measurement[3]
	µg/Ncm	ppm		
Ammonia	200	0.28	30	Nesselerization/IndoPhenol
Carbon Disulfide	30	0.01	30	Tischer Method
Chlorine and Chlorine Compounds expressed as Cl^2	100	0.03	5	Methyl Orange
Formaldehyde	50	0.04	30	Chromotropic acid Method or MBTH Colorimetric Method
Hydrogen Chloride	200	0.13	30	Volhard Titration with Iodine Solution
Hydrogen Sulfide	100	0.07	30	Methylene Blue
Lead	20		30	AAS[3]
Nitrogen Dioxide	375,260	0.20,0.14	30,60	Greiss- Saltzman
Phenol	100	0.03	30	4-Aminoantiphyrine
Sulfur Dioxide	470, 340	0.18, 0.13	30,60	Colorimetric-Pararosaniline
Suspended Particulate Matter - TSP	300	…	60	Gravimetric

[1] Pertinent ambient standards for Antimony, Arsenic, Cadmium, Asbestos, Nitric Acid and Sulfuric Acid Mists in the 1978 NPCC Rules and Regulations may be considered as guides in determining compliance.
[2] Ninety-eight percentile (98%) values of 30-minute sampling measured at 250C and one atmosphere pressure.
[3] Other equivalent methods approved by the Department may be used. Source: RA 8749 - Philippine Clean Air Act of 1999

Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.3
Maximum Limits of Concentration of Air Pollutants at the Point of Emission with Respect to any Trade, Industry, Process, and Fuel-burning equipment or Industrial Plant

Pollutants	Standard Applicable to Source	Maximum Permissible Limits (mg/Ncm)	Method of Analysis[1]
1. Antimony and Its compounds	Any source	10 as Sb	AAS[2]
2. Arsenic and its compounds	Any source	10 as As	AAS[2]
3. Cadmium and its compounds	Any source	10 as Cd	AAS[2]
4. Carbon Monoxide	Any industrial Source	500 as CO	Orsat analysis
5. Copper and its Compounds	Any industrial source	100 ax Cu	AAS[2]
6. Hydrofluoric Acids and Fluoride compounds	Any source other than the manufacture of Aluminum from Alumina	50 as HF	Titration with Ammonium Thiocyanate
7. Hydrogen Sulfide	"i) Geothermal Power Plants ii) Geothermal Exploration and well-testing iii) Any source other than (i) and (ii)"	 [3, 4] [5] 7 as H2S	" Cadmium Sulfide Method Cadmium Sulfide Method"
8. Lead	Any trade, industry or process	10 as Pb	AAS[2]
9. Mercury	Any Source	5 as elemental Hg	AASb/Cold-Vapor Technique or Hg Analyzer
10. Nickel and its compounds, except Nickel Carbonyl[6]	Any source	20 as Ni	AAS2
11. NOx	i) Manufacture of Nitric Acid	2,000 as acid and NOx Phenol-disulfonic acid and calculated as NO_2	Phenol-disulfonic acid Method
	ii) Fuel burning steam generators		Phenol-disulfonic acid Method
	Existing Source	1,500 as NO_2	
	New Source		
	• Coal-Fired	1,000 as NO_2	
	• Oil-Fired	500 as NO_2	
	iii) Any source other than (i) and (ii)		Phenol-disulfonic acid Method
	Existing Source	1000 as NO_2	
	New Source	500 as NO_2	
12. Phosphorus Pentoxide7	Any source	200 as P_2O_5	Spectrophotometry
13. Zinc and its Compounds	Any source	100 as Zn	AAS_2

[1] Other equivalent methods approved by the Department may be used.
[2] Atomic Absorption Specttrophotometry
[3] All new geothermal power plants starting construction by 01 January 1995 shall control HSS emissions to not more than 150 g/GMW-Hr
[4] All existing geothermal power plants shall control HsS emissions to not more than 200 g/GMW-Hr within 5 years from the date of effectivity of these revised regulations.
[5] Best practicable control technology for air emissions and liquid discharges. Compliance with air and water quality standards is required.
[6] Emission limit of Nickel Carbonyl shall not exceed 0.5 mg/Ncm.
[7]Provisional Gudeline
Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.4
Maximum Limits of Particulates in Stationary Sources In milligram per normal cubic meters (mg/Ncm)

Sources	Maximum Limits (mg/Ncm)
1. Fuel Burning Equipment	
a) Urban or Industrial Area	150
b) Other Area	200
2. Cement Plants (Kilns, etc.)	150
3. Smelting Furnaces	150
4. Other Stationary Sources[1]	200

[1]Other Stationary Sources means a trade, process, industrial plant, or fuel burning equipment other than thermal power plants, industrial boilers, cement plants, incinerators and smelting furnaces.
Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.5
Maximum Limits for Sulfur Oxides in Stationary Sources

(1) Existing Sources	
(i) Manufacture of Sulfuric Acid and Sulfation Process	2.0 gm. Ncm as SO3
(ii) Fuel burning Equipment	1.5 gm. Ncm as SO2
(iii) Other Stationary Sources[1]	1.0 gm. Ncm as SO3
(1) New Sources	
(i) Manufacture of Sulfuric Acid and Sulfation Process	1.5 gm. Ncm as SO3
(ii) Fuel burning Equipment	0.7 gm. Ncm as SO2
(iii) Other Stationary Sources[1]	0.2 gm. Ncm as SO3

[1]Other Stationary Sources means a trade, process, industrial plant, or fuel burning equipment other than thermal power plants, industrial boilers, cement plants, incinerators and smelting furnaces.
Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.6
Maximum Limits for Exhaust Gas in Other Stationary Sources of Pollution, Daily and Half Hourly Average Values

	Daily Average Values	Half Hourly Average Values
Total dust	10 mg/m^3	30 mg/m^3
Gaseous and vaporous organic substances, expressed as total organic carbon	10 mg/m^3	20 mg/m^3
Hydrogen chloride (HCl)	10 mg/m^3	60 mg/m^3
Hydrogen fluoride (HF)	1 mg/m^3	4 mg/m^3
Sulfur dioxide (SO_2)	50 mg/m^3	2000 mg/m^3
Nitrogen monoxide (NO) and Nitrogen dioxide (NO_2), expressed as nitrogen dioxide for incineration plants with a capacity exceeding 3 tonnes per hour	200 mg/m^3	400 mg/m^3
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2), expressed as nitrogen dioxide for incineration plants with a capacity of 3 tonnes per hour or less	300 mg/m^3	
Ammonia	10 mg/m^3	20 mg/m^3

Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.7
Maximum Limits for Exhaust Gas in Other Stationary Sources of Pollution, All the Average Values Over the Sample Period of a Minimum of 4 Hours and Maximum of 8 Hours

	Average Values over the Sample Period
Cadmium and its compounds, expressed as cadmium (Cd)	total 0.5 mg/m^3
Thallium and its compounds, expressed as thallium (Tl)	total 0.5 mg/m^4
Mercury and its Compounds, expressed as mercury (Hg)	0.05 mg/m^3
Antimony and its compounds, expressed as antimony (Sb)	total 0.5 mg/m^3
Arsenic and its compounds, expressed as arsenic (As)	total 0.5 mg/m^4
Lead and its compounds, expressed as lead (Pb)	total 0.5 mg/m^5
Chromium and its compounds, expressed as chromium (Cr)	total 0.5 mg/m^6
Cobalt and its compounds, expressed as cobalt (Co)	total 0.5 mg/m^7
Copper and its compounds, expressed as copper (Cu)	total 0.5 mg/m^8
Manganese and its compounds, expressed as manganese (Mn)	total 0.5 mg/m^9
Nickel and its compounds, expressed as nickel (Ni)	total 0.5 mg/m^{10}
Vanadium and its compounds, expressed as vanadium (V)	total 0.5 mg/m^{11}
Tin and its compounds, expressed as tin (Sn)	total 0.5 mg/m^{12}

Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.8
Emission Limits for Light Duty Vehicles Type Approval (Directive 91/1441/EEC)

CO (g/km)[1]	HC + Nox (g/km)[2]	PM (g/km)[3]
2.72	0.97	0.14

[1]Carbon Monoxide in gram per kilometer
[2]Hydrocarbons plus Nitrogen oxides in gram per kilometer
[3]Particulate matter in gram per kilometer; value for compression-ignition engines only

Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.9
Emission Limits for Light Commercial Vehicles Type Approval (Directive 93/59/EEC)

	Reference Weight (RW) (kg)	CO (g/km)[1]	HC + NOx (g/km)[2]	PM (g/km)[3]
Category 1	1250< RW	2.72	0.97	0.14
Category 2	1250< RW<1700	5.17	1.40	0.19
Category 3	RW>1700	6.90	1.70	0.25

[1]Carbon Monoxide in gram per kilometer
[2]Hydrocarbons plus Nitrogen oxides in gram per kilometer
[3]Particulate matter in gram per kilometer; value for compression-ignition engines only

Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.10
Emission Limits for Heavy Duty Vehicles Type Approval (Directive 91/542/EEC)

CO (g/k/Wh)	HC (g/k/Wh)	NOx (g/k/Wh)	PM (g/k/Wh)
4.5	1.1	8	0.36 [1]

[1] Carbon Monoxide in grams per kilowatt-hour
[2] Hydrocarbons in gram per kilowatt-hour
[3] Nitrogen oxides in gram per kilowatt-hour
[4] Particulate matter in gram per kilowatt-hour
[5] In the case of engines of 85 kW or less, the limit value for particular emissions in increased by multiplying the quoted limit by a coefficient of 1.7

Source: RA 8749 - Philippine Clean Air Act of 1999

Table 6.1.11
TYPE APPROVAL EMISSION LIMITS FOR PASSENGER VEHICLES (M) AND LIGHT DUTY VEHICLES (N1), EURO 2

Category/Class of Vehicle**		Reference Mass RW (kg)	Limit Values				
			Mass of Carbon Monoxide L_1 (g/km)		Combined Mass of Hydrocarbons and Oxides of Nitrogen L_2 (g/km)		Mass of Particulates L_3 (g/km)
Category	Class		Petrol	Diesel	Petrol	Diesel([1])	Diesel([1])
M([2])	-	all	2.20	1.0	0.5	0.7	0.08
N1([3])	I	RW ≤ 1,250	2.2	1.0	0.5	0.7	0.08
	II	1,250<RW≤1,700	4.0	1.25	0.6	1.0	0.12
	III	1,700<RW	5.0	1.5	0.7	1.2	0.17

([1]) Until 01 January 2011, for vehicles fitted with diesel engines of the direct injection type, the limit values L2 and L3 are the following:

		L_1	L_2
category M([2]) and N1([2]) class I		0.9	0.10
category N1([3]) class II	1.3	0.14	
category N1([3]) class III		1.6	0.20

([2]) Except:
-vehicles designed to carry more than six occupants including the driver

-vehicles whose maximum mass exceed 2,500 kg
([3]) And those category M vehicles which are specified in footnote ([2])

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

**For the purpose of this DAO, "vehicle category" refers to a classification of power-drive vehicles in accordance with PNS 1891

Table 6.1.12
EMISSION LIMITS FOR HEAVY DUTY VEHICLE TYPE APPROVAL (EURO II)

Type of Engine	Class of Vehicle	CO (g/kWh)	HC (g/kWh)	NOx (g/kWh)	PM (g/kWh)
Compression-ignition	Heavy Duty Vehicles	4.0	1.1	7.0	0.15

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.13
EMISSION STANDARDS FOR VEHICLES WITH SPARK-IGNITION ENGINES (GASOLINE)*, EXCEPT MOTORCYCLES**

Vehicle Registration	CO (% by Volume)	HC (ppm as Hexane)
Registered for the first time after December 31, 2007	0.5	250
Registered for the first time on or after January 1, 2003 but before January 1, 2008	3.5	600
Registered for the first time prior to December 31, 2002	4.5	800

*at idle **Subject to Sec.8, Validity of Certificate of Conforrmity (COC)
Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.14
EMISSION STANDARDS FOR VEHICLES WITH COMPRESSION-IGNITION ENGINES (DIESEL)*,**

Vehicle Registration	Light absorption coefficient
Registered for the first time after December 31, 2007	2
Registered for the first time on or after January 1, 2003 but before January 1, 2008	2.5
Registered for the first time prior to December 31, 2002	2.5 3.5 (turbocharged) 4.5 (1,000m increase in elevation)

*at idle **Subject to Sec.8, Validity of Certificate of Conforrmity (COC)

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.15 EMISSION STANDARDS FOR REBUILT AND IMPORTED USED VEHICLES

Vehicle Registration	CO[a] (% by Volume)	Hc[a] (ppm as Hexane)	Light absorption coefficient m-1, k (turbocharged)[b]
Registered for the first time after December 31, 2007	0.5	2.50	2.0

a - spark-ignition (gasoline) motor vehicles
b - for compression-ignition (diesel) motor vehicles
* applicable only to vehicles listed in Sec 3.1.1-3.1.5 of Executive Order 156

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.16
EMISSION LIMITS FOR MOTORCYCLE (L3)
LEVEL 1 WITH EFFECTIVITY TWO (2) YEARS AFTER THE APPROVAL DATE OF THIS ADMINISTRATIVE ORDER

Class (cc)	Emission Limits (g/km) for Type Approval and Conformity of Production		
	Carbon Monoxide (CO)	Hydrocarbons (HC)	Oxides of Nitrogen (NOx)
<150	5.5	1.2	0.3
>150	5.5	1	0.3

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.17
EMISSION LIMITS FOR MOTORTRICYCLE/TRICYCLE(L4)

Class (cc)	Emission Limits (g/km) for Type Approval and Conformity of Production		
	Carbon Monoxide (CO)	Hydrocarbons (HC)	Oxides of Nitrogen (NOx)
All	7	1.5	0.4

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.18
EMISSION LIMITS FOR MOTORCYCLE (L3)
LEVEL 2 WITH EFFECTIVITY THREE (3) YEARS AFTER THE EFFECTIVITY OF LEVEL 1

Class (cc)	Emission Limits (g/km)		
	Carbon Monoxide (CO)	Hydrocarbons (HC)	Oxides of Nitrogen (NOx)
<150 (UDC cold)[1]	2.0	0.8	0.15
>150 (UDC + EUD cold) [2]	2.0	0.3	0.15

[1] Test cycle: ECE* R40 (emission measured for all six modes - sampling starts at T=0)
[2] Test cycle: ECE* R40 + EIDC** (emissions measure from all modes - sampling starts at T=0, with the maximum speed of 120km/h)
*Economic Commission for Europe
**Extra Urban Driving Cycle

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.19
EMISSION LIMITS FOR MOPED (L1)

Effectivity	Emission Limits (g/km) for Type Approval and Conformity of Production	
	Carbon Monoxide (CO)	Hydrocarbons + Oxides of Nitrogen
Level 1 - Two (2) years after the approval of this DAO	6 (1)	3 (1)
Level 2 - Three (3) years after the implementations of Level 1	1 (2)	1.2

(1) The limit values for the masses of CO and HC+NOx are multiplied by a factor of 2 in the case of three-wheel mopeds;
(2) The limit for the mass of CO must be 3.5 g/km in case of three-wheel mopeds

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.20
EMISSION LIMITS FOR IN-USE MOTORCYCLE/TRICYCLE AND MOPED

Vehicle Registration Date	Emission Standards		
	Carbon Monoxide (% by vol.)	Hydrocarbon (ppm)	White smoke (% opacity)
Registered for the first time prior to January 1, 2003	6	6,500	30
Registered for the first time from January 1, 2003 up to December 31, 2011	4.5	6,500	30
Registered for the first time on or after January 1, 2012	3.5	4,500	30

Source: Department of Environment and Natural Resources Administrative Order No. 2010-23

Table 6.1.21
THE PROVISIONAL NATIONAL AMBIENT AIR QUALITY GUIDELINE VALUES (NAAQGV) FOR PM2.5

Pollutant	Short-term(1)		Long-term(2)		Implementation Period
	µg/Ncu.m.	Averaging time	µg/Ncu.m.	Averaging time	
$PM_{2.5}$	75(3)	24 hours	35(3)	1 Year	Upon effectivity date of the DAO until 31 December 2015
	50(3)	24 hours	25(3)	1 Year	01 January 2016

(1) Maximum limits represented by ninety eight percentile (98%) values not to be exceeded more than once a year
(2) Annual Geometric Mean
(3) These are provisional guideline values and shall be reviewed yearly to determine the course of action required of the next step

Source: Department of Environment and Natural Resources Administrative Order 2013-13

Table 6.1.22
STANDARD PARAMETERS AND VALUES FOR DRINKING-WATER QUALITY
STANDARD VALUES FOR BACTERIOLOGICAL QUALITY

Source and Mode of Supply		Bacteria		Standard Value (No./100mL)
a.	All drinking-water supplies under all circumstances (Level I, II, III, Bottled water and Emergency Water Supplies)	E.	Coli or Thermotolerant (fecal) coliform bacteria	0
b.	Treated water entering distribution system	E.	Coli or Thermotolerant (fecal) coliform bacteria	0
			Total coliforms	0
c.	cTreated water in the distribution system	E.	E. Coli or Thermotolerant (fecal) coliform bacteria	0
			Total coliforms	Must not be detecatable in any 100ml sample. In case of large supplies where sufficient samples are examined, it must not be present in 95% of samples taken throughout any twelve month period

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

Table 6.1.23
STANDARD PARAMETERS AND VALUES FOR DRINKING-WATER QUALITY
STANDARD VALUE FOR BIOLOGICAL ORGANISMS

Constituents	Permissibe Limit
Total Count/mL	10

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

Table 6.1.24
STANDARD PARAMETERS AND VALUES FOR DRINKING-WATER QUALITY
STANDARD VALUES FOR PHYSICAL AND CHEMICAL QUALITY: HEALTH SIGNIFICANCE

A. Inorganic Constituents

Constituents	Maximum Level (mg/L)
Antimony	0.005
Arsenic	0.01
Barium	0.7
Boron	0.3
Cadmium	0.003
Chromium	0.05
Cyanide	0.07
Fluoride	1
Lead	0.01
Mercury (total)	0.001
Nitrate as NO3	50
Nitrate as NO2	3
Selenium	0.01

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

B. Organic Constituents (Pesticides)

Constituents	Maximum Level (mg/L)
Aldrin & Dieldrin	0.03
Chlordane	0.2
DDT	2
Endrin	0.2
Heptachlor and Heptachlor epoxide	0.03
Lindane	2
Methoxychlor	20
Petroleum oils & grease	nil
Toxyphane	5
2,4 - D	30
2,4,5 - T	9

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

Table 6.1.25
STANDARD PARAMETERS AND VALUES FOR DRINKING-WATER QUALITY
STANDARD VALUES FOR PHYSICAL AND CHEMICAL QUALITY: HEALTH SIGNIFICANCE

Constituent or Characteristic	Maximum Level (mg/L)
Taste	Unobjectionable
Odor	Unobjectionable
Color	5 TCU
Turbidity	5NTU
Aluminum	0.2
Chloride	250
Copper	1
Hardness	300 (as CaCo3)*
Hydrogen Sulfide	0.05
Iron	1
Manganese	0.5
pH	6.5-8.5
Sodium	200*
Sulfate	250
Total Dissolved Solids	500
Zinc	5*

*Secondary standards: compliance with the standard and analysis are not obligatory

TCU True Color Unit NTU Nephelometric Turbidity Unit

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

Table 6.1.26
STANDARD PARAMETERS AND VALUES FOR DRINKING-WATER QUALITY
STANDARD VALUES FOR DISINFECTANTS AND DISINFECTANT BY-PRODUCTS

Constituents	Maximum Level (mg/L)
a. Disinfectant Chlorine (residual)	0.2-0.5
b. Disinfectant By-products	
Bromate	0.025
Chlorite	0.2
2,4,6 tricholorophenol	0.2
Formaldehyde	0.9
Phenolic substances	0.001
Bromoform	0.1
Dibromochloromethane	0.1
Bromodichloromethane	0.06
Chloroform	0.2

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

Table 6.1.27
STANDARD PARAMETERS AND VALUES FOR DRINKING-WATER QUALITY CHEMICALS OF NO HEALTH SIGNIFICANCE AT CONCENTRATIONS NORMALLY FOUND IN DRINKING WATER

Asbestors	In consonance with the findings of WHO, the Department of Health does not prescribe any standard values for these compounds since they are not hazardous to human health at concentrations normally found in drinking-water.
Silver	
Tin	

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

Table 6.1.28
STANDARD PARAMETERS AND VALUES FOR DRINKING-WATER QUALITY STANDARD VALUES FOR RADIOLOGICAL CONSTITUENTS

Constituents	Activity Level (Bq/L)
gross alpha activity	0.1
gross beta activity	1

Source: Department of Environment and Natural Resources Administrative Order 26-A Series of 1994

Table 6.1.29
VEHICLE EMISSION LIMITS FOR EURO 4/IV, AND IN-USE VEHICLE EMISSION STANDARDS

Types of Vehicles	Emission Limits/Standards		
	Category/Class of Vehicle		Reference Mass RW (kg)
	Category	Class	
a.1) New passenger vehicles, M and light duty, N1 with Euro 2/Euro 3 engines	M (1)	-	all
	N1 (2)	I	RW≤1,250
		II	1,250<RW≤1,700
		III	1,700<RW
a.2) New passenger vehicles, M and light duty, N1 with Euro 4 engines	Euro 4		
b.1) New heavy duty vehicles with Euro II/Euro III engines	**CO (g/kWh)**		**HC (g/kWh)**
	2.45		0.73
b.2) New heavy duty vehicles with Euro IV engines	Euro IV		
c.1) New motorcycles, tricycles and mopeds with Euro 2 engines	**Class (cc)**		**CO (g/km)**
	<150 cc. (1.3)		4.5 (5.0)
	≥150 cc. (1.3)		4.5 (5.0)
	All (L4)		6.5
c.2) New motorcycles, tricycles and mopeds with Euro 2 engines	Euro 3		
	CO (% by vol.) At idling		
d) In-use, rebuilt and imported used passanger cars light duty and heavy duty vehicles	'0.25 [registered for the first time on or after July 1, 2017] 0.5 [registered for the first time after December 31, 2007] 3.5 [registered for the first time on or before December 31, 2007]		
f) In-use motorcycles, tricycles and mopeds	2.5 [registered for the first time on or after July 1, 2017]		
	3.5 [registered for the first time on or after Januay 1, 2012]		
	4.5 [registererd for the first time before January 1, 2012]		

Source: Department of Environment and Natural Resources Administrative Order No. 2015-04, effective July 1, 2015

CO (g/km)		HC + NOx (g/km)		Particulate (PM) (g/km)	
Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
2.0	0.9	0.3	0.6	-	0.05
2.0	0.9	0.3	0.6	-	0.05
3.0	1.2	0.4	0.8	-	0.10
4.0	1.4	0.5	1.0	-	0.15

NOx (g/kWh)	PM (g/kWh)
6.9	0.14

HC(g/km)	NOx(g/km)
0.80 (1.1)	0.20 (.29)
0.70 (0.9)	0.20 (.29)
1.0	0.39
HC(ppm) At idling	Light Absorption Coefficient, m-1 At free acceleration
100 [registered for the first ime on or after July 1, 2017] 250 [registered for the first time after December 31, 2007] 600 [registered for the first time on or before December 31, 2007]	1.0 [registered for the first ime on or after July 1, 2017] 2.0 [registered for the first time after December 31, 2015] 2.5 [registered for the first time on or before December 31, 2015]
1,000 [registered for the first time on or after July 1, 2017]	20% smoke opacity
4,500 [registered for the first time on or after Januay 1, 2012]	30% smoke opacity
6,000 [registererd for the first time before January 1, 2012]	30% smoke opacity

Source: Department of Environment and Natural Resources Administrative Order No. 2015-04, effective July 1, 2015

Table 6.1.30
WATER QUALITY GUIDELINES FOR PRIMARY PARAMETERS

Parameter	Unit	Water Body Classification								
		AA	A	B	C	D	SA	SB	SC	SD
BOD	mg/L	1	3	5	7	15	n/a	n/a	n/a	n/a
Chloride	mg/L	250	250	250	350	400	n/a	n/a	n/a	n/a
Color	TCU	5	50	50	75	150	5	50	75	150
Dissolved Oxygen[(a)] (Minimum)	mg/L	5	5	5	5	2	6	6	5	2
Fecal Coliform	MPN/100mL	<1.1	<1.1	100	200	400	<1.1	100	200	400
Mitrate as NO_3-N	mg/L	7	7	7	7	15	10	10	10	15
pH (range)		6.5-8.5	6.5-8.5	6.5-8.5	6.5-9.0	6.0-9.0	7.0-8.5	7.0-8.5	6.5-8.5	6.0-9.0
Phosphate	mg/L	<0.003	0.5	0.5	0.5	5	0.1	0.5	0.5	5
Temperature[(b)]	°C	26-30	26-30	26-30	25-31	25-32	26-30	26-30	25-31	25-32
Total Suspended Solids	mg/L	25	50	65	80	110	25	50	80	110

Notes:
MPN/100mL - Most Probable Number per 100 milliliter
n/a - Not Applicable
TCU - True Color Unit
[(a)] Samples shall be taken from 9:00 AM to 4:00 PM
[(b)] The natural background temperature as determined by EMB shall prevail if the temperature is lower or higher than the WQG; provided that the maximum increase in only up to 10 percent and that it will nto cause any risk to human health and the environment
Source: Department of Environment and Natural Resources Administrative Order No. 2016-08

Table 6.1.31
WATER QUALITY GUIDELINES FOR SECONDARY PARAMETERS-INORGANICS

Parameter	Unit	Water Body Classification								
		AA	A	B	C	D	SA	SB	SC	SD
Ammonia as NH_3-N	mg/L	0.05	0.05	0.05	0.05	0.75	0.04	0.05	0.05	0.75
Boron	mg/L	0.5	0.5	0.5	0.75	3	0.5	0.5	5	20
Fluoride	mg/L	1	1	1	1	2	1.5	1.5	1.5	3
Selenium	mg/L	0.01	0.01	0.01	0.02	0.04	0.01	0.01	0.1	0.2
Sulfate	mg/L	250	250	250	275	500	250	250	275	500

Source: Department of Environment and Natural Resources Administrative Order No. 2016-08

Table 6.1.32
WATER QUALITY GUIDELINES FOR SECONDARY PARAMETERS-METALS(C)

Parameter	Unit	Water Body Classification								
		AA	A	B	C	D	SA	SB	SC	SD
Arsenic	mg/L	0.01	0.01	0.01	0.02	0.04	0.01	0.01	0.02	0.04
Barium	mg/L	0.7	0.7	0.7	3	4	0.1	0.7	1	4
Cadmium	mg/L	0.003	0.003	0.003	0.005	0.01	0.003	0.003	0.005	0.01
Chromium as Hexavalent Chromium (Cr^{6+})	mg/L	0.01	0.01	0.01	0.01	0.02	0.05	0.05	0.05	0.1
Copper as Dissolved Copper	mg/L	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.04
Iron	mg/L	1	1	1	1.5	7.5	1.5	1.5	1.5	7.5
Lead	mg/L	0.01	0.01	0.01	0.05	0.1	0.01	0.01	0.05	0.1
Manganese	mg/L	0.2	0.2	0.2	0.2	2	0.4	0.4	0.4	4
Mercury	mg/L	0.001	0.001	0.001	0.002	0.004	0.001	0.001	0.002	0.004
Nickel	mg/L	0.02	0.02	0.04	0.2	1	0.02	0.04	0.06	0.3
Zinc	mg/L	2	2	2	2	4	0.04	0.05	0.8	1.5

Notes:
[c]Unless otherwise specified, the above parameters are expressed as total metals.
Source: Department of Environment and Natural Resources Administrative Order No. 2016-08

Table 6.1.33
WATER QUALITY GUIDELINES FOR SECONDARY PARAMETERS-ORGANICS

Parameter	Unit	Water Body Classification								
		AA	A	B	C	D	SA	SB	SC	SD
Benzo(a)pyrene	µg/L	0.7	0.7	0.7	1.5	3	0.7	0.7	1.5	3
BTEX										
Benzene	mg/L	0.01	0.01	0.01	0.05	0.5	0.01	0.01	0.05	0.5
Toleune	mg/L	0.7	0.7	1	4	5	1	1	4	5
Ethylbenzene	mg/L	0.3	0.3	0.3	1.5	2	0.2	0.2	1.5	2
Xlenes	mg/L	0.5	0.5	0.5	1.5	1.8	0.5	0.5	1.5	1.8
Cyanide as Free Cyanide	mg/L	0.07	0.07	0.07	0.1	0.2	0.02	0.02	0.1	0.2
Organophosphate as Malathion	mg/L	1	1	1	3	6	1	1	3	6
Oil and Grease	mg/L	<1	1	1	2	5	1	2	3	5
Polychlorinated Biphenyls(d)	µg/L	<0.1	<0.1	0.2	0.5	1	0.3	0.3	0.5	1
Phenol & Phenolic Substances(e)	mg/L	<0.001	<0.001	<0.001	0.05	0.5	<0.001	<0.001	0.05	0.5
Surfactants (MBAS)	mg/L	<0.025	0.2	0.3	1.5	3	0.3	0.3	1.5	3
Trichloroethylene	mg/L	0.07	0.07	0.07	0.9	2	0.07	0.07	0.9	2
Total Organochlorine Pesticides(f)	µg/L	n/a	n/a	50	50	50	50	50	50	50
Aldrin	µg/L	0.03	0.03	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Chlordane	µg/L	0.2	0.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dichlorodiphenyltri-chloroethane	µg/L	1	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dieldrin	µg/L	0.03	0.03	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Endrin	µg/L	0.6	0.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Heptachlor	µg/L	0.03	0.03	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lindane	µg/L	2	2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Methoxychlor	µg/L	50	50	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Toxaphene	µg/L	4	4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
CAS-Chemical Abstracts Service
IUPAC-International Union of Pure and Applied Chemistry
MBAS - Methylene Blue Active Substances
µg/L - microgram per liter

(d) Polychlorinated Biphenyls (PCBs) include the nine Aroclors and 19 individuals PCB congeners described belo

Compound	CAS#	IUPAC#
Aroclor 1016	12674-11-2	
Aroclor 1221	11104-28-2	
Aroclor 1232	11141-16-5	
Aroclor 1242	53469-21-9	
Aroclor 1248	12672-29-6	
Aroclor 1254	11097-69-1	
Aroclor 1260	11096-82-5	
Aroclor 1262	37324-23-5	
Aroclor 1268	11100-14-4	
2-Chlorobiphenyl	2051-60-7	1
2,3-Dichlorobiphenyl	16605-91-7	5
2,2',5-Trichlorobiphenyl	37680-65-2	18
2,4',5-Trichlorobiphenyl	16606-02-3	31
2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	44
2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	52
2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	66
2,2',3,4,5'-Pentachlorobiphenyl	38380-02-8	87
2,2',4,4,5'-Pentachlorobiphenyl	37680-73-2	101
2,3,3',4',6-Pentachlorobiphenyl	38380-03-9	110
2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	138
2,2',3,4,5,5'-Hexachlorobiphenyl	52712-04-6	141
2,2',3,5,5',6-Hexachlorobiphenyl	52663-63-5	151
2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	153
2,2',3,3',4,4',5,5'-Heptachlorobiphenyl	35065-30-6	170
2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	180
2,2',3,4,4',5',6-Heptachlorobiphenyl	52663-69-1	183
2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	187
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	206

(e) Phenols include 2-chlorophenol, 2,4-dichlorophenol, and 2,4,6-trichlorophenol.
(f) When monitoring for Class AA and A waters, the individual organochlorine pesticides shall be monitored. For Class B, C, D, SA, SB, SC and SDD; Total Organochlorine Pesticides shall be monitored, which refers to the organochlorine pesticides listed in Table 0-6 plus Benzene Hexachloride (BHC) (α,β,δ,γ), 4,4' Dichlorodiphenyldichloroethane (DDD), 4,4' Dichlorodiphenyldichloroethylene (DDE), Endosulfan (I,II, and sulfate).

Source: Department of Environment and Natural Resources Administrative Order No. 2016-08

Table 6.1.34
GROUNDWATER QUALITY GUIDELINES

Intended Beneficial Use	Groundwater Quality Guidelines
Source of Potable Water and Other Domestic Use	Adopt Class A WQG (except BOD and Dissolved Oxygen)
Bathing and Other Primary Contact Recreation	Adopt Class B WQG (except BOD and Dissolved Oxygen)
Irrigation, Fish Culture, Livestock Watering	Adopt Class C WQG (except BOD, Dissolved Oxygen and Total Suspended Solids)

Source: Department of Environment and Natural Resources Administrative Order No. 2016-08

Table 6.2
LIST AND DESCRIPTION OF MULTILATERAL ENVIRONMENTAL AGREEMENTS AND OTHER GLOBAL ENVIRONMENTAL CONVENTIONS

Multilateral Environmental Agreements/ Global Environmental Conventions	Basic Objective	Date of Signature, Ratification/Approval/ Accession/Adoption, and Entry into Force
United Nations Environment Assembly (UNEA)	Currently, the UNEA serves as the world's highest leading environmental authority for the global environmental agenda. During the first UNEA, Ministers and Heads of Delegation commit to ensure the full integration of the environmental dimension, especially throughout the sustainable development agenda; promote sustainable consumption and production patterns; prevent, combat and eradicate the illegal trade in wildlife and wildlife products; address climate change; halt biodiversity loss and combat desertification; and ensure the full implementation of Multilateral Environmental Agreements and other international and regional environmental commitments.*	First assembly: 23-27 June 2014 Second assembly: 04-06 December 2016
Putrajaya Declaration of Regional Cooperation for the Sustainable Development of the Seas of East Asia	The Putrajaya Declaration of Regional Cooperation for the Sustainable Development of the Seas of East Asia represents a paradigm shift in management approach that focuses on the interactions between environment and development and addresses issues and impacts across sectoral, administrative, and legal boundaries that are constraints and bottlenecks for sustainable development in the East Asian Seas Region.[2]	Date of signature: 12 December 2013
Convention on Nuclear Safety	The Convention on Nuclear Safety is an incentive-based instrument that commits States operating nuclear power plants to establish and maintain a regulatory framework to govern the safety of nuclear installations.[3]	Date of signature: 14 October 2013
Minamata Convention	The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury.*	Date of signature: 10 October 2013
Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter, or London Convention	The Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter contributes to the international control and prevention of marine pollution by prohibiting the dumping of certain hazardous materials.[4]	Date of accession: 09 May 2012 Date of entry into force: 08 June 2012
ASEAN Cooperation Plan on Transboundary Pollution	The ASEAN Cooperation Plan on Transboundary Pollution aims to prevent and monitor transboundary haze pollution as a result of land and/or forest fires which should be mitigated, through concerted national efforts and intensified regional and international co-operation.[5]	Date of ratification/ approval: 01 February 2010 Date of deposit of instrument of ratification/ approval with the Secretary General of ASEAN: 04 March 2010
Convention on Cluster Munitions	The Convention on Cluster Munitions is an international treaty that addresses the humanitarian consequences and unacceptable harm to civilians caused by cluster munitions, through a categorical prohibition and a framework for action.[6]	Date of signature: 03 December 2008
International Treaty on Plant Genetic Resources for Food and Agriculture	The International Treaty on Plant Genetic Resources for Food and Agriculture seeks to ensure that plant genetic resources of economic and/or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and scientific purposes.[7]	Date of accession: 28 September 2006
Rotterdam	The objective of this Convention is to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties.*	Date of ratification: 31 July 2006 Date of entry into force: 29 October 2006

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Multilateral Environmental Agreements/ Global Environmental Conventions	Basic Objective	Date of Signature, Ratification/Approval/ Accession/Adoption, and Entry into Force
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	The Montreal Protocol on Substances that Deplete the Ozone Layer was designed to reduce the production and consumption of ozone depleting substances in order to reduce their abundance in the atmosphere, and thereby protect the earth's fragile ozone layer.*	Date of ratification: 23 May 2006
International Convention for the Prevention of Pollution from Ships, or MARPOL	The International Convention for the Prevention of Pollution from Ships is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.[8]	Date of deposit of instrument: 15 June 2001 Date of entry into force: 15 September 2001
Stockholm Convention	The objective of the Stockholm Convention is to protect human health and the environment from persistent organic pollutants.*	Date of adoption: 23 May 2001 Date of ratification: 27 February 2004 Dateof entry into force: 27 May 2004
Cartagena Protocol on Biosafety	The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international treaty governing the movements of living modified organisms resulting from modern biotechnology from one country to another. It was adopted on 29 January 2000 as a supplementary agreement to the Convention on Biological Diversity and entered into force on 11 September 2003.[9]	"Date of signature: 25 May 2000 Date of ratification: 05 October 2006 Date of entry into force: 03 January 2007"
United Nations Forum on Forests (UNFF)	The main objective of the UNFF is to promote the management, conservation and sustainable development of all types of forests and strengthen long-term political commitment.*	Year of establishment: 2000
Hanoi Plan of Action	The Hanoi Action Plan aims to strengthen ASEAN's cooperation and joint approaches in addressing issues and problems affecting trade in the region's food, agriculture and forestry products including environment and labour issues.[10]	Date of adoption: 15 December 1998
Kyoto Protocol	The objective of the Kyoto Protocol is to reduce global greenhouse gas emissions by at least 5% in comparison to the base year of 1990, during the commitment period from 2008 to 2012.*	Date adopted: 11 December 1997 Date of signature: April 1998 Date of ratification: 20 November 2003 Date of entry into force: 16 February 2005 First Commitment Period: 2008-2012 Second commitment period: 2013-2020

Table 6.2
LIST AND DESCRIPTION OF MULTILATERAL ENVIRONMENTAL AGREEMENTS AND OTHER GLOBAL ENVIRONMENTAL CONVENTIONS

Multilateral Environmental Agreements/ Global Environmental Conventions	Basic Objective	Date of Signature, Ratification/Approval/ Accession/Adoption, and Entry into Force
Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, or Assistance Convention	The Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency sets out an international framework for cooperation among States Parties and with the International Atomic Energy Agency to facilitate prompt assistance and support in the event of nuclear accidents or radiological emergencies.[11]	Date of accession: 05 May 1997 Date of entry into force: 05 June 1997
Convention on Early Notification of a Nuclear Accident, or Notification Convention	The Convention on Early Notification of a Nuclear Accident establishes a notification system for nuclear accidents which have the potential for international transboundary release that could be of radiological safety significance for another State.[12]	Date of deposit: 05 May 1997 Date of entry into force: 05 June 1997
Comprehensive Test Ban Treaty	The Comprehensive Test Ban Treaty aims to achieve the discontinuance of all test explosions of nuclear weapons for all time, to continue negotiations to this end, and to put an end to the contamination of man's environment by radioactive substances.[13]	Date of signature: 24 September 1996 Date of ratification: 23 February 2001
Convention to Combat Desertification	The Convention to Combat Desertification is the sole legally binding international agreement linking environment and development to sustainable land management. CCD addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.[14]	Date of signature: 08 December 1994 Date of ratification: 10 February 2000
Convention on Wetlands of International Importance, or Ramsar Convention	The Ramsar Convention on Wetlands of International Importance is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.[15]	Date of entry into force: 08 November 1994
Convention on the Conservation of Migratory Species of Wild Animals, or Bonn Convention	The Convention on the Conservation of Migratory Species of Wild Animals provides a global platform for the conservation and sustainable use of migratory animals and their habitats. CMS brings together the States through which migratory animals pass, the Range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range.[16]	Date of ratification: 01 February 1994
Basel Convention	Below are the objectives of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal:* -Effective implementation of parties' obligations on transboundary movements of hazardous and other wastes - Strengthening the environmentally sound management of hazardous and other wastes - Strengthening the environmentally sound management of hazardous and other wastesx	Date of ratification: 21 October 1993 Date of entry into force: 19 January 1994
Chemical Weapons Convention	The Chemical Weapons Convention aims to eliminate an entire category of weapons of mass destruction by prohibiting the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons by States Parties. States Parties, in turn, must take the steps necessary to enforce that prohibition in respect of persons (natural or legal) within their jurisdiction.[17]	Date of signature: 13 January 1993 Date of ratification: 11 December 1996 Date of entry into force: 29 April 1997
Convention on Biological Diversity	The Convention on Biological Diversity entered into force on 29 December 1993. It has three main objectives: (1) the conservation of biological diversity; (2) the sustainable use of the components of biological diversity; and (3) the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.[18]	Date of signature: 12 June 1992 Date of ratification: 08 October 1993

Table 6.2
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Multilateral Environmental Agreements/ Global Environmental Conventions	Basic Objective	Date of Signature, Ratification/Approval/ Accession/Adoption, and Entry into Force
United Nations Framework Convention on Climate Change (UNFCC)	The ultimate objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." It states that "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.*	Date of adoption: 09 May 1992 Date of entry into force: 31 October 1994 Date of ratification: 02 August 1994
Vienna Convention for the Protection of the Ozone Layer	The Convention aims for Parties to promote cooperation via systematic observations, research and information exchange on the effects of human activities on the ozone layer and to adopt legislative or administrative measures to deal with activities likely to have adverse effects on the ozone layer. Legally binding reduction goals for the use of Chlorofluorocarbons (CFCs) for the Vienna Convention are laid out in the accompanying Montreal Protocol.*	Year of adoption: 1985 Date of ratification: 19 July 1991
Kuala Lumpur Accord on Environment and Development	The Kuala Lumpur Accord on Environment and Development aims to initiate efforts leading towards concrete steps pertaining to environmental management and natural resource management, and to initiate efforts enabling the inclusion of environmental factors into economic calculations and thus providing a better base for international economic cooperation.[19]	Year of adoption: 1985 Date of signature: 19 June 1990
Montreal Protocol	The Montreal Protocol on Substances that Deplete the Ozone Layer was designed to reduce the production and consumption of ozone depleting substances in order to reduce their abundance in the atmosphere, and thereby protect the earth's fragile ozone Layer.*	Date of adoption: 16 September 1987 Date of ratification: 17 July 1991
International Tropical Timber Organization (ITTO)	The International Tropical Timber Agreement (ITTA) was negotiated to provide an effective framework for cooperation and consultation between countries producing and consuming tropical timber, and promote and support research and development to improve forest management and wood utilization.*	Year of establishment: 1983
United Nations Convention on the Law of the Sea	The United Nations Convention on the Law of the Sea is the most comprehensive attempt at creating a unified regime for governance of the rights of nations with respect to the world's oceans. The treaty addresses a number of topics including navigational rights, economic rights, pollution of the seas, conservation of marine life, scientific exploration, and piracy.	Date of signature: 10 December 1982 Date of ratification: 08 May 1984
Convention on the International Trade in Endangered Species of Wild Flora and Fauna	The Convention on International Trade in Endangered Species of Wild Fauna and Flora is an international agreement between governments that aims is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.[21]	Date of ratification: 18 August 1981 Date of entry into force: 16 November 1981
Convention on Certain Conventional Weapons	The purpose of the Convention on Certain Conventional Weapons is to ban or restrict the use of specific types of weapons that are considered to cause unnecessary or unjustifiable suffering to combatants or to affect civilians indiscriminately.[22]	Date of signature: 15 May 1981 Date of ratification: 15 July 1996
Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare, or Geneva Protocol	The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare prohibits the use in war of asphyxiating, poisonous, or other gases, and of bacteriological methods of warfare.[23]	Date of accession: 08 June 1973

Table 6.2
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Multilateral Environmental Agreements/ Global Environmental Conventions	Basic Objective	Date of Signature, Ratification/Approval/ Accession/Adoption, and Entry into Force
Biological Weapons Convention, or Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological [Biological] and Toxin Weapons and on their Destruction	The Biological Weapons Convention was the first multilateral disarmament treaty to ban the production and use of an entire category of weapons. It entered into force on 26 March 1975.[24]	Date of ratification: 21 June 1972 Date of deposition: 23 May 1973
FAO Committee on Forestry (COFO)	The Food and Agriculture Organization of the United Nations created the Committee on Forestry (COFO) as one of its governing bodies to fulfill its goal of providing food security for everyone. It gathers 138 countries in biennial session at the FAO Headquarters in Rome, Italy. It brings together senior government officials and heads of different forest services to review international forestry problems, identify emerging policy and technical issues, provide possible solutions, and advise FAO on appropriate action.*	First session: May 1972
Convention on Civil Liability for Nuclear Damage	The Convention on Civil Liability for Nuclear Damage provides for absolute liability for nuclear damage; that is, liability for nuclear damage is incurred regardless of whether the operator was or was not at fault or responsible for the damage.[25]	Date of signature: 21 May 1963 Date of ratification: 15 November 1965 Date of entry into force: 12 November 1977
International Hydrographic Organization (IHO)	The International Hydrographic Organization (IHO) is an intergovernmental consultative and technical organization established to support safety of navigation and the protection of the marine environment. It aims to coordinate activities of national hydrographic offices to ensure uniform nautical charts and documents, promote adoption of reliable and efficient methods of carrying out and exploiting hydrographic surveys and develop the sciences in the field of hydrography and the techniques employed in descriptive oceanography.*	Year of establishment: 1921 Year of enter into force: 1970

Sources:
*Department of Environment and Natural Resources
[2] http://www.pemsea.org/sites/default/files/putrajaya-declaration.pdf
[3] http://www.nti.org/treaties-and-regimes/convention-nuclear-safety/
[4] http://www.imo.org/About/Conventions/ListOfConventions/Pages/Convention-on-the-Prevention-of-Marine-Pollution-by-Dumping-of-Wastes-and-Other-Matter.aspx
[5] http://haze.asean.org/?wpfb_dl=32
[6] http://www.clusterconvention.org/
[7] http://www.fao.org/waicent/faoinfo/agricult/cgrfa/IU.htm
[8] http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx
[9] http://bch.cbd.int/protocol/background/
[10] http://www.asean.org/news/item/hanoi-plan-of-action
[11] http://www.iaea.org/publications/documents/treaties/convention-assistance-case-nuclear-accident-or-radiological-emergency
[12] http://www.iaea.org/publications/documents/treaties/convention-early-notification-nuclear-accident
[13] http://disarmament.un.org/treaties/t/test_ban/text
[14] http://www.unccd.int/en/about-the-convention/Pages/About-the-Convention.aspx
[15] http://www.ramsar.org/
[16] http://www.cms.int/en/legalinstrument/cms
[17] http://www.opcw.org/chemical-weapons-convention/
[18] http://www.cbd.int/intro/default.shtml
[19] http://environment.asean.org/the-kuala-lumpur-accord-on-environment-and-development-issued-by-the-asean-ministers-for-the-environment-at-the-fourth-asean-ministers-for-the-environment-meeting/
[21] http://cites.org/eng/disc/what.php
[22] http://www.unog.ch/80256EE600585943/(httpPages)/4F0DEF093B4860B4C1257180004B1B30
[23] http://www.un.org/disarmament/WMD/Bio/pdf/Status_Protocol.pdf
[24] http://www.unog.ch/80256EE600585943/(httpPages)/04FBBDD6315AC720C1257180004B1B2F
[25] http://www.iaea.org/publications/documents/conventions/vienna-convention-on-civil-liability-for-nuclear-damage

Core Set (Tier 1) of Environment Statistics

Tier 1 is the Core Set of Environment Statistics which represents a broad consensus of opinion on the pertinence and feasibility of these statistics; as such, it is intended to foster collection, coordination and harmonization of environment statistics at the national, regional and international levels. The objective of the Core Set is to serve as an agreed, limited set of environment statistics that are of high priority and relevance to most countries.

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Component 1: Environmental Conditions and Quality				
Sub-component 1.1: Physical Conditions				
Topic 1.1.1: Atmosphere, climate and weather	a. Temperature		• National • Subnational	• World Meteorological Organization (WMO) • Intergovernmental Panel on Climate Change (IPCC) • National Oceanic and Atmospheric Administration (NOAA)/National Aeronautics and Space Administration (NASA)
	1. Monthly average	Degrees		
	2. Minimum monthly average	Degrees		
	3. Maximum monthly average	Degrees		
	b. Precipitation (also in 2.6.1.a)			
	1. Annual average	Height		
	2. Long-term annual average	Height		
Topic 1.1.2: Hydrographical characteristics	d. Watersheds		• By location • By watershed/ river basin • National • Subnational	• United Nations Statistics Division (UNSD): • International Recommendations for Water Statistics (IRWS) • • UN-Water
	1. Description of main watersheds	Area, description		
Topic 1.1.3: Geological and geographical information	a. Geological, geographical and geomorphological conditions of terrestrial areas and islands		• National • By location	• UNSD: Demographic Yearbook • Food and Agriculture Organization of the United Nations (FAO) • Center of International Earth Science Information Network (CIESIN)
	1. Area of country or region	Area, location		
	b. Coastal Waters (including area of coral reefs and mangroves)	Area, description		
	c. Length of marine coastline	Length		
	d. Coastal area	Area		
Topic 1.1.4: Soil characteristics	a. Soil characterization	Area	• By location • By soil type • National • Subnational	• FAO and the International Institute for Applied Systems Analysis (IIASA) Harmonized World Soil Database • International Soil Reference and Information Centre (ISRIC) World Data Centre for Soils • United Nations Convention to Combat Desertification (UNCCD) • FAO Global Assessment of Human-induced Soil Degradation (GLASOD)
	1. Area by soil types			
	b. Soil degradation	Area		
	1. Area affected by soil erosion	Area		
	2. Area affected by desertification			

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Sub-component 1.2: Land Cover, Ecosystems and Biodiversity				
Topic 1.2.1: Land cover	**a. Area under land cover categories**	Area	• By location • By type of land cover (e.r., artificial surfaces, including urban and associated areas; herbaceous crops; woody crops; multiple or layered crops; grassland; tree-covered areas; mangroves; shrub-covered areas; shrubs and/or herbaceous vegetation, aquatic or regularly flooded; sparsely natural vegetated areas; terrestrial barren land; permanent snow and glaciers; inland water bodies; and coastal water bodies and inter tidal areas) • National • Subnational	• FAO Land Cover Classification System • System of Environmental-Economic Accounting (SEEA) Central Framework (2012) land cover categories • European Environment Agency (EEA)
Topic 1.2.2: Ecosystems and biodiversity	a. General ecosystem characteristics, extent and pattern		• By ecosystem (e.g., forest, cultivated, dryland, coastal, marine, urban, polar, inland water, island, mountain) • By status category (e.g., extinct, extinct in the wild, threatened, near threatened, least concern) • By class (e.g., mammals, fishes, birds, reptiles • National • Subnational • By location	
	1. Area of ecosystems	Area		
	b. Biodiversity			
	1. Known flora and fauna species	Number		
	b. Protected areas and species			
	1. Protected terrestrial and marine area (also in 1.2.3.a)	Number, area		

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
1 Sub-component.2: Land Cover, Ecosystems and Biodiversity				
Topic 1.2.3: Forests	a. Forest area **b. Total**	Area	• By forest type • National • Subnational • By dominant tree species • By ownership category	• FAO Global Forest Resources Assessment (FRA) • UN Forum on Forests (UNFF) Monitoring, Assessment and Reporting (MAR) • UNSD: MDG Indicator 7.1 Metadata • Montreal Process (Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests) • State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and timber Section)
Sub-component 1.3: Environmental Quality				
Topic 1.3.1: Air quality	a. Local air quality **1. Concentration level of particulate matter (PM_{10})** 2. Concentration level of particulate matter ($PM_{2.5}$) 3. Concentration level of tropospheric ozone (O_3) 4. Concentration level of carbon monoxide (CO) 5. Concentration level of Sulphur dioxide (SO_2) 6. Concentration level of nitrogen oxides (NO_x)	Concentration Concentration Concentration Concentration Concentration Concentration	• By point measurement • Subnational • Daily maximum • Monthly maximum and average • Yearly maximum and average	• WHO Air Quality Guidelines - Global Update 2005, Particulate matter, ozone, nitrogen dioxide and sulfur dioxide • WHO Air Quality Guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide, Global Update 2005, Summary of risk assessment • UNECE Standard Statistical Classification of Ambient Air Quality (1990)
Topic 1.3.2: Freshwater quality	a. Nutrients and chlorophyll 1. Concentration level of nitrogen 2. Concentration level of phosphorous b. Organic matter **1. Biochemical oxygen demand (BOD)**	Concentration Concentration Concentration	• By water body • By watershed/ riverbasin • By surface or groundwater • By point measurement • By type of water resource	• UNECE Standard Statistical Classification of Freshwater Quality for the Maintenance of Aquatic Life (1992) • UN Environment Programme (UNEP) Global Environment Monitoring System - Water (GEMS-Water)

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
	c. Pathogens			• WHO
	1. Concentration levels of faecal coliforms	Concentration		
Topic 1.3.3: Marine water quality	a. Nutrients and chlorophyll		• By coastal zone, delta, estuary or other local marine environment • Subnational • National • Supranational • By point measurement • By water resource	• UNECE Standard Statistical Classification of Marine Water Quality (1992) • NOAA/NASA • UNEP Regional Seas Programme • Stockholm Convention
	1. Concentration level of nitrogen	Concentration		
	2. Concentration level of phosphorous	Concentration		
	b. Organic matter			
	1. Biochemical oxygen demand (BOD)	Concentration		
	c. Coral bleaching			
	1. Area affected by coral bleaching	Area		
Component 2: Environmental Resources and Their Use				
Sub-component 2.1: Mineral Resources				
	a. Mineral resources		• By mineral (e.g., metal ores including precious metals, and rare earths, coal, oil, gas, stone, sand and clay, chemical and fertilizer minerals, salt, gemstones, abrasive minerals, graphite, asphalt, natural solid bitumen, quartz, mica) • National • Subnational	• United Nations Framework Classification for Energy and Mineral Resources (UNFC 2009) • SEEA Central Framework (2012) asset and physical flow accounts • International Standard Industrial Classification for All Economic Activities (ISIC) Rev. 4, Section B, Divisions 05-09
	1. Stocks of commercially recoverable resources	Mass, volume		
	2. Extraction	Mass, volume		
Sub-component 2.2: Energy Resources				
	a. Mineral resources		• By resource (e.g., natural gas, crude oil and natural gas liquids, oil shale, and extra heavy oil (includes oil extracted from oil sands), coal and lignite, peat, non-metallic minerals except for coal or peat, uranium and thorium ores) • National • Subnational	• SEEA Central Framework (2012) asset and physical flow accounts • UNFC 2009 • ISIC Rev. 4, Section B, Divisions 05-09 • HS 2012, Section V, Chapter 27
	1. Stocks of commercially recoverable resources	Mass, volume		
	5. Extraction	Mass, volume		

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Topic 2.2.2: Production, trade and consumption of energy	a. Production of energy		• By non-renewable resource (e.g., petroleum, natural gas, coal, nuclear fuels, non-sustainable firewood, waste, other non-renewables) • By renewable resource (e.g., solar, hydroelectric, geothermal, tidal action, wave action, marine, wind, biomass) • National • Subnational	• UNSD: IRES • IEA Energy Statistics Manual • Joint Wood Energy Enquiry (UNECE-FAO Forestry and Timber Section)
	1. Total production	Energy unit, mass, volume		
	2. Production from non-renewable sources	Energy unit, mass, volume		
	3. Production from renewable sources	Energy unit, mass, volume		
	4. Primary energy production	Energy unit, mass, volume	• By primary energy resource (e.g., petroleum, natural gas, coal, hydroenergy, geothermal, nuclear fuels, cane products, other primary) • By secondary energy product (e.g., electricity, liquefied petroleum gas, gasoline/ alcohol, kerosene, diesel oil, fuel oil, coke, charcoal, gases, other secondary) • National • Subnational	
	5. Secondary energy production	Energy unit, mass, volume		
	b. Total energy supply	Energy unit, mass, volume	• By energy product	
	c. Final consumption of energy	Energy unit, mass, volume	• By households • By ISIC economic activity • By tourists • National • Subnational	

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Topic 2.3.1: Land use	a. Area under land use categories	Area	• By type of land use (e.g., agriculture; forestry; land used for aquaculture; use of built-up and related areas; land used for maintenance and restoration of environmental functions; other uses of land not elsewhere classified; land not in use; iland waters used for maintenance and restoration of environmental functions; other uses of inland waters not elsewhere classified; inland water not in use; coastal waters (including area of coral reefs and mangroves); Exclusive Economic Zone (EEZ)) • National • Subnational	• FAO • UNECE Standard Classification of Land Use (1989) • SEEA Central Framework (2012) Annex 1
Topic 2.3.2: Use of forest land	a. Use of forest land **1. Area deforested**		• By forest type • National • Subnational • By dominant tree species	• FAO FRA • UNFF MAR • UNSD: MDG Indicator 7.7 Metadata • Montreal Process (Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests) • State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section
Sub-component 2.5: Biological Resources				
Topic 2.5.1:Timber resources	a. Timber resources **1. Stocks of timber resources**	Volume	• By type (e.g., natural or planted) • National • Subnational	• SEEA Central Framework (2012) • FAO FRA • State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section) • UNECE/FAO Joint Working Party on Forest Statistics, Economics and Management • ISIC Rev. 4, Section A, Division 02 • FAOSTAT database

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Topic 2.5.2: Aquatic resources	a. **Fish capture production**	Mass	• By relevant freshwater and marine species • National • Subnational	• FAO International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) • ISIC Rev. 4, Section A, Division 03 • The United Nations Convention on the Law of the Sea (UNCLOS) • UNSD: MDG Indicator 7.4 Metadata • HS 2012, Section I, Chapter 03 • SEEA Central Framework (2012)
	b. **Aquaculture production**	Mass		
Topic 2.5.3: Crops	a. Main annual and perennial crops		• By type (e.g., natural or planted) • National • Subnational	• FAO Indicative Crop Classification (for 2010 round of agricultural censuses) • FAO/WHO Specifications for Pesticides (2010) • FAO Specifications for Commonly Used Fertilizers (2009) • ISIC Rev. 4, Section A, Division 1 • FAOSTAT database • HS 2012, Section II
	1. **Area planted**	Area		
	2. **Area harvested**	Area		
	3. **Amount produced**	Mass		
	b. Amount used of:		• By type of fertilizer • By type of pesticide • By crop • National • Subnational	
	1. Natural fertilizers (e.g., manure, compost, lime) (also in 3.4.1.a)	Area, mass, volume		
	2. Chemical fertilizers (also in 3.4.1.a)	Area, mass, volume		
	3. Pesticides (also in 3.4.1.b)	Area, mass, volume		
Topic 2.5.4: Livestock	a. Livestock		• By type of animal • National • Subnational	• FAOSTAT database • ISIC Rev. 4, Section A, Division 01 • HS 2012, Section I, Chapter 01
	1. **Number of live animal**			
Sub-component 2.6: Water Resources				
Topic 2.6.1: Water resources	a. Sub-component 2.6: Water Resources		• National • Subnational • By territory of origin and destination	• UNSD: IRWS • UNECE Standard Statistical Classification of Water Use (1989) • UNSD: MDG Indicator 7.5 Metadata • FAO AQUASTAT • SEEA Central Framework (2012) asset accounts • SEEA Water • UNSD: Environment Statistics Section - Water Questionnaire
	1. **Precipitation (also in 1.1.1.b)**	Volume		
	2. Inflow from neighboring territories	Volume		
	b. Outflow of water from inland water resources			
	1. **Evapotranspiration**	Volume		

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Topic 2.6.2: Abstraction, use and returns of water	a. **Total water abstraction**	Volume	• By type of source • National • Subnational	• UNSD: IRWS • UNECE Standard Statistical Classification of Water Use (1989) • FAO AQUASTAT • SEEA Central Framework (2012) • SEEA Water • UNSD: Environment Statistics Section - Water Questionnaire
	b. **Water abstraction from surface water**	Volume		
	c. Water abstraction from groundwater			
	1. From renewable groundwater resources	Volume		
	2. From non-renewable groundwater resources	Volume		
Component 3: Residuals				
Sub-component 3.1: Emissions to Air				
Topic 3.1.1: Emissions of greenhouse gases	a. Total emissions of direct greenhouse gases (GHGs), by gas:		• By ISIC economic activity • By tourists • National • Subnational • By IPCC source categories	• IPCC Emission Factor Database • UN Framework Convention on Climate Change (UNFCCC) Reporting Guidelines • UNECE Standard Statistical Classification of Ambient Air Quality (1990) • UNSD: MDG Indicator 7.2 Metadata • WHO
	1. Carbon dioxide (CO_2)	Mass		
	2. Methane (CH_4)	Mass		
	3. Nitrous oxide (N_2O)	Mass		
	b. Total emissions of indirect greenhouse gases (GHGs), by gas:			
	1. **Sulphur dioxide (SO2)**	Mass		
	2. **Nitrogen oxides (NOX)**	Mass		
Sub-component 3.2: Generation and Management of Wastewater				
Topic 3.2.1: Generation and pollutant content of wastewater	a. **Volume of wastewater generated**	Volume	• By ISIC economic activity • By tourists • National • Subnational	• UNSD: IRWS • ISIC Rev. 4, Section E, Division 35-37 • SEEA Water • UNSD: Environment Statistics Section - Water Questionnaire
Topic 3.2.2: Collection and treatment of wastewater	a. **Volume of wastewater collected**	Volume	• National • Subnational • By treatment type (e.g., primary, secondary, tertiary) • National • Subnational	• UNSD: IRWS • ISIC Rev. 4, Section E, Division 35 and 36 • UNSD: Environment Statistics Section - Water Questionnaire
	b. **Volume of wastewater treated**	Volume		
Topic 3.2.3: Discharge of wastewater to the environment	a. Watershed discharge		• By treatment type (e.g., primary, secondary, tertiary) • By recipient (e.g., surface water, groundwater, wetland, sea, land) • By ISIC economic activity • National • Subnational • By source (point/non-point source)	• UNSD: IRWS • ISIC Rev. 4, Section E, Division 35 and 36 • UNSD: Environment Statistics Section - Water Questionnaire
	1. Total volume of wastewater discharged to the environment after treatment	Volume		
	2. Total volume of wastewater discharged to the environment without treatment	Volume		

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Sub-component 3.3: Generation and Management of Waste				
Topic 3.3.1: Generation of waste	**a. Amount of waste generated by source**	Mass	• By ISIC economic activity • By households • By tourists • National • Subnational	• European Commission: European List of Waste, pursuant to European Waste Framework Directive • Eurostat: Environmental Data Centre on Waste • Eurostat: European Waste Classification for Statistics (EWC-Stat), version 4 (Waste categories) • Basel Convention : Waste categories and hazardous characteristics • Eurostat: Manual on Waste Statistics • Eurostat: Guidance on classification of waste according to EWC-Stat categories • SEEA Central Framework (2012) • UNSD: Environment Statistics Section - Waste Questionnaire
	b. Amount of hazardous waste generated	Mass	• By ISIC economic activity • National • Subnational	
Topic 3.3.2: Management of waste	a. Municipal waste		• By type of treatment and disposal (e.g., reuse, recycling, composting, incineration, landfilling, other) • By type of waste, when possible • National • Subnational	• Eurostat: Environmental Data Centre on Waste • •Eurostat metadata: Organisation for Economic Co-operation and Development (OECD)/ Eurostat definition of municipal waste • UNSD: Environment Statistics Section - Waste Questionnaire • Basel Convention: Waste categories and hazardous characteristics • Eurostat: EWC-Stat, version 4 (Waste categories) • European Commission: European Waste Framework Directive (Waste treatment operations) • Eurostat: Manual on Waste Statistics • Eurostat: Guidance on classification of waste according to EWC-Stat categories • Rotterdam Convention
	1. Total municipal waste collected	Mass		
	2. Amount of municipal waste treated by type of treatment and disposal	Mass		
	3. Number of municipal waste treatment and disposal facilities	Number		
	b. Hazardous waste			
	1. Total hazardous waste collected	Mass		
	2. Amount of municipal waste treatment and disposal facilities	Mass		
	3. Number of municipal waste treatment and disposal facilities	Number		
	c. Amount of recycled waste	Mass	• By specific waste streams (e.g., e-waste, packaging waste, end of life vehicles) • • By waste category • • National • • Subnational	

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Component 4: Extreme Events and Disasters				
Sub-component 4.1: Natural Extreme Events and Disasters				
Topic 4.1.1: Occurrence of natural extreme events and disasters	a. Occurrence of natural extreme events and disasters		• By event • National • Subnational	• Centre for Research on the Epidemiology of Disasters Emergency Events Database (CRED EM-DAT) • UN Economic Commission for Latin America and the Caribbean (UNECLAC) Handbook for Estimating the Socio-economic and Environmental Effects of Disasters • The United Nations Office for Disaster Risk Reduction (UNISDR)
	1. Type of natural extreme event and disaster (geophysical, meteorological, hydrological, climatological, biological)	Description		
	2. Location	Location		
Topic 4.1.2: Impact of natural extreme events and disasters	a. People affected by natural extreme events and disasters		• By event • National • Subnational	• Centre for Research on the Epidemiology of Disasters Emergency Events Database (CRED EM-DAT) • UN Economic Commission for Latin America and the Caribbean (UNECLAC) Handbook for Estimating the Socio-economic and Environmental Effects of Disasters • The United Nations Office for Disaster Risk Reduction (UNISDR)
	1. Number of people killed	Number		
	b. Economic losses due to natural extreme events and disasters (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption)	Currency	• By event • By ISIC economic activity • National • Subnational • By direct and indirect damage	
Component 5: Human Settlements and Environmental Health				
Sub-component 5.1: Human Settlements				
	a. Population using an improved drinking water source	Number	• Urban • Rural • National • Subnational	• UNSD: MDG Indicator 7.8 and 7.9 Metadata • UN-Water • UNSD: Environment Statistics Section - Water and Waste Questionnaire • WHO/United Nations Children's Fund (UNICEF) Joint Monitoring Programme for Water Supply and Sanitation
	b. Population using an improved sanitation facility	Number		
	c. Population served by municipal waste collection	Number		
	d. Population connected to wastewater treatment	Number	• By treatment type (e.g., primary, secondary, tertiary) • National • Subnational	• UNSD: IRWS • ISIC Rev. 4, Section E, Division 35-37 • UNSD: Environment Statistics Section - Water Questionnaire
	e. Population supplied by water supple industry	Number	• National • Subnational	
Topic 5.1.5: Environmental concerns specific to urban settlements	**a. Number of private and public vehicles**	Number	• By type of engine or type of fuel	• UN Habitat • • WHO • • UNEP Urban Environment Unit

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Sub-component 5.2: Environmental Health				
Topic 5.2.2: Water-related diseases and conditions	a. Water-related diseases and conditions 1. **Incidence** 2. **Prevalence** 3. **Mortality**	 Number Number Number	• By disease or condition • National • Subnational • Urban • Rural • By gender • By age group • By time period	• WHO
Topic 5.2.3: Vector-borne diseases	a. Vector-borne diseases 1. **Incidence** 2. Prevalence 3. **Mortality**	 Number Number Number	• By disease or condition • National • Subnational • Urban • Rural • By gender • By age group • By time period	• WHO
Component 6: Environmental Protection, Management and Engagement				
Sub-component 6.1: Environmental Protection and Resource Management Expenditure				
Topic 6.1.1: Government environmental protection and resource management expenditure	a. Government environmental protection and resource management expenditure 1. Annual government environmental protection expenditure	 Currency	• By environmental activity • By type of expenditure: current, investment • By ministry • National • Subnational • By funding	• Eurostat-SERIEE Environmental Protection Expenditure Accounts Compilation Guide (2002) • Eurostat-Environmental Expenditure Statistics. General Government and Specialised Procedures Data Collection Handbook (2007) • Classification of Environmental Activities (CEA) SEEA Central Framework (2012) Annex 1
Topic 6.2.2: Environmental regulation and instruments	a. Direct regulation 1. **List of regulated pollutants and description** (e.g., by year of adoption and maximum allowable levels)	 Description, number	• Be media (e.g., water, air, land, soil, oceans) • By ISIC economic activity • National • Subnational	
Topic 6.2.3: Participation in MEAs and environmental conventions	a. Participation in MEAs and other global environmental conventions 1. **List and description** (e.g., country's year of participation) of **MEAS and other global environmental conventions**	 Description, number		• MEA Secretariats

**** As of 2020, statistics/indicators in blue semi-bold text are available in this publication*

Note: Gray cells are empty

Tier 2 Statistics on 2020 RCES

Tier 2 includes environment statistics which are of priority and relevance to most countries but need more significant investment in time, resources or methodological development, so countries are recommended to consider producing them in the medium-term.

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Tier 2				
Component 1: Environmental Conditions and Quality				
Sub-component 1.1: Physical Conditions				
Topic 1.1.2: Hydrographical characteristics	a. Rivers and streams		• By location • By watershed/river basin • National • Subnational	• United Nations Statistics Division (UNSD): International Recommendations for Water Statistics (IRWS) • UN-Water
	1. Length	Length		
Topic 1.3.2: Freshwater quality	a. Physical and chemical characteristics		• By water body • By watershed/river basin • By surface or groundwater • By point measurement • By type of water resource	• UNECE Standard Statistical Classification of Freshwater Quality for the Maintenance of Aquatic Life (1992) • UNEP GEMS-Water
	1. pH/acidity/ alkalinity	Level		
	2. Temperature	Degrees		
	3. Dissolved Oxygen (DO)	Concentration		
Component 2: Environmental Resources and their Use				
Sub-component 2.1: Mineral Resources				
Topic 2.1.2: Production and trade of minerals	a. Production of minerals	Mass, volume	• By mineral (e.g., metal ores including precious metals, and rare earths, coal, oil, gas, stone, sand and clay, chemical and fertilizer minerals, salt, gemstones, abrasive minerals, graphite, asphalt, natural solid bitumen, quartz, mica) • National • Subnational	• Harmonized Commodity Description and Coding Systems (HS) 2012, Section V, Chapters 25 and 26, and Section VI Chapter 28
Component 4: Extreme Events and Disasters				
Sub-component 4.1: Natural Extreme Events and Disasters				
Topic 4.1.2: Impact of natural extreme events and disasters	a. People affected by natural extreme events and disasters		• By event • National • Subnational	• Centre for Research on the Epidemiology of Disasters Emergency Events Database (CRED EM-DAT) • UN Economic Commission for Latin America and the Caribbean (UNECLAC) Handbook for Estimating the Socio-economic and Environmental Effects of Disasters • The United Nations Office for Disaster Risk Reduction (UNISDR)
	1. Number of people injured	Number		
	2. Number of people affected	Number		

Note: Gray cells are empty

Tier 3 Statistics on 2020 RCES

Tier 3 includes environment statistics which are either of less priority or require significant methodological development, so countries are recommended to consider producing them in the long-term.

Topic	Statistics and Related Information***	Category of measurement	Potential aggregations and scales	Methodological guidance
Tier 3				
Component 1: Environmental Conditions and Quality				
Sub-component 1.1: Physical Conditions				
Topic 1.1.3: Geological and geographical information	a. Geological, geographical and geomorphological conditions of terrestrial		• By location • National	• UNSD: Demographic Yearbook • Food and Agriculture Organization of the United Nations (FAO) • Center of International Earth Science Information Network (CIESIN)
	1. Area by rock types	Area		
Topic 1.3.2: Freshwater quality	a. Physical and chemical characteristics		• By water body • By watershed/river basin • By surface or groundwater • By point measurement • By type of water resource	• UNECE Standard Statistical Classification of Freshwater Quality for the Maintenance of Aquatic Life (1992) • UNEP GEMS-Water
	1. Total suspended solids (TSS)	Concentration		

Note: Gray cells are empty

GLOSSARY OF TERMS

Air Pollutant is any matter found in the atmosphere other than oxygen, nitrogen, water vapor, carbon dioxide, and the inert gases in their natural or normal concentrations that is detrimental to health or the environment, which includes but not limited to smoke, dust, soot, cinders, fly ash, solid particles of any kind, gases, fumes, chemical mists, steam, and radioactive substances *(RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Air Pollution is any alteration of the physical, chemical, and biological properties of the atmospheric air or any discharge thereto of any liquid, gaseous, or solid substances that will or is likely to create or to render the air resources of the country harmful, detrimental, or injurious to public health, safety, or welfare or that will adversely affect their utilization for domestic, commercial, industrial agricultural, recreational, or other legitimate purposes *(RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Ambient is the environmental surrounding *(UN Environment Glossary Updated Web Version 2001)*.

Ambient Air Quality is the general amount of pollution present in a broad area. It also refers to the atmosphere's average purity as distinguished from discharge measurements taken at the source of pollution *(RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Ambient Air Quality Guideline Value is the concentration of air over specified periods classified as short- and long-term, which is intended to serve as a goal or objective for the protection of health and/or public welfare. The value shall be used for air quality management purposes, such as determining time trends, evaluating stages of deterioration, or enhancing air quality, and in general, used as basis for taking positive action in preventing, controlling, or abating air pollution *(RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Ambient Air Quality Standard is the concentration of an air pollutant which shall not be exceeded in the breathing zone at any time in order to protect public health and public welfare. It is enforceable and must be complied with by the owner or person-in-charge of an industrial operation, process, or trade *(Implementing Rules and Regulations of RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Ambient Concentration is the measure of environmental quality indicating the amount of pollutants found per unit volume in different environmental media *(UN Environment Glossary Updated Web Version 2001)*.

Amphibian is a cold-blooded, smooth-skinned vertebrate capable of living on land and in water, such as frogs, toads, and salamanders *(DENR Administrative Order 2009-01)*.

Annual Cropland is the land cultivated with crops with a growing cycle under one year, which must be newly sown or planted for further production after harvesting *(DENR Memorandum Circular 2005-05)*.

Aquaculture is a fishery operation involving all forms of raising and culturing of fish and other fishery species in fresh, brackish, and marine water areas *(PSA-Agricultural Statistics Glossary of Terms online*).

Aquafarm is a farming facility used in the culture or propagation of aquatic species including fish, mollusk, crustaceans, and aquatic plants for purposes of rearing and culturing to enhance production *(PSA-Agricultural Statistics Glossary of Terms online)*.

Aquatic Resources include fish, crustaceans, mollusks, shellfish and other aquatic organisms such as sponges and seaweed, as well as aquatic mammals such as whales. Aquatic resources are subject to harvest for commercial reasons and are part of recreational and subsistence fishing activities. Aquatic resources for a given country comprise those resources that are considered to live within the exclusive economic

zone (EEZ) of a country throughout their lifecycles, both coastal and inland fisheries. Migrating and straddling fish stocks are considered to belong to a given country during the period when those stocks inhabit its EEZ. Aquatic resources may be either cultivated or natural biological resources *(UN Framework for the Development of Environment Statistics 2013).*

Area Harvested is the actual area from which harvests are realized. This excludes crop area totally damaged. It may be smaller than area planted. In crop statistics, this applies to temporary crops (PSA- Agricultural Statistics Glossary of Terms online).

Area Planted is the actual physical area planted to a permanent crop. This generally applies to area reported for permanent crops (*PSA-Agricultural Statistics Glossary of Terms online)*.

Area Source is the source of non-natural air pollution released over a relatively small area that cannot be classified as a point source, such as vehicles and other small fuel combustion engines *(UN Glossary of Environment Statistics)*.

Atmosphere is the mass of air surrounding the earth, composed largely of oxygen and nitrogen *(UN Glossary of Environment Statistics)*.

Avian or Bird refers warm-blooded, egg-laying vertebrates of the class Aves characterized by feathers and forelimbs modified into wings, such as jungle fowl and wild ducks *(DENR Administrative Order 2009-01)*.

Backyard Farm is any farm or household raising at least one head of animal or bird and does not qualify as a commercial farm *(PSA-Agricultural Statistics Glossary of Terms online)*.

Barren Area (Barren) is land not covered by (semi-)natural or artificial cover. It includes sand dunes, riverwash, lahar-laden areas, and rocky or stony areas *(DENR Memorandum Circular 2005-05)*.

Beneficial Use is the use of the environment or any element or segment thereof conducive to public or private welfare, safety, and health and shall include but not limited to the use of water for domestic, municipal, irrigation, power generation, fisheries, livestock raising, industrial, recreational, and other purposes *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Biochemical Oxygen Demand is dissolved oxygen required by organisms for the aerobic decomposition of organic matter present in water *(UN Environment Glossary Updated Web Version 2001)*.

Biodiversity (also, Biological Diversity) is the variability among living organisms from all sources such as inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part. It includes diversity within species, between species, and of ecosystems *(DENR Administrative Order 2005-24)*.

Bioethanol Fuel refers to ethanol produced from feedback and other biomass *(RA No. 9367 "An Act to Direct the Use of Biofuels, Establishing for this Purpose the Biofuel Program, Appropriating Funds Therefor, and for Other Purposes")*.

Biological Disaster is an event caused by the exposure of living organisms to germs and toxic substances (Center for Research on the Epidemiology of Disasters).

Biological Resources are timber resources, aquatic resources, crops, livestock and wild, uncultivated biological resources that are provided by natural or cultivated ecosystems (UN Framework for the Development of Environment Statistics 2013).

Biomass refers to any organic matter, particularly cellulosic or lignocellulosic matter, which is available on a renewable or recurring basis, including trees, crops and associated residues, plant fiber, poultry litter,

and other animal wastes, industrial wastes, and the biodegradable component of solid wastes *(RA No. 9367 "An Act to Direct the Use of Biofuels, Establishing for this Purpose the Biofuel Program, Appropriating Funds Therefor, and for Other Purposes")*.

Biomass Resources are non-fossilized, biodegradable organic material originating from naturally occurring or cultured plants, animals and microorganisms, including agricultural products, byproducts and residues such as but not limited to biofuels except corn, soya beans, and rice but including sugarcane and coconut, rice hulls, rice straws, coconut husks and shells, corn cobs, corn stovers, bagasse, biodegradable organic fractions of industrial and municipal wastes that can be used in bioconversion process and other processes, as well as gases and liquids recovered from the decomposition and/or extraction of non-fossilized and biodegradable organic materials *(RA No. 9513 "An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes")*.

Brackishwater Environment refers to mixed seawater and freshwater and salinity varies with the tide. Examples are estuaries, mangroves, and mouth of rivers where seawater enters during high tide *(PSA-Agricultural Statistics Glossary of Terms online)*.

Buffalo is popularly known as water buffalo and originated from India, which is used as draft animals and suitable for milk production. It is locally known as carabao *(PSA-Agricultural Statistics Glossary of Terms online)*.

Buffer Zone is an area outside the boundaries of and immediately adjacent to a designated protected area pursuant to Section 8 of Republic Act No. 7586 that needs special development control in order to avoid or minimize harm to the protected area *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Built-up Area is an area of intensive use with much of the land covered by structures. It includes cities, towns, villages, strip developments along highways, transportation, power, and communication facilities, and areas occupied by mills, shopping centers, industrial and commercial complexes, and institutions that may be isolated from urban areas in some instances *(DENR Memorandum Circular 2005-05)*.

Carabao, see Buffalo

Carbon Dioxide is a colorless, odorless, and nonpoisonous gas resulting from fossil fuel combustion. It is normally a part of ambient air and produced in the respiration of living organisms (plants and animals) and considered to be the main greenhouse gas contributing to climate change *(UN Environment Glossary Updated Web Version 2001)*.

Carbon Emission is the release of carbon from a source such as but not limited to living organisms, fossil fuels, and volcanic emissions into the atmosphere over a specified area and period of time *(FMB Philippine Reference for Forest-related Terms and Definitions)*.

Carbon Monoxide is a colorless, odorless, and poisonous gas produced by incomplete fossil fuel combustion. It combines with the hemoglobin of the human beings reducing its oxygen carrying capacity with effects harmful to human beings *(UN Environment Glossary Updated Web Version 2001)*.

Cattle is the general term for the members of the *Bovidae* family, wild (*Bibos subspecies*) or domestic (*Bos subspecies*). There are two domestic cattle species, Bos taurus or European breeds and Bos indicus or Zebu breeds or oriental domestic cattle *(PSA- Agricultural Statistics Glossary of Terms online)*.

Charcoal is the solid residue consisting mainly of carbon obtained by the destructive distillation of wood in the absence of air *(UN Environment Glossary Updated Web Version 2001)*.

Chemical Control Order is an order that either prohibits, limits, or regulates the use, manufacture, import, export, transport, processing, storage, possession and wholesale of priority chemicals *(DENR Administrative Order 2013-22)*.

Climate is the condition of the atmosphere at a particular location (microclimate) or region over a long period of time. It is the long-term summation of atmospheric elements, such as solar radiation, temperature, humidity, precipitation type (frequency and amount), atmospheric pressure, and wind (speed and direction), and their variations *(UN Environment Glossary Updated Web Version 2001)*.

Climate Change is a term frequently used in reference to global warming due to greenhouse gas emissions from human activities *(UN Environment Glossary Updated Web Version 2001)*.

Climatological Disaster is an event caused by long-lived/meso- to macro- scale processes (in the spectrum from intraseasonal to multidecadal climate variability) *(Center for Research on the Epidemiology of Disasters)*.

Closed Forest is a formation where trees in the various storeys and the undergrowth cover a high proportion (more than 40%) of the ground and do not have a continuous dense grass layer. It is either managed or unmanaged forest, in advanced state of succession and may have been logged-over one or more times, having kept its characteristics of forest stands, possibly with modified structure and composition *(DENR Memorandum Circular 2005-05)*.

Coal is a readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50% by weight and more than 70% by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time *(US Energy Information Administration Glossary)*.

Commercial Farm is any livestock or poultry farm that satisfies at least one of the conditions herein. For livestock, it has at least 21 heads of adults and zero young; or at least 41 heads of young animals; or at least 10 heads of adults and 22 heads of young. For poultry, it has 500 layers or 1,000 broilers; or 100 layers and 100 broilers, if raised in combination; or 100 head of duck regardless of age *(PSA-Agricultural Statistics Glossary of Terms online)*.

Commercial Fishing is the catching of fish with the use of fishing boats with a capacity of more than three gross tons for trade, business, or profit beyond subsistence or sports fishing *(PSA-Agricultural Statistics Glossary of Terms online)*.

Common Name refers to the adopted name of a species widely used in the country. It may be based on an English name (or another foreign name) or a Tagalog name, or derived from the meaning of its scientific name when no local or vernacular name is available *(DENR Administrative Order 2007-01)*.

Concentration is the amount of a chemical in a particular volume or weight of air, water, soil, or other medium *(UN Framework Convention on Climate Change Glossary)*.

Conservation Status is the sum of influences acting on species that affect its long-term distribution and abundance *(BMB 2003 Statistics on Philippine Protected Areas and Wildlife Resources)*.

Controlled Dump is the disposal site at which solid waste is deposited in accordance with the minimum prescribed standards of site operation *(RA No. 9003 "Ecological Solid Waste Management Act of 2000")*.

Corn Production (also, Maize Production) is the quantity of corn produced and actually harvested during the reference period from both crop types (white and yellow). It includes those harvested but damaged, stolen, given away, consumed, given as harvester's share, or reserved, and excludes those produced but

not harvested due to low price, lack of demand, and force majeure or fortuitous events *(PSA-Agricultural Statistics Glossary of Terms online)*.

Criteria Pollutants are pollutants for which National Ambient Air Quality Standards exist. The criteria pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, sulfates, hydrogen sulfide, and particulate matter with a diameter of 10 microns or less *(Implementing Rules and Regulation of RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Critically Endangered Species refers to a species or subspecies that is facing extremely high risk of extinction in the wild in the immediate future *(RA No. 9147 "An Act Providing for the Conservation and Protection of Wildlife Resources and Their Habitats, Appropriating Funds Therefor and For Other Purposes")*.

Crops are plants or agricultural produce grown at a large scale for food or other economic purposes, such as clothes or livestock fodder *(UN Framework for the Development of Environment Statistics 2013)*.

Cultivated Biological Resources are animal resources yielding repeat products and tree, crop, and plant resources yielding repeat products whose natural growth and regeneration are under the direct control, responsibility, and management of an institutional unit *(UN System of Environmental-Economic Accounting 2012 Central Framework)*.

Depletion (in physical terms) is the decrease in the quantity of the stock of a natural resource over an accounting period that is due to the extraction of the natural resource by economic units occurring at a level greater than that of regeneration *(UN System of Environmental-Economic Accounting 2012 Central Framework)*.

Deposit is the concentration of a solid commodity in the subsoil. The equivalent term for petroleum is accumulation *(UN Framework Classification for Fossil Energy and Mineral Resources)*.

Desertification is land degradation in arid, semi-arid, and dry sub-humid areas resulting from various factors, including climatic variations and human activities *(UN Convention to Combat Desertification)*.

Direct GHG emissions are emissions from sources that are owned or controlled by the reporting entity *(Greenhouse Gas Protocol)*.

Disaster is an unforeseen and often sudden event that causes great damage, destruction and human suffering. It is a serious disruption of the functioning of a community or a society involving widespread human, material, economic, or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources *(UN Framework for the Development of Environment Statistics 2013; National Disaster Risk Reduction and Management Council)*.

Disposals of Waste are waste elimination techniques comprising landfills, containment, underground disposal, dumping at sea, and all other disposal methods *(UN Environment Glossary Updated Web Version 2001)*.

Dissolved Oxygen is the amount of gaseous oxygen (O_2) actually present in water expressed in terms either of its presence in the volume of water (milligrams of O_2 per liter) or of its share in saturated water (percentage) *(UN Environment Glossary Updated Web Version 2001)*.

Drinking Water Standards are standards that determine the quality of drinking water in the context of prevailing environmental, social, economic, and cultural conditions with reference to the presence of suspended matter, excess salts, unpleasant taste, and all harmful microbes. Meeting of those standards does not necessarily imply purity *(UN Environment Glossary Updated Web Version 2001)*.

Dump is a site used to dispose of solid wastes without environmental controls *(UN Environment Glossary Updated Web Version 2001)*.

Economic Loss is an indicator that assesses the impacts of natural extreme events and disasters. It is measured in terms of currency and can be seen in damages to buildings and transportation networks, loss of revenue for businesses, and loss of crops, among other material indicators *(UN Framework for the Development of Environment Statistics 2013)*.

Ecosystem is a system in which the interaction between different organisms and their environment generates a cyclic interchange of materials and energy *(UN Environment Glossary Updated Web Version 2001)*.

Effluents are discharges from known source which are passed into a body of water or land, or wastewater flowing out of a manufacturing plant, industrial plant including domestic, commercial, and recreational facilities *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Electricity is a form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change *(US Energy Information Administration Glossary)*.

Emission is any air contaminant, pollutant, gas stream, or unwanted sound from a known source which is passed into the atmosphere *(RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Emission Factor is the ratio between the amount of pollution generated and the amount of a given raw material processed. The term may also refer to the ratio between the emissions generated and the outputs of production processes *(UN Environment Glossary Updated Web Version 2001)*.

Emission Inventory is the listing by source, type, and quantity of pollutants actually or potentially discharged. Such an inventory is used to establish and put forth emission standards *(UN Environment Glossary Updated Web Version 2001)*.

Endangered Species refers to species or subspecies that is not critically endangered but whose survival in the wild is unlikely if the causal factors continue operating *(RA No. 9147 "An Act Providing for the Conservation and Protection of Wildlife Resources and Their Habitats, Appropriating Funds Therefor and For Other Purposes")*.

Endemic refers to species or subspecies that is naturally occurring and found only within specific areas in the country *(RA No. 9147 "An Act Providing for the Conservation and Protection of Wildlife Resources and Their Habitats, Appropriating Funds Therefor and For Other Purposes")*.

Energy is the capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work *(US Energy Information Administration Glossary)*.

Energy Consumption is the use of energy as a source of heat or power or as a raw material input to a manufacturing process *(US Energy Information Administration Glossary)*.

Energy Products are products that are used (or might be used) as a source of energy. They comprise fuels that are produced/generated by an economic unit (including households) and are used (or might be used) as sources of energy; electricity that is generated by an economic unit (including households); and heat that is generated and sold to third parties by an economic unit *(UN System of Environmental-Economic Accounting 2012 Central Framework)*.

Energy Sources refer to all solid, liquid and gaseous fuels, electricity, uranium, steam and hot water, and the traditional fuels such as fuelwood, charcoal, and vegetal and animal wastes *(UN Environment Glossary Updated Web Version 2001)*.

Energy Transformation is the process where the movement of part or all of the energy content of a product entering a process to one or more different products leaving the process (e.g., coking coal to coke, crude oil to petroleum products, and heavy fuel oil to electricity) *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Environment is the totality of all the external conditions affecting the life, development, and survival of an organism *(UN Environment Glossary Updated Web Version 2001)*.

Environmental Health covers aspects of human health and diseases that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health *(World Health Organization)*.

Erosion refers to wearing away of the land by running water, rainfall, wind, ice, or other geological agents, including such processes as detachment, entrainment, suspension, transportation, and mass movement. Geologically, it is defined as the process that slowly shapes hillsides allowing the formation of soil cover from the weathering of rocks and from alluvial and colluvial deposits. It is often intensified by land-clearing human activities related to farming, resident, and industrial development and has an effect increasing run- offs, decline of arable layers, siltation in lakes, lagoons, and oceans *(UN Environment Glossary Updated Web Version 2001)*.

Evaporation is the process whereby liquid water is converted to water vapor (vaporization) and removed from the evaporating surface (vapor removal) *(FAO Corporate Document Repository)*.

Evapotranspiration is the combined loss of water by evaporation from the soil or surface water and transpiration from plants and animals *(UN Environment Glossary Updated Web Version 2001)*.

Exploration means searching or prospecting for mineral resources by geological, geochemical, and/or geophysical surveys, remote sensing, test pitting, trenching, drilling, shaft sinking, tunneling, or any other means for the purpose of determining their existence, extent, quality, and quantity, and the feasibility of mining them for profit *(DENR Administrative Order 2010-21)*.

Exports of Energy Products refer to all fuel and other energy products leaving the national territory with the exception that exports exclude the quantities of fuels delivered for use by merchant (including passenger) ships and civil aircraft of all nationalities during international transport of goods and passengers *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Extractions are reductions in stock due to the physical removal or harvest of an environmental asset through a process of production *(UN System of Environmental-Economic Accounting 2012 Central Framework)*.

Fallow refers to woody vegetation resulting from the clearing of natural forest for shifting to agriculture. It is an intermediate class between forest and non-forest land uses. Part of the area, which is not under cultivation, may have the appearance of a secondary forest *(DENR Memorandum Circular 2005-05)*.

Farm is a parcel of land having an aggregate area of at least 1,000 square meters devoted to crops; or any area regardless of size raising at least 10 heads of large animals such as cattle, horse, carabao, among others regardless of kind; or any area regardless of size raising at least 20 heads of small animals such as hog, goat, sheep, among others, regardless of age and kind; or any area regardless of size with at least 100 heads of poultry regardless of age and kind; or a combination of land areas and animals raised, which amounts to at least 10 agricultural units. A farm is classified as either commercial or backyard *(PSA-Agricultural Statistics Glossary of Terms online)*.

Fauna are all species of animals in a given area *(FMB Philippine Reference for Forest-related Terms and Definitions)*.

Fertilizer is any substance, solid or liquid, natural or synthetic, single or combination of materials that is applied to the soil or on the plant to provide one or more of the essential elements to improve plant nutrition, growth, yield, or quality, or for promoting a chemical change that enhances plant nutrition and growth *(PSA-Agricultural Statistics Glossary of Terms online)*.

Fish Cage is a stationary or floating fish enclosure of synthetic net wire/bamboo screen or other materials set in the form of inverted mosquito net ("hapa" type) with or without cover with all sides either tied to poles staked to the water bottom or with anchored floats for aquaculture purposes *(PSA-Agricultural Statistics Glossary of Terms online)*.

Fisheries refers to all activities relating to the act of or business of fishing, culturing, preserving, processing, marketing, developing, conserving, and managing aquatic resources and the fishery areas including the privilege to fish or take aquatic resources thereof *(RA No. 8550 "An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating All Laws Pertinent Thereto, and for Other Purposes")*.

Fishing refers to the taking of the fishery species from their wild state or habitat with or without the use of fishing vessels *(Fisheries Statistics of the Philippines 2010-2012 Technical Notes)*.

Fish Pen is an artificial enclosure constructed within a body of water for culturing fish, fishery/aquatic resources. It is made up of bamboo poles closely arranged in an enclosure with wooden material, screen or nylon netting to prevent escape of fish *(PSA- Bureau of Agricultural Statistics Glossary of Terms online)*.

Fishpond is a land-based facility enclosed with earthen or stone material to impound water for growing fish. It also refers to a land-based type of aquafarm or a body of water (artificial or natural) where fish and other aquatic products are cultured, raised or cultivated under controlled conditions *(RA No. 8550 "An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating All Laws Pertinent Thereto, and for Other Purposes"; PSA-Agricultural Statistics Glossary of Terms online)*.

Flora refers to all species of plants found in a given area, including ferns, lycopods, and mosses *(FMB Philippine Reference for Forest-related Terms and Definitions)*.

Forest is a land with an area of more than 0.5 hectare and tree crown cover (or equivalent stocking level) of more than 10%. The trees should be able to reach a minimum height of five meters at maturity in situ. It consists of either closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest formations with a continuous vegetation cover in which tree crown cover exceeds 10%. Young natural stands and all plantations established for forestry purposes, which have yet to reach a crown density of more than 10% or tree height of five meters are included under forest. These are normally forming part of the forest area, which are temporarily unstocked as a result of human intervention or natural causes but which are expected to revert to forest. It includes forest nurseries and seed orchards that constitute an integral part of the forest; forest roads, cleared tracts, firebreaks and other small open areas; forest within protected areas; windbreaks and shelter belts of trees with an area of more than 0.5 hectare and width of more than 20 meters; and plantations primarily used for forestry purposes, including rubber wood plantations. It also includes bamboo, palm, and fern formations (except coconut and oil palm) *(DENR Memorandum Circular 2005-05)*.

Forest Cover refers to natural and manmade forests, including forests within wetlands and built- up areas *(DENR 2008 Compendium of Basic ENR Statistics for Operations and Management)*.

Forest Disturbance refers to any relatively discrete event in time that disrupts ecosystem, community, or population structure and changes resources and substrate availability of the physical environment *(DENR 2008 Compendium of Basic ENR Statistics for Operations and Management)*.

Framework for the Development of Environment Statistics is a conceptual framework that assists in the development, coordination, and organization of environment statistics and related socioeconomic and demographic statistics. It was developed by the United Nations Statistics Division in 1984, and is based on stress-response principles of environmental impacts *(UN Environment Glossary Updated Web Version 2001)*.

Freshwater refers to water containing less than 500ppm dissolved common salt, sodium chloride, such as that in groundwater, rivers, ponds, and lakes *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Freshwater Environment refers to water without salt or marine origin. Examples of freshwater environment are Laguna de Bay, Taal Lake, Candaba Swamps, Liguasan Marsh and rivers, canals, dams and paddy fields and rice fields *(PSA-Agricultural Statistics Glossary of Terms online)*.

Game Refuge and Bird Sanctuary refer to a forest land designated for the protection of game animals, birds, and fish and closed to hunting and fishing in order that the excess population may flow and restock surrounding areas *(PD No. 1559 "Further Amending PD No. 705, Otherwise Known as the Revised Forestry Code of the Philippines")*.

Geophysical Disaster is an event that originated from the solid earth, such as earthquakes *(Center for Research on the Epidemiology of Disasters)*.

Geothermal Energy is hot water or steam extracted from geothermal reservoirs in the earth's crust. Water or steam extracted from geothermal reservoirs can be used for geothermal heat pumps, water heating, or electricity generation *(US Energy Information Administration Glossary)*.

Geothermal Resources are mineral resources, classified as renewable energy resource, in the form of all products of geothermal processes embracing indigenous steam, hot water, and hot brines; steam and other gases, hot water and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations; heat or associated energy found in geothermal formations; and any byproducts derived from them *(RA No. 9513 "An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes")*.

Goat is an animal of genus Capra, family Capridae, compromising of various agile, hollow horned ruminants closely related to the sheep *(PSA-Agricultural Statistics Glossary of Terms online)*.

Grassland is an area predominantly vegetated with grasses such as Imperata, Themeda, and Saccharum spp., among others *(DENR Memorandum Circular 2005-05)*.

Greenhouse Gases are gases such as carbon dioxide, methane, and oxides of nitrogen, chlorofluorocarbons, and others that can potentially or reasonably be expected to induce global warming *(RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Groundwater means subsurface water that occurs beneath a water table in soils and rocks or in geological formations *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Hazardous Waste Treatment comprises two categories, which can be distinguished as physical hazardous waste treatment—an approach including phase separation such as through lagooning, filtration or centrifugation, and solidification into hard material allowing for landfill disposal—and thermal hazardous waste treatment—high temperature oxidation of wastes that converts them into gases and solid residues *(UN Environment Glossary Updated Web Version 2001)*.

Hazardous Wastes are substances that are without any safe commercial, industrial, agricultural, or economic usage and are shipped, transported, or brought from the country of origin for dumping or disposal into or in transit through any part of the territory of the Philippines. Hazardous wastes also refers to hazardous substances that are byproducts, side- products, process residues, spent reaction media, contaminated plant or equipment, and other substances from manufacturing operations, and to consumer discards of manufactured products.

It also refers to any waste or combination of wastes of solid, liquid, contained gaseous, or semisolid form, which cause or contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, taking into account toxicity of such waste, its persistence and degradability in nature, its potential for accumulation or concentration in tissue, and other factors that may otherwise cause or contribute to adverse acute or chronic effects on the health of persons or organism *(Implementing Rules and Regulations of RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes"; RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Hog is a domesticated swine *(PSA-Agricultural Statistics Glossary of Terms online)*.

Household Waste is a waste material usually generated in the residential environment. Waste with similar characteristics may be generated in other economic activities and can thus be treated and disposed of together with household waste *(UN Environment Glossary Updated Web Version 2001)*.

Human Habitat is the totality of the human community or more precisely, as human population that resides in a settlement, physical elements (e.g., shelter and infrastructure), services (e.g., water, sanitation, waste disposal, transport), and the exposure of humans to potentially deleterious environmental conditions *(UN Framework for the Development of Environment Statistics 2013)*.

Hydrocarbons are compounds of hydrogen and carbon in various combinations that are present in petroleum products and natural gas. Some hydrocarbons are major air pollutants, some may be carcinogenic, and others contribute to photochemical smog *(UN Environment Glossary Updated Web Version 2001)*.

Hydroelectric Power is the use of flowing water to produce electrical energy *(US Energy Information Administration Glossary)*.

Hydrological Disaster is an event caused by deviations in the normal water cycle and or overflow of bodies of water caused by wind setup *(Center for Research on the Epidemiology of Disasters)*.

Imports of Energy Products are all the fuel and other energy products entering the national territory. Goods simply being transported through a country (goods in transit) and goods temporarily admitted are excluded, but reimports, which are domestic goods exported but subsequently readmitted, are included. The bunkering of fuel outside the reference territory by national merchant ships and civil aircraft engaged in international travel is excluded from imports *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Indicated Mineral Resource refers to that part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling, and testing information gathered through appropriate techniques from locations as outcrops, trenches, pits, workings, and drill holes. The locations are too widely or inappropriately spaced to confirm geological and or grade continuity but are spaced closely enough for continuity to be assumed *(DENR Administrative Order 2010-09)*.

Indirect GHG emissions are emissions that are a consequence of the activities of the reporting entity but have occurred at sources owned or controlled by another entity *(Greenhouse Gas Protocol)*.

Industrial Wastes are any solid, semisolid, or liquid waste material with no commercial value released by a manufacturing or processing plant other than excluded material *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Inferred Mineral Resource refers to that part of a mineral resource for which tonnage, grade, and mineral content can be estimated with low level of confidence. It is inferred from geological evidence, sampling, and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes, which may be limited or of uncertain quality and reliability *(DENR Administrative Order 2010-09)*.

Inland Municipal Fishing is the catching of fish, crustaceans, mollusks, and all other aquatic animals and plants in inland waters like lakes, rivers, dams, and marshes using simple gears and fishing boats some of which are nonmotorized with a capacity of less than or equal to three gross tons. It also refers to fishing that does not require the use of fishing boats *(PSA-Agricultural Statistics Glossary of Terms online)*.

Inland Waters are bodies of water surrounded by land, such as rivers, lakes, streams, mudflats, ponds and fishponds, dams, and reservoirs) *(DENR Memorandum Circular 2005-05)*.

Irrigated Palay is a palay crop that requires standing water for its normal growth and is not confined to lowland but also to high places where paddies are built for planting rice. It requires irrigation water made available through artificial means such as gravity, force, and power pumps *(PSA-Bureau of Agricultural Statistics Glossary of Terms online)*.

Kaingin is a portion of the forest land, whether occupied or not, that is subjected to shifting and or permanent slash-and-burn cultivation having little or no provision to prevent soil erosion *(PD No. 1559 "Further Amending PD No. 705, Otherwise Known as the Revised Forestry Code of the Philippines")*.

Land is a resource both manmade and natural, found on the surface, below, and above the ground. It includes inland waters and the air therein *(FMB Philippine Reference for Forest-related Terms and Definitions)*.

Land Cover refers to the observed physical and biological cover of the Earth's surface and includes natural vegetation, abiotic (nonliving) surfaces, and inland water bodies such as rivers, lakes, and reservoirs *(UN System of Environmental-Economic Accounting 2012 Central Framework)*.

Lake is an inland body of water, an expanded part of a river, a reservoir formed by a dam, or a lake basin intermittently or formerly covered by water *(RA No. 8550 "An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating All Laws Pertinent Thereto, and for Other Purposes")*.

Leachate is a liquid produced when wastes undergo decomposition and when water percolates through solid waste undergoing decomposition. It is a contaminated liquid that contains dissolved and suspended materials *(RA No. 9003 "Ecological Solid Waste Management Act of 2000")*.

Livestock refers to farm animals kept or raised for consumption, work, or leisure. In general, poultry is separated as a distinct group of farm animals. For purposes of censuses and surveys, livestock covers only those that are tended and raised by an operator (*PSA- Agricultural Statistics Glossary of Terms online*).

Major Crops are the top 20 crops in the Philippines other than palay and corn, which collectively account for more than 60% of the total crop production. These include coconut, sugarcane, banana, pineapple, coffee, mango, tobacco, abaca, peanut, mongo, cassava, cacao, sweet potato, tomato, garlic, onion, cabbage, eggplant, calamansi, and rubber *(PSA-Agricultural Statistics Glossary of Terms online)*.

Mammal refers to any of the various warm-blooded vertebrates of the class Mammalia, characterized with hair covering on the skin and milk-producing mammary glands (among females) for nourishing the young

(DENR Administrative Order 2009-01).

Mangrove Forest is a forested wetland growing along tidal mudflats and along shallow water coastal areas extending inland along rivers, streams, and their tributaries where the water is generally brackish and composed mainly of Rhizopora, Bruguiera, Ceriops, Avicenia, Aegiceras, and Nipa species *(DENR Memorandum Circular 2005-05)*.

Marshland is a natural area usually dominated by grass-like plants such as cat tails and sedges, which are rooted in bottom sediments but emerge above the surface of the water. It contains emergence vegetation and usually develops in zones progressing from terrestrial habitat to open water *(DENR Memorandum Circular 2005-05)*.

Material Recovery Facility is a solid waste transfer station or sorting station, drop-off center, a composting facility, and a recycling facility *(RA No. 9003 "Ecological Solid Waste Management Act of 2000")*.

Measured Mineral Resource refers to that part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling, and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes. The locations are spaced closely enough to confirm geological and grade continuity *(DENR Administrative Order 2010-09)*.

Metallic Mineral is a mineral having a brilliant appearance and quite opaque to light, usually giving a black or very dark streak, and from which a metallic element/component can be extracted/utilized for profit *(DENR Administrative Order 2010-21)*.

Meteorological Disaster is an event caused by short-lived/small to meso-scale processes (in the spectrum from minutes to days) *(Center for Research on the Epidemiology of Disasters)*.

Methane (chemical formula: CH_4) is a colorless, nonpoisonous, and flammable gaseous hydrocarbon created by anaerobic decomposition of organic compounds. It is a potent greenhouse gas *(UN Environment Glossary Updated Web Version 2001)*.

Migrant is a species that winter in the Philippines on a seasonal basis or those that cross transboundaries on several states *(BMB 2003 Statistics on Philippine Protected Areas and Wildlife Resources)*.

Mineral Occurrence is the indication of mineralization that is worthy of further investigation. The term mineral occurrence does not imply any measure of volume or tonnage, grade or quality and is thus not part of a mineral resource *(UN Framework Classification for Fossil Energy and Mineral Resources)*.

Mineral Products are materials derived from ores, minerals, or rocks and prepared into a marketable state by mineral processing *(DENR Administrative Order 2010-21)*.

Mineral Resource refers to the concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality, and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics, and continuity of a mineral resource are known, estimated, or interpreted from specific geological evidence, sampling, and knowledge. Mineral resource is subdivided, in order of increasing geological confidence, into inferred, indicated, and measured categories *(DENR Administrative Order 2010-09)*.

Minerals are all naturally-occurring inorganic substances in solid, liquid, gas, or any intermediate state excluding energy materials such as coal, petroleum, natural gas, radioactive materials, and geothermal energy *(DENR Administrative Order 2010-21)*.

Mobile Source is any vehicle or machine propelled by or through oxidation or reduction reactions, including combustion of carbon-based or other fuel, constructed and operated principally for the conveyance of persons or the transportation of property or goods, which emit air pollutants as a reaction product *(Implementing Rules and Regulation of RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Monitoring is the continuous or frequent standardized measurement and observation of the environment (air, water, land/soil, and biota) often used for warning and control *(UN Environment Glossary Updated Web Version 2001)*.

Monitoring Station is a facility used to measure emissions or ambient concentrations of pollutants *(UN Environment Glossary Updated Web Version 2001)*.

Multilateral Environment Agreement is a generic term for treaties, conventions, protocols, and other binding instruments related to the environment. It covers a wider geographic scope extending beyond instruments that are agreed upon between two states *(United Nations)*.

Municipal Fishing refers to fishing within municipal waters using fishing vessels of three gross tons or less. It also refers to fishing that does not require the use of fishing vessels *(PSA-Agricultural Statistics Glossary of Terms online)*.

Municipal Waters include not only streams, lakes, inland bodies of water, and tidal waters within the municipality, which are not included within the protected areas as defined under Republic Act No. 7586 (or *NIPAS Law*), public forests, timber lands, forest reserves, or fishery reserves, but also marine waters included between two lines drawn perpendicular to the general coastline from points where the boundary lines of the municipality touch the sea at low tide and a third line parallel with the general coastline including offshore islands and 15 kilometers from such coastline *(PSA-Agricultural Statistics Glossary of Terms online)*.

National Integrated Protected Areas System (NIPAS) refers to the classification and administration of all designated protected areas to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent possible *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

National Park is a forest reservation essentially of natural wilderness character, which has been withdrawn from settlement, occupancy, or any form of exploitation except in conformity with approved management plan and set aside as such exclusively to conserve the area or preserve the scenery, the natural and historic objects, wild animals and plants therein, and to provide enjoyment of these features in such areas *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Natural Biological Resources are animals, birds, fish, and plants that yield both once-only and repeat products for which natural growth and or regeneration is not under the direct control, responsibility, and management of institutional units *(UN System of Environmental-Economic Accounting 2012 Central Framework)*.

Natural Biotic Area is an area set aside to allow the way of life of societies living in harmony with the environment to adapt to modern technology at their pace *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Natural Disaster is an event that resulted from natural phenomena such as tropical cyclones and earthquakes

(UN Framework for the Development of Environment Statistics 2013).

Natural Gas is a mixture of hydrocarbon compounds and small quantities of non-hydrocarbons, existing in the gaseous phase or in solution with oil in natural underground reservoirs *(UN Environment Glossary Updated Web Version 2001)*.

Natural Monument (also, Natural Landmark) is a relatively small area focused on protection of small features to protect or reserve nationally significant natural features on account of their special interest or unique characteristics *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Natural Park is a relatively large area not materially altered by human activity where extractive resource uses are not allowed and maintained to protect outstanding and natural and scenic areas of national or international significance for scientific, educational, and recreational use *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Nitrate is a nitrogen-containing compound that can exist in the atmosphere or as a dissolved gas in water. It may produce harmful effects on humans and animals **(UN Environment Glossary Updated Web Version 2001)**.

Nitrogen Oxide (chemical formula: NO_x) is a product of combustion from transportation and stationary sources. It is a major contributor to acid depositions and the formation of ground-level ozone in the troposphere *(UN Environment Glossary Updated Web Version 2001)*.

Nitrous Oxide (chemical formula: N_2O) is a relatively inert oxide of nitrogen produced as a result of microbial action in the soil, use of fertilizers containing nitrogen, burning of timber, and so forth. This nitrogen compound may contribute to greenhouse and ozone- depleting effects *(UN Environment Glossary Updated Web Version 2001)*.

Nonpoint Sources of Pollution are pollution sources that are diffused and without a single point of origin or not introduced into a receiving stream from a specific outlet. The pollutants are generally carried off the land by stormwater runoff. The commonly used categories for nonpoint sources are agriculture, forestry, urban areas, mining, construction, dams and channels, land disposal, and saltwater intrusion *(UN Environment Glossary Updated Web Version 2001)*.

Nonmetallic Mineral is a mineral usually having a dull luster, generally light-colored and transmits light, usually giving either colorless or light colored streak from which a nonmetallic element/component can be extracted/utilized for a profit *(DENR Administrative Order 2010-21)*.

Normal (also, Climatological Normal) is the average value of a meteorological element over any fixed period of years that is recognized as a standard for a country and element concerned. It usually a 30-year period as recommended by the World Meteorological Organization *(Department of Science and Technology-PAGASA)*.

Open Dump is a disposal area wherein the solid wastes are indiscriminately thrown or disposed of without due planning and consideration for environmental and health standards *(RA No. 9003 "Ecological Solid Waste Management Act of 2000")*.

Open Forest refers to formations with discontinuous tree layer with coverage of at least 10% and less than 40%. They are either managed or unmanaged forests in initial state of succession *(DENR Memorandum Circular 2005-05)*.

Ore Reserve is the economically mineable part of a measured and/or indicated mineral resource. It is subdivided in order of increasing confidence into probable and proved ore reserves *(DENR Administrative Order 2010-21)*.

Other Land refers to land with tree cover less than 5%. It includes agricultural land, pastures, built-up areas, bare areas, and grasslands *(DENR Memorandum Circular 2005-05)*.

Other Natural Land refers to land not classified as forest or other wooded land undisturbed by man *(DENR Memorandum Circular 2005-05)*.

Other Threatened Species refers to a species or subspecies that is not critically endangered, endangered, or vulnerable but is under the threat from adverse factors such as overcollection throughout their range and is likely to move to the vulnerable category in the near future *(Implementing Rules and Regulation of RA No. 9147 "An Act Providing for the Conservation and Protection of Wildlife Resources and Their Habitats, Appropriating Funds Therefor and For Other Purposes")*.

Other Wildlife Species refers to nonthreatened species that have the tendency to become threatened due to predation and destruction of habitat or other similar causes as may be listed by the Secretary of Environment and Natural Resources upon the recommendation of the National Wildlife Management Committee *(DENR Administrative Order 2004-15)*.

Other Wooded Land refers to lands either with a crown cover (or equivalent stocking level) of 5- 10% of trees able to reach a height of five meters at maturity or with a crown cover (or equivalent stocking level) of more than 10% not able to reach a height of five meters at maturity such as dwarf or stunted trees or with shrubs or bush cover of more than 10% *(DENR Memorandum Circular 2005-05)*.

Oyster Farming refers to the cultivation of oysters in suitable water areas by any method for production purposes *(Fisheries Statistics of the Philippines 2010-2012 Technical Notes)*.

Palay Production (also, Paddy Rice Production) is the quantity of palay produced and actually harvested during the reference period from both ecosystems (irrigated and rainfed). It includes those harvested but damaged, stolen, given away, consumed, given as harvester's share, and reserved and excludes those produced but not harvested due to low price, lack of demand, and force majeure or fortuitous events *(PSA-Agricultural Statistics Glossary of Terms online)*.

Particulates are fine liquid or solid particles, such as dust, smoke, mist, fumes, or smog, found in air or emissions *(UN Environment Glossary Updated Web Version 2001)*.

Perennial Cropland refers to land cultivated with long term crops that do not have to be replanted for several years after each harvest. Harvested components are not timber but fruits, latex, and other products that do not significantly harm the growth of the planted trees or shrubs; orchards, vineyards and palm plantations, coffee, tea, sisal, banana, abaca, among others *(DENR Memorandum Circular 2005-05)*.

Persistent Organic Pollutants are chemical substances that persist in the environment, bioaccumulate through the food web, can travel long distances, and pose a risk of causing adverse effects to human health and the environment *(DENR Administrative Order 2013-22)*.

Pesticides are substances or any mixtures of substances intended for preventing, destroying, or controlling pests, including vectors of human or animal diseases, unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport, or marketing of food, agricultural commodities, wood or wood products, or animals feed stuffs *(PSA-Agricultural Statistics Glossary of Terms online)*.

Plantation Forest refers to forest stands established by planting and or seeding in the process of afforestation or

reforestation. It may be composed of broadleaved, coniferous, and or mixed forests *(DENR Memorandum Circular 2005-05)*.

Point Source of Pollution is an anthropogenic source of emissions that is located at an identifiable point in space. It covers stationary sources such as sewage treatment plants, powerplants, other industrial establishments, and similar buildings and premises of small spatial extension *(UN Environment Glossary Updated Web Version 2001)*.

Pollutant is any substance, whether solid, liquid, gaseous, or radioactive, which directly or indirectly alters the quality of any segment of the receiving water body so as to affect or tend to affect adversely any beneficial use thereof; is hazardous or potentially hazardous to health; imparts objectionable odor, temperature change, or physical, chemical, or biological change to any segment of the water body; or is in excess of the allowable limits or concentrations or quality standards specified, or in contravention of the condition, limitation, or restriction prescribed in Republic Act No. 9275 *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Potential Mineral Resource (also, Target Mineral Resource) refers to a mineralization that cannot be classified as mineral resource or ore reserve owing to the insufficiency of data *(DENR Administrative Order 2010-09)*.

Priority Chemicals List is a list of existing and new chemicals that the Department of Environment and Natural Resources has determined to potentially pose unreasonable risk to public health, workplace, and the environment *(DENR Administrative Order 2013- 22)*.

Primary Energy Products are resulting products of primary (energy) production *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Primary Production of Energy Products refers to capture or extraction of fuels or energy from natural energy flows, the biosphere, and natural reserves of fossil fuels within the national territory in a form suitable for use *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Probable Ore Reserve is the economically mineable part of an indicated and in some circumstances a measured mineral resource. It includes diluting materials and allowances for losses, which may occur when the material is mined *(DENR Administrative Order 2010-21)*.

Production is the quantity produced and actually harvested for a particular crop during the reference period. It includes those harvested but damaged, stolen, given away, consumed, given as harvester's share, and reserved. Excluded are those produced but not harvested due to low price, lack of demand, and force majeure or fortuitous events *(PSA-Agricultural Statistics Glossary of Terms online)*.

Production of Energy Products refers to capture, extraction, or manufacture of fuels or energy in forms that are ready for general use *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Protected Area refers to identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Protected Landscapes and Seascapes are areas of national significance that are characterized by the harmonious interaction of man and land while providing opportunities for public enjoyment through the recreation and tourism within the normal lifestyle and economic activity of these areas *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Proven Ore Reserve is the economically mineable part of a measured mineral resource. It includes diluting

materials and allowances for losses, which may occur when the material is mined (*DENR Administrative Order 2010-21)*.

Rainfed Palay is a palay crop that depends solely upon rainfall for its water supply. It is usually planted through transplanting or direct seeding in fields with dikes that retain water. There may be dikes in the field to hold water in the case of lowland-rainfed, or none in the case of upland palay *(PSA-Agricultural Statistics Glossary of Terms online)*.

Reactive refers to substances that are unstable under normal conditions and readily undergo violent change without detonating, react violently with water and create spontaneously explosive mixtures like toxic gases, vapors, or fumes, and are capable of detonating *(DENR Administrative Order 2013-22)*.

Renewable Energy Resources are energy resources that do not have an upper limit on the total quantity to be used. Such resources are renewable on a regular basis, and whose renewal rate is relatively rapid to consider availability over an indefinite period of time. These include, among others, biomass, solar, wind, geothermal, ocean energy, and hydropower conforming with internationally accepted norms and standards on dams and other emerging renewable energy technologies *(RA No. 9513 "An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes")*.

Reptile refers to any of the various cold-blooded, air breathing vertebrates of the class Reptilia, such as snakes, lizards, crocodiles, turtles, and the like, which have scales or horny plates as external covering *(DENR Administrative Order 2009-01)*.

Resident refers to breed or suspected of breeding in the Philippines normally living there throughout the year *(BMB 2003 Statistics on Philippine Protected Areas and Wildlife Resources)*.

Resource Reserve is an extensive and relatively isolated and uninhabited area normally with difficult access designated as such to protect natural resources of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives that are based upon appropriate knowledge and planning *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Rice Fish Culture is an integrated farming system that involves raising of fish in rice paddies *(Fisheries Statistics of the Philippines 2010-2012 Technical Notes)*.

Root Crops are crops with well-developed underground edible roots. They are classified into tubers and roots. Roots are more starchy and rich in carbohydrates include gabi, ubi, and white potato. Tubers include beets, radish, carrots, and turnips *(PSA-Agricultural Statistics Glossary of Terms online)*.

Sanitary Landfill is a waste disposal site designed, constructed, operated, and maintained in a manner that exerts engineering control over significant potential environment impacts arising from the development and operation of the facility *(RA No. 9003 "Ecological Solid Waste Management Act of 2000")*.

Scientific Name refers to the formal nomenclature/name of specific plants and animals *(BMB 2003 Statistics on Philippine Protected Areas and Wildlife Resources)*.

Seafarm Reservoirs refer to small bodies of water with an area of less than 10 kilometres such as small ponds, canals, irrigation canals, and swamps, which can be suitable for culture- based fisheries *(Fisheries Statistics of the Philippines 2010-2012 Technical Notes)*.

Seawater Environment (also, Marinewater Environment) refers to inshore and open waters and inland seas in which salinity generally exceeds 20% *(PSA-Agricultural Statistics Glossary of Terms online)*.

Seaweed Farming is the cultivation of seaweed in suitable water areas by any method with appropriate intensive care for production in commercial quantities *(Fisheries Statistics of the Philippines 2010-2012 Technical Notes)*.

Secondary Production of Energy Products refers to manufacture of energy products through the process of transformation of primary fuels or energy *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Shrubland is a land where the dominant woody vegetation are shrubs, which are generally more than 0.5 meter and less than five meters in height in maturity and without a definite crown. The growth habit can be erect, spreading or prostate. The height limits for trees and shrubs should be interpreted with flexibility, particularly the minimum tree and maximum shrub height, which may vary between five and seven meters approximately *(DENR Memorandum Circular 2005-05)*.

Solar Energy is energy derived from solar radiation that can be converted into useful thermal or electrical energy *(RA No. 9513 "An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes")*.

Solid Waste is all discarded household, commercial waste, nonhazardous institutional and industrial waste, street sweepings, construction debris, agricultural waste, and other nonhazardous and nontoxic solid waste *(RA No. 9003 "Ecological Solid Waste Management Act of 2000")*.

Special Wastes refer to household hazardous wastes such as paints, thinners, household batteries, lead-acid batteries, spray canisters, and the like. These include wastes from residential and commercial sources that comprise bulky wastes, consumer electronics, white goods, yard wastes that are collected separately, batteries, oil, and tires. These are usually handled separately from other residential and commercial wastes *(DENR Administrative Order 2013-22)*.

Species refers to the smallest population, which is permanently distinct and distinguishable from all others. It is a primary taxonomic unit *(DENR Administrative Order 2007-01)*.

Stationary Source refers to any building or immobile structure, facility, or installation that emits or may emit any air pollutant *(RA No. 8749 "An Act Providing for a Comprehensive Air Pollution Control Policy and for other Purposes")*.

Stock Changes of Energy Products refer to quantities of energy products that can be held and used to maintain service under conditions where supply and demand are variable in their timing or amount due to normal market fluctuations; and to supplement supply in the case of a supply disruption. These are also defined as the increase (stock build) or decrease (stock draw) in the quantity of stock over the reporting period and are calculated as the difference between the closing and opening stocks *(UNSD International Recommendations for Energy Statistics Draft Version 2011)*.

Sulphur Dioxide (chemical formula: SO_2) is a heavy, pungent, colorless gas formed primarily by the combustion of fossil fuels. It is harmful to human beings and vegetation, and contributes to the acidity in precipitation *(UN Environment Glossary Updated Web Version 2001)*.

Surface Water refers to all water, which is open to the atmosphere and subject to surface runoff *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Sustainable Yield is the surplus or excess of animals or plants that may be removed from a population without affecting the capacity of the population to regenerate itself *(UN System of Environmental-Economic Accounting 2012 Central Framework)*.

Technological Disaster is an event that resulted from human intent, negligence, or error, or from faulty or failed technological application *(UN Framework for the Development of Environment Statistics 2013)*.

Threatened Species is a general term used to denote species or subspecies considered as critically endangered, endangered, vulnerable, or other accepted categories of wildlife whose population is at risk of extinction *(RA No. 9147 "An Act Providing for the Conservation and Protection of Wildlife Resources and Their Habitats, Appropriating Funds Therefor and For Other Purposes")*.

Timber Resources refer to the volume of trees, living and dead, which can still be used for timber or fuel. This includes all trees regardless of diameter or tops of stems. The general proxy that should be considered for determining the volume of timber resources is the volume that is commercially usable *(UN Framework for the Development of Environment Statistics 2013)*.

Toxic refers to substances that when inhaled or ingested or if penetrate the skin may involve acute or chronic health risks, such as carcinogenicity, mutagenicity, or teratogenicity on human or other life forms *(DENR Administrative Order 2013-22)*.

Toxic Pollutants are materials that contaminate the environment, which cause death, disease and birth defects in the organisms that ingest or absorb them. The quantities and length of exposure necessary to cause these effects can vary widely *(UN Environment Glossary Updated Web Version 2001)*.

Toxicity Characteristics Leaching Procedure is the procedure used to simulate the leaching that a waste will undergo if disposed of in a sanitary landfill. It is applicable to liquid, solid, and multiphase media *(DENR Administrative Order 2013-22)*.

Treatment, Storage, and Disposal Facilities are the facilities where hazardous wastes are transported, stored, treated, recycled, reprocessed, or disposed of *(DENR Administrative Order 2013-22)*.

Use of Water for Domestic Purposes refers to the utilization of water for drinking, washing, bathing, cooking, or other household needs, home gardens, and watering of lawns or domestic animals *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Use of Water for Fisheries refers to the utilization of water for the propagation of culture of fish as a commercial enterprise *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Use of Water for Industrial Purposes refers to the utilization of water in factories, industrial plants, and mines, including the use of water as an ingredient of a finished product *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Use of Water for Irrigation refers to the utilization of water for producing agricultural crops *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Use of Water for Livestock Raising refers to the utilization of water for large herds or flocks of animals raised as a commercial enterprise *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Use of Water for Municipal Purposes refers to the utilization of water for supplying water requirements of the community *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Use of Water for Power Generation refers to the utilization of water for producing electrical or mechanical power *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other*

Purposes").

Use of Water for Recreational Purposes refers to the utilization of water for swimming pools, bath houses, boating, water skiing, golf courses, and other similar facilities in resorts and other places of recreation *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Value of Crop Production is derived by multiplying the volume of production by the producer or farmgate price *(PSA-Agricultural Statistics Glossary of Terms online)*.

Vector Borne Diseases are transmitted by vectors (e.g., insects and arachnids) that carry viruses, bacteria, protozoa and other pathogens, as defined by the World Health Organization. Common vector borne diseases include but are not limited to malaria, dengue fever, yellow fever, and Lyme disease *(UN Framework for the Development of Environment Statistics 2013)*.

Volatile Organic Compounds are organic chemical compounds that evaporate readily and contribute to air pollution mainly through the production of photochemical oxidants *(UN Environment Glossary Updated Web Version 2001)*.

Volume of Crop Production is expressed in million metric tons. It is the average production per hectare or yield expressed in metric tons *(PSA-Agricultural Statistics Glossary of Terms online)*.

Volume of Fisheries Production (Commercial, Municipal, and Aquaculture) is the quantity of fish catch, harvested/produced expressed in metric tons *(PSA-Agricultural Statistics Glossary of Terms online)*.

Vulnerable Species refers to species or subspecies that is not critically endangered or endangered but is under threat from adverse factors throughout their range and is likely to move to the endangered category in the near future *(RA No. 9147 "An Act Providing for the Conservation and Protection of Wildlife Resources and Their Habitats, Appropriating Funds Therefor and For Other Purposes")*.

Waste refers to any material either solid, liquid, semisolid, contained gas or other forms resulting from industrial, commercial, mining, or agricultural operations, or from community and household activities that is devoid of usage and discarded *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Waste Collection is the collection and transport of waste to the place of treatment or discharge by municipal services or similar institutions, or by public or private corporations, specialized enterprises, or general government. Collection of municipal waste may be selective, that is to say, carried out for a specific type of product, or undifferentiated, in other words, covering all kinds of waste at the same time *(UN Environment Glossary Updated Web Version 2001)*.

Waste Management includes collection, transport, treatment, and disposal of waste; control, monitoring, and regulation of the production, collection, transport, treatment, and disposal of waste; and prevention of waste production through in-process modifications, reuse, and recycling *(UN Environment Glossary Updated Web Version 2001)*.

Wastewater refers to waste in liquid state that contains pollutants. It also refers to used water that is typically discharged into the sewage system and contains matter and bacteria in solution or suspension *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes"; UN Glossary of Environment Statistics)*.

Water Abstraction is the removal of water from any source, either permanently or temporarily. Minewater and drainage water are included. Water abstractions from groundwater resources are defined as the difference between the total amount of water withdrawn from aquifers and the total amount charged artificially or injected into aquifers *(UN Environment Glossary Updated Web Version 2001)*.

Water Body refers to both natural and man-made bodies of fresh, brackish, and saline waters, and includes but is not limited to aquifers, groundwater, springs, creeks, streams, rivers, ponds, lagoons, water reservoirs, lakes, bays, estuarine, and coastal and marine waters. These do not refer to those constructed, developed, and used purposely as water treatment facilities and or water storage for recycling and reuse that are integral to process industry or manufacturing *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Water Pollution is any alteration of the physical, chemical, biological, or radiological properties of a water body resulting in the impairment of its purity or quality *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*.

Water Quality is the set of characteristics of water, which defines its use in terms of physical, chemical, biological, bacteriological, or radiological characteristics by which the acceptability of water is evaluated *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and for Other Purposes")*

Water Quality Criteria define specific levels of water quality desired for identified uses, including drinking, recreation, farming, fish production, propagation of other aquatic life, and agricultural and industrial processes *(UN Environment Glossary Updated Web Version 2001)*.

Water Quality Guideline is the level for a water constituent or numerical values of physical, chemical, biological, and bacteriological or radiological parameters, which are used to classify water resources and their use, which does not result in significant health risk and which are not intended for direct enforcement but only for water quality management purposes, such as determining time trends, evaluating stages of deterioration, or enhancing the water quality, and as basis for taking positive action in preventing, controlling, or abating water pollution *(RA No. 9275 "An Act Providing for a Comprehensive Water Quality Management and For Other Purposes")*.

Water Resource is fresh and brackish water, regardless of their quality, in inland water bodies that include surface water, groundwater, and soil water *(UN Framework for the Development of Environment Statistics 2013)*.

Watershed is a land area drained by a stream or fixed body of water and its tributaries having a common outlet for surface-runoff *(PD No. 1559 "Further Amending PD No. 705, Otherwise Known as the Revised Forestry Code of the Philippines")*.

Watershed Reservation is a forest land reservation established to protect or improve the conditions of the water yield thereof or reduce sedimentation *(PD No. 1559 "Further Amending PD No. 705, Otherwise Known as the Revised Forestry Code of the Philippines")*.

Water-related Diseases and Conditions result from microorganisms in the water humans drink as defined by the World Health Organization. They include but are not limited to diarrheal disease, gastroenteritis, and water borne parasite infections *(UN Framework for the Development of Environment Statistics 2013)*.

Weather is a day-to-day or sometimes even instantaneous change of atmospheric conditions over a given place or area. In contrast, climate encompasses the statistical ensemble of all weather conditions during a long period of time over that place or area. Atmospheric conditions are measured by the meteorological parameters of air temperature, barometric pressure, wind velocity, humidity, clouds, and precipitation *(UN Environment Glossary Updated Web Version 2001)*.

White Corn is corn grown and used mainly for human consumption and for manufacture of corn byproducts such as cornstarch, corn oil, syrup, dextrins, glucose, and gluten *(PSA- Agricultural Statistics Glossary of Terms online)*.

Wildlife Sanctuary comprises an area that assures the natural conditions necessary to protect nationally significant species, groups of species, biotic communities, or physical features of the environment where these may require specific human manipulation for perpetuation *(RA No. 7586 "An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage, and For Other Purposes")*.

Wind Energy is energy that can be derived from wind that is converted into useful electrical or mechanical energy *(RA No. 9513 "An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes")*.

Wooded Grassland is an area predominantly vegetated with grasses, such as Imperata, Themeda, and Saccharum, and where trees cover between 5% to 10% of the area and their height may reach five meters at maturity *(DENR Memorandum Circular 2005-05)*.

Yellow Corn is corn mainly used as feed grains and includes corn types other than the white variety *(PSA-Agricultural Statistics Glossary of Terms online)*.

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