

CLIMATE CHANGE AND THE PHILIPPINES

EXECUTIVE BRIEF

This brief highlights the key findings of the IPCC Fifth Assessment Report, the impacts of climate change in the Philippines, and the actions undertaken by the Government of the Philippines to address climate change.

Photo from Wikipedia

CLIMATE CHANGE: A GLOBAL THREAT

Climate change is the long-term changeⁱ in climate (i.e. temperature, rainfall, extreme weather, etc.). Scientific studies indicate that most global warming in recent decades is due to the great concentration of greenhouse gases (GHG) in the atmosphere, which are released mainly as a result of human activities.ⁱⁱ

Climate change has resulted in rising sea levels and extreme weather events such as super typhoons, more heavy rains, more intense heat and heat waves, and prolonged severe droughts, and consequently enormous losses in lives, livelihoods, properties, and the environment. Vulnerable countries, like the Philippines, bear the brunt of the impact of climate change.

The World Meteorological Organisation (WMO) confirmed that 2015, 2016, and 2017 were the three warmest years on record.ⁱⁱⁱ 2016 still holds the global record, while 2017 was the warmest year without El Niño.^{iv}

Data from the United Kingdom's Met Office showed that the rise in global average temperature in 2015 and 2016 had breached 1°C above pre-industrial levels (1850-1900 reference period).^v In a business-as-usual scenario, this could reach up to 4°C by 2050, leading towards potentially devastating consequences.^{vi}

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

The United Nations Intergovernmental Panel on Climate Change (IPCC) was established by the WMO and United Nations Environment Programme in 1988 as the leading international body for the assessment of climate change.^{vii} It provides the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.

In a 2013 study, the IPCC warned that the world could not afford to keep emitting carbon dioxide as it has been doing in recent years.^{viii} To avoid dangerous levels of climate change beyond 2°C, the world can only emit between 800 and 880 gigatonnes of carbon.^{ix} Of this, about 530 gigatonnes had already been emitted by 2011.^x

Thus, only greater global ambition on GHG emissions reduction and urgent international action could help meet the necessary scale and pace to prevent the catastrophic effects of a runaway global warming.

Currently, 195 countries are members of the IPCC and thousands of scientists from all over the world contribute to its work. Filipino scientists Juan Pulhin, Felino Lansigan, Lourdes Tibig, Rodel Lasco, and Rosa Perez are in the IPCC roster and have lent their studies to its publications.

The scientific evidence brought up by the first IPCC Assessment Report of 1990 underlined the challenge of international cooperation to tackle the consequences of climate change.^{xi} It therefore played a decisive role in the creation of the United Nations Framework Convention on Climate Change (UNFCCC), the primary international treaty for addressing climate change.^{xii}

KEY FINDINGS OF THE IPCC FIFTH ASSESSMENT REPORT (AR5)^{xiii}



Each of the last three decades has been successively warmer than any preceding decade since 1850. In the northern hemisphere, 1983-2012 was likely the warmest 30-year period of the last 1,400 years.



Atmospheric concentrations of carbon dioxide, methane, and nitrous oxide are now at levels "unprecedented in at least the last 800,000 years."



Global temperatures are likely to rise by 0.3°C to 4.8°C by the end of the century depending on how much governments control carbon emissions.



Sea levels are expected to rise an additional 26-82 centimeters by 2100. The wide variation in part reflects the difficulty scientists still have in predicting sea level rises.



The oceans have acidified, having absorbed about a third of the carbon dioxide thus far emitted.

***The AR5 is the latest in a series of reports from the IPCC assessing scientific, technical, and socio-economic information regarding climate change. It was released in three installments over the course of 2013 and 2014, and an additional synthesis report was published in November 2014.*

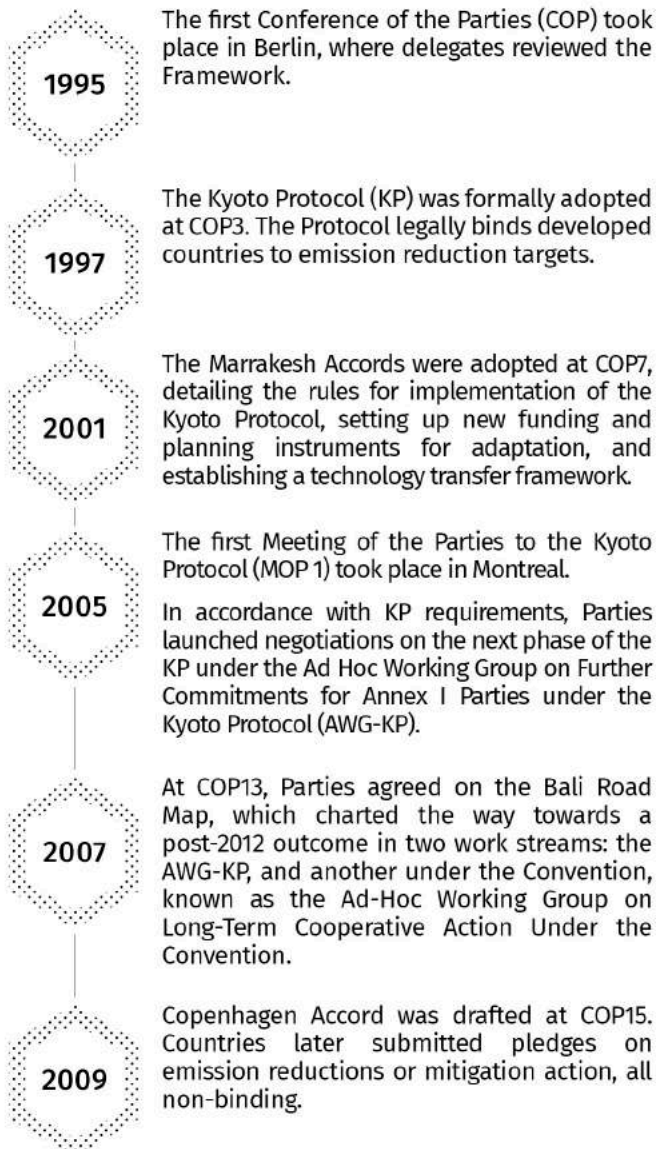
In October 2018, the IPCC is set to release its Special Report on the Global Warming of 1.5°C, which will outline the impacts of 1.5°C global warming above pre-industrial levels.

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The collective political response of the international community to climate change began at the Rio Earth Summit in 1992, where the UNFCCC was established.^{xiv} Ratified by 197 countries in 1994, the framework aims to stabilize GHGs to mitigate dangerous man-made interference with the climate system.

What followed was more than two decades of negotiations on how the international community would collectively address the issue of climate change.

CLIMATE NEGOTIATIONS TIMELINE^{xv}



**Parties include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.*



Photo from USEA

CLIMATE JUSTICE AS THE SOUL OF THE PARIS AGREEMENT

In December 2015, countries adopted the Paris Agreement on Climate Change, a legally binding accord that aims to stop global temperature rise at 1.5°C above pre-industrial temperature levels—the global warming threshold for vulnerable countries like the Philippines to survive and thrive.

"Common but differentiated responsibilities and respective capabilities" is the core principle of the accord, recognizing the different circumstances, and responsibilities of countries. This principle means that developed countries would take the lead in mitigating climate change and would support vulnerable countries in reducing emissions by providing finance and capacity building, and by facilitating technology development and transfer.

Moreover, developing countries are given leeway in the implementation of their contributions and provided with the tools and means to do so.

As a Party to the Paris Agreement since 22 April 2017, the Philippines is eligible to access climate finance for developing countries' climate actions, including disaster risk reduction and climate change adaptation and mitigation, to be mobilized by the developed countries at a rate of USD 100 billion yearly until 2020^{xvi} and more from 2025.^{xvii}

This financial support to developing countries comes as grants—not loans—and will be on top of any existing overseas development assistance.^{xviii} These grants are channeled through the established international climate finance mechanisms, i.e. the Green Climate Fund (GCF) and the Global Environment Fund (GEF), as provided in the Paris Agreement.^{xvix}

"Despite diversity and divergence, we have found common ground. The Paris Agreement is a monumental feat of humanity. Together with the equally landmark Sendai Framework for Disaster Risk Reduction and the 2030 Agenda for Sustainable Development, it provides a vision and pathway for humanity's future."

- Philippine Climate Change Secretary Emmanuel M. De Guzman during the UNFCCC COP21 Closing Plenary, December 12, 2015.

RAISING AMBITION, ACCELERATING ACTION

The 1.5°C Paris goal should drive global action, which must translate into local interventions and measures on two areas: adaptation and mitigation.

ADAPTATION

Since climate change is already here and will only worsen in the short-term, it is essential for countries to adapt to its impacts and to build resilience.

Adaptation measures that national government agencies are implementing in coordination with the Climate Change Commission, to enhance the climate resilience of vulnerable communities, include undertaking vulnerability risk assessment, strengthening public health services, protecting ecosystems, improving agricultural methods, managing water resources, developing multi-hazard early warning systems, instituting better building designs, integrating climate change knowledge in formal education, and raising public awareness.

MITIGATION

Current policies would lead towards 4°C global warming above pre-industrial levels which has potentially devastating consequence.^{xx}

Meanwhile, the Intended Nationally Determined Contributions (INDCs)—the draft emission reduction targets submitted by countries in the lead up to Paris COP21—are projected to result in between 2.7°C to 3.7°C of warming (median chance), depending on the modeling assumptions used.^{xxi}

Thus, the pledges of developed countries to reduce emissions must be revised to align with the 1.5°C goal.

For the Philippines, which emits less than 0.33%^{xxii} of the total global GHG emissions, mitigation is a function of adaptation, highlighting the advantages of low-carbon economic growth and a climate-resilient society in our pursuit of sustainable development.



IMPACTS OF CLIMATE CHANGE IN THE PHILIPPINES

ERODING HARD-EARNED SOCIO-ECONOMIC GAINS



PHILIPPINES TO LOSE 6% GDP ANNUALLY BY 2100

The latest IPCC Assessment Report concluded that climate change will create new poor between now and 2100.^{xxiii} Poverty breeds disaster vulnerability, and those who have least in life risk life most. To be indifferent and to do nothing on the threats of climate change is therefore an injustice to the vulnerable poor. Adaptation, mitigation, and risk reduction are moral imperatives and clearly social justice in action.

Based on a study by the Asian Development Bank on the economics of climate change, the country stands to lose 6% of its GDP annually by 2100 if it disregards climate change risks.^{xxiv} This same study found that if the Philippines invests 0.5% of its GDP by 2020 in climate change adaptation, it can avert losses of up to 4% of its GDP by 2100—clearly a short-term investment with a long-term eight-fold gain.

MAJOR RAINFALL CHANGES IN PATTERNS AND DISTRIBUTIONS



A 2011 PAGASA report suggests a decrease in rainfall by 2020 in most parts of the country except Luzon. As far as extreme rainfall is concerned, however, the number of days with heavy rainfall (e.g., greater than 200 millimeters) is expected to increase with global warming by the year 2020 and 2050.^{xxv}

THREATS TO NATURAL ECOSYSTEMS



Approximately 1 million hectares of grasslands in the Philippines are highly vulnerable to climate change in the future. Most grasslands in the uplands are prone to fires particularly during extended periods of dryness and lack of rainfall during summer months.^{xxvi}

DYING CORALS

98% 
NEARLY EXTINCT

The 2016 Low Carbon Monitor Report foresees that 98% of coral reefs in Southeast Asia will die by 2050, practically an extinction by the end of the century if current global warming trends will continue.^{xxvii} The IPCC projects that by years 2051 to 2060, the maximum fish catch potential of Philippine seas will decrease by as much as 50% compared to 2001-2010 levels.^{xxviii}

DECLINING RICE YIELDS

10% 
FOOD SUPPLY THREATENED

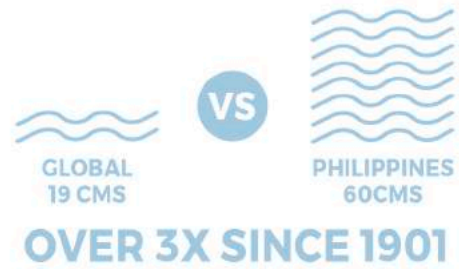
An analysis of temperature trends and irrigated field experiments at the International Rice Research Institute shows that grain yield decreased by at least 10% for each 1°C increase in growing-season minimum temperature in the dry season.^{xxix}

MORE INTENSE DROUGHTS

413,456
FARMERS AFFECTED
IN THE 2015-2016 EL NIÑO
IN THE PHILIPPINES

Global warming exacerbates the effects of El Niño,^{xxx} the most recent of which was experienced in the country from 2015 to 2016.^{xxxi} The Department of Agriculture estimated that 413,456 farmers have been directly affected by El Niño-associated drought and dry spells during the last El Niño period.^{xxxii} In 2016, the drought ignited a protest by 6,000 affected farmers that resulted in violence in Kidapawan, North Cotabato.^{xxxiii}

HIGHER SEA LEVEL RISE



Observed sea level^{xxxiv} rise is remarkably highest at 60 cms in the Philippines, about three times that of the global average at 19 centimeters.^{xxxv} This puts at risk 60% of LGUs covering 64 coastal provinces, 822 coastal municipalities, 25 major coastal cities, and an estimated 13.6 million Filipinos that would need relocation.

WATER SCARCITY

57TH MOST WATER STRESSED COUNTRY BY 2040

A study conducted by the World Resources Institute predicts the Philippines will experience a "high" degree of water shortage by 2040. The country ranked 57th likely most water stressed country in 2040 out of 167 countries.^{xxxvi}

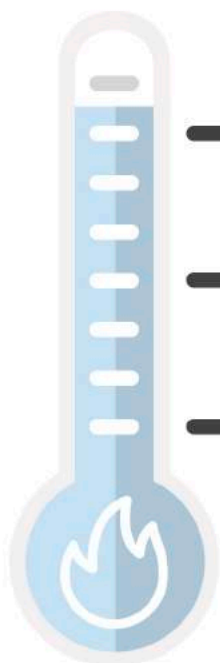
MORE PUBLIC HEALTH EMERGENCIES

**DENGUE
TYPHOID
CHOLERA
MALARIA**



Higher temperatures also trigger the surge of diseases such as dengue, malaria, cholera, and typhoid.^{xxxviii} In 1998, when the Philippines experienced the strongest El Niño phenomenon to-date, almost 40,000 dengue cases, 1,200 cholera cases, and nearly 1,000 typhoid fever cases were recorded nationwide.

LABOR PRODUCTIVITY DECLINES



According to a 2016 United Nations study, climate change-induced heat in the country's workplace is projected to render 1% loss in working hours by 2025, 2% by 2050, and 4% by 2085.^{xxxvii}

MORE WOMEN ENDANGERED AND KILLED



A paper released by the World Health Organization (WHO) examining gender, climate change, and health, stated that the impacts of natural hazards such as droughts, floods and storms kill more women than men, and tend to kill women at a younger age. Climate-sensitive and gender-specific health impacts affect women disproportionately than men.^{xxxix}

CATALOGUE OF LOSS AND DAMAGE FROM EXTREME WEATHER EVENTS IN THE PHILIPPINES

The 2015 Global Climate Risk Index listed the Philippines as the number one country most affected by climate change.^{xi} The country was likewise ranked third on a list of countries most exposed to natural hazard impacts from 1970 to 2014.^{xii}

In recent years, the country has experienced severe loss and damage caused by extreme weather events, which may have been exacerbated by climate change.

The massive loss and damage of the Philippines in recent years shows that climate change is a clear and present threat to the country's national security and sustainable development pursuit.

2013, CENTRAL VISAYAS




**6,300 casualties^{xliii}
P89 billion cost of damage^{xliv}**

Photo from GMA Network

Supertyphoon Yolanda (Haiyan) brought unprecedented storm surges of 5-6 meters, which flattened communities along the eastern seaboard of Leyte and Samar islands, displaced hundreds of thousands of people, and claimed thousands of lives.^{xlii}

2009, METRO MANILA, CENTRAL AND SOUTHERN LUZON



**464 casualties^{lv}
P11 billion cost of damage^{lvi}**

Photo from UP NOAH Center

Tropical Storm Ondoy (Ketsana) submerged Metro Manila, Central and Southern Luzon, and some parts of Visayas and Mindanao, after dumping 455 mm of rain over a 24-hour period.^{lv}

2012, MINDANAO



**1,067 casualties^{xlvi}
P36.949 billion cost of damage^{xlvii}**

Photo from John Javellana

Destructive flashfloods caused by Typhoon Pablo (Bopha) ravaged the island off the coast of Baganga, Davao Oriental, and other areas in Mindanao.^{xlv}

2006, SOUTHERN LEYTE



**1,221 casualties^{lviii}
200 million cost of damage^{lix}**

Photo from UP NOAH Center

Rainfall amounting to over 2,000 millimeters in ten days and a 2.6 magnitude earthquake induced a massive landslide, with an estimated volume of 15-20 million cubic meters, burying an entire village in Guinsaugon, Saint Bernard, Southern Leyte.^{lvii}

2011, CAGAYAN DE ORO



**1,268 casualties^{xxix}
P2.068 billion cost of damage^l**

Photo from Inquirer.net

Tropical Storm Sendong (Washi) triggered flash floods in the cities of Cagayan de Oro and Iligan that caused enormous toll on lives and properties.^{xlviii}

1997-1998



P8.46 billion cost of damage^{lxi}

Photo from GMA Network

The severe El Niño drought of 1997-1998, regarded as among the most intense droughts in recorded history, occurred when the country was enjoying a continuous four-year growth.^{lx}

2009, NORTHERN LUZON



**465 casualties^{lii}
P27.297 billion cost of damage^{liiii}**

Photo from UP NOAH Center

Deadly flashfloods by Typhoon Pepeng (Parma) wreaked havoc on the northern part of Luzon, particularly in Pangasinan, where the San Roque Dam, the Philippines' largest dam, inadvertently released water to prevent its breach.^{li}

“We cannot deny that we need to argue for the cause of preventing climate change. The reason really for the so many destructions facing Mindanao is there is really a climate change. We are a few more degrees higher than the last century. The world is used to a certain temperature so this will really ruin – including mankind.”

- Philippine President Rodrigo Roa Duterte during the inauguration of a hydro-electric powerplant in Valencia City, Bukidnon, December 9, 2016



At COP 23 in Bonn, Philippine Senator Legarda (rightmost) discusses her role as the newly designated National Adaptation Plan (NAP) Champion with Fiji Prime Minister and COP 23 President Frank Bainimarama, UNFCCC Executive Secretary Patricia Espinosa, and UNFCCC Adaptation Programme Manager Paul Desanker (from left to right).

“We come to COP23 with a strong call for climate justice: that those who are most vulnerable, who suffer the most from the adverse effects of climate change and who have contributed the least to climate change are empowered and enabled, in terms of capacity and finance, to fight back. This necessitates not just enhanced ambition, but the steely resolve to act now. The window of opportunity on achieving the 1.5°C limit of the Paris Agreement is fast closing and any delay will result in the irreversible.”

Philippine Senator Loren Legarda during the COP23 Closing Plenary, November 16, 2017 in Bonn, Germany.

CLIMATE ACTION IN THE PHILIPPINES

Based on mounting scientific evidence of an impending global warning that will ‘adversely affect’ the country’s coastal areas and land ecosystems, the Inter-Agency Committee on Climate Change was established in 1991 to formulate domestic climate policy responses and strategies, and coordinate national requirements to the 1992 UNFCCC negotiations.^{lxii}

Pursuant to the 1987 Constitution policy declaration that the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature, the Philippines ratified the UNFCCC treaty in 1994 and served as Chair of the Group of 77 and China during the first COP in Berlin, Germany. In 2003, the Philippines ratified the Kyoto Protocol (as a non-Annex I country), an international agreement in which it played a leadership role in the negotiations.

Moreover, through the years, the Philippine Congress enacted special laws and implemented national measures on environmental preservation, which include the following:

- ▶ **Republic Act No. 8435 or the Agriculture and Fisheries Modernization Act of 1997** that establishes that the Department of Agriculture, together with other appropriate agencies, should take into account climate change, weather disturbances, and annual productivity cycles in forecasting and formulating appropriate agricultural and fisheries programs;
- ▶ **Republic Act No. 8749 or the Clean Air Act of 1999** that moves for an effective air quality management program that will mitigate the worsening problem of air pollution in the country;
- ▶ **Republic Act No. 9003 or the Solid Waste Management Act of 2000** that aims to provide a comprehensive solution to the country’s garbage problem;
- ▶ **Republic Act No. 9275 or the Clean Water Act of 2004** that moves for a comprehensive water quality management

scheme;

- ▶ **Republic Act No. 9512 or the National Environmental Awareness and Education Act of 2008** that promotes national awareness on the role of natural resources in economic growth and the importance of environmental conservation and ecological balance towards sustained national development; and
- ▶ **Republic Act No. 9513 or the Renewable Energy Act of 2008** that promotes the development, utilization and commercialization of renewable energy resources.

Since the late 2000s, climate policymaking and climate diplomacy intensified in the Philippines. Administrative Order No. 171, s. 2007, created the Presidential Task Force on Climate Change to address and mitigate the impact of climate change in the country, paying special attention to adaptation, mitigation, and technological solutions.^{lxiii}

CLIMATE CHANGE ACT OF 2009

In 2009, **Republic Act No. 9729 or the Climate Change Act** was passed into law, creating the Climate Change Commission (CCC), chaired by the President, as the principal climate policymaking body of the government.^{lxiv}

As a policy authority and as a science-based agency, the CCC has two supporting bodies namely the Climate Change Advisory Board, composed of key government agencies and sectoral representatives, and the National Panel of Technical Experts, composed of the country’s leading climate scientists and IPCC lead authors.^{lxv}

Pursuant to the Climate Change Act, the CCC promulgated the National Framework Strategy on Climate Change (NFSCC) for 2010-2022. The NFSCC aims to build a roadmap for a national program on climate change.^{lxvi}

In 2011, the CCC translated the NFSCC into the National Climate Change Action Plan (NCCAP) 2011-2028. The NCCAP sets the directional plan for the government on implementing short, medium, and long-term actions in

seven thematic areas, i.e. food security, water sufficiency, ecological and environmental stability, human security, climate-smart industries and services, sustainable energy, and knowledge and capacity development.^{lxvii}

In 2012, **Republic Act No. 10174** amended the Climate Change Act and established the **People's Survival Fund** to provide long-term financing to climate change adaptation projects.^{lxviii}

PHILIPPINE DEVELOPMENT PLAN (PDP) 2017-2022

Under the Duterte Administration, the Philippine Development Plan 2017-2022 recognizes the widespread impacts of climate change^{lxix} and the need for a nationwide climate and disaster vulnerability and risk assessment to deal with the impacts of natural hazards.^{lxx}

THE CLIMATE CHANGE COMMISSION (CCC)

POLICY DEVELOPMENT

The following are the CCC's Resolutions adopted since 2011:

22 NOV
2011

Approving the National Climate Change Action Plan (NCCAP)

Pursuant to Section 13 of the RA 9729, the CCC approved the NCCAP that outlines the agenda for climate change adaptation and mitigation for 2011-2028.

11 JUN
2013

Endorsing the Project of the Philippine Green Building Initiative (PGBI) and the IFC of the World Bank Group to study, develop and formulate a Green Building Ordinance for Local Government Units (LGUs)

Recognizing the formal request of the PGBI to assist in its program study for a green building ordinance for LGUs, the CCC endorsed the project and mandated all LGUs and building owners to cooperate in the survey and program study.

12 JUN
2013

Authorizing the Dialogue with Worldwatch Institute for the Design of "Sustainable Power System: A Roadmap for the Philippines"

CCC invited Mr. Alexander Ochs to discuss the Sustainable Power System Roadmap for the Philippines and its parameters and ordered the coordination with the concerned through the Office of Commissioner Heherson T. Alvarez.

13 JUN
2013

Endorsing the Black Carbon or Black Soot Mitigation Project of Commissioner Heherson T. Alvarez

Recognizing the unique opportunity to help diminish the so-called black carbon by diesel-fueled vehicles and generators, the CCC officially endorsed the black carbon/black soot mitigation project.

07 APR
2015

Adopting the Constitution of the National Panel of Technical Experts (NPTE) and Appointing the Members thereof

CCC approved and adopted the constitution of the NPTE, and, appointed 14 members for a period of two years, subject to reappointment.

NOV
2015

Approving Revised Implementing and Regulations (RIRR) of Republic Act No. 9729, otherwise known as the Climate Change Act of 2009, as amended by Republic Act No. 10174

The CCC approved the RIRR of the RA 9729, as amended by RA 10174, which provides for specific guidelines/procedures for the following: Climate Change Advisory Board, National Panel of Technical Experts, Climate Change Framework and Program, and the People's Survival Fund (PSF).

18 MAY
2016

Developing a Clear Policy on Coal-Fired Power Plants in Pursuit of a Low Carbon Development Pathway for the Philippines

CCC, pursuant to its mandate to mainstream a low carbon development pathway for the Philippines, resolved to facilitate a national policy review and framework development on energy, through a whole-of-nation approach.

25 JAN
2017

Supporting the Policy Recommendation for the Use of Multi-Scenario and Multi-Hazard Based Probabilistic Approach on Risk and Vulnerability Assessment, Reduction and Mapping

CCC affirmed its commitment to mainstreaming of science- and risk-based probabilistic climate and disaster risk and vulnerability assessment and mapping into the plans, processes, and program of the government to avoid maladaptation to climate change.

CAPACITY BUILDING: ROLLOUT OF THE COMMUNITIES FOR RESILIENCE (CORE) TRAININGS

Pursuant to the provision of the Climate Change Act for the national government to extend technical assistance to LGUs for the accomplishment of their Local Climate Change Action Plans (LCCAPs), the CCC has initiated in 2016 the development of the Communities for Resilience Modular Training Manuals or CORE Module Series—a set of standard training modules on methods and tools for risk science-based local development planning.

The CCC, together with the Local Government Academy and development partners, has trained 133 faculty members from higher education institutions (HEIs), including state universities and colleges (SUCs), on the use of these modules.

In 2018, the CCC continues to engage HEIs, including the University of the Philippines System, to assist local government units in developing their Local Climate Change Action Plans and Comprehensive Land Use and Development Plans.

COMMUNITIES FOR RESILIENCE CORE MODULE SERIES

- | | | |
|---|-----------|---|
|  | 01 | Basic Concepts and Principles of CORE |
|  | 02 | Vulnerability and Risk Assessment |
|  | 03 | Natural Resources Assessment |
|  | 04 | Environment and Natural Resources Accounting |
|  | 05 | Geographic Information System |
|  | 06 | Financial Literacy |
|  | 07 | LCCAP Formulation and Implementation |
|  | 08 | Project Development |
|  | 09 | People's Survival Fund Access |
|  | 10 | Climate Change Expenditure Tagging |
|  | 11 | Greenhouse Gas Inventory |
|  | 12 | Cultural and Indigenous Peoples' Resilience |
|  | 13 | Multi-Hazard Early Warning Systems and Services |
|  | 14 | Early Recovery Planning |
|  | 15 | Green Jobs and Just Transition |

MAJOR INITIATIVES UNDERWAY

UPDATING THE NATIONAL CLIMATE CHANGE ACTION PLAN (NCCAP)

Pursuant to its mandate under the Climate Change Act, the CCC established the Results-Based Monitoring and Evaluation System (RBMES) to monitor and evaluate the progress of the implementation of the National Climate Change Action Plan (NCCAP).

The NCCAP aims to pursue the following strategic priorities:



FOOD SECURITY

Ensure availability, stability, accessibility, and affordability of safe and healthy food amidst climate change.



WATER SUFFICIENCY

Assess the resilience of major water resources and infrastructures, manage supply and demand, manage water quality, and promote conservation.



ECOSYSTEM AND ENVIRONMENTAL STABILITY

Ensure protection and rehabilitation of critical ecosystems, and the restoration of ecological services.



HUMAN SECURITY

Reduce the risks of women and men to climate change and disasters.



CLIMATE-SMART INDUSTRIES AND SERVICES

Create green jobs and develop sustainable cities and municipalities.



SUSTAINABLE ENERGY

Promote energy efficiency and conservation and develop sustainable and renewable energy, and transport.



KNOWLEDGE AND CAPACITY DEVELOPMENT

Enhance capacity for climate change adaptation, mitigation and disaster risk reduction at the local and community level.

In accordance with the law, the CCC in 2017 has started revisiting and updating the NCCAP to articulate the National Adaptation Plan (NAP) and the Nationally Determined Contribution (NDC).

DEVELOPING THE NATIONALLY DETERMINED CONTRIBUTION (NDC)

With the Philippines' accession to the Paris Agreement in 2017, the CCC has facilitated a bottom-up approach to developing the country's NDC for submission to the UNFCCC.

The NDC is the country's roadmap on how to transition towards a low-carbon economy. It provides convergence points where the government, the business sector, and other stakeholders could further collaborate and invest in implementing green initiatives in all sectors.

In 2017, the CCC conducted a total of 15 consultations, validation meetings, and workshops on the NDC sectoral targets and adaptation and mitigation options for the agriculture, waste, industry, transportation, forestry, and energy sectors. An initial draft of the NDC is already at hand and is set for promulgation in 2018.

FACILITATING THE NATIONAL ENERGY POLICY REVIEW

Pursuant to CCC Resolution No. 2016-001, the CCC has facilitated a national policy review and framework development on energy, through a whole-of-nation approach, in accordance with a low-carbon and sustainable development pathway. The draft policy framework has been finalized with key stakeholders.

CERTIFYING GREEN JOBS

Pursuant to the Philippine Green Jobs Act of 2016, the CCC is currently developing the standards for green jobs and establishing an accreditation and certification system that incentivizes businesses that support green jobs and just transition to a green economy.

STRENGTHENING THE RESILIENCE OF INDIGENOUS PEOPLES AND THE URBAN POOR

The CCC is facilitating the development and establishment of a comprehensive integrated climate adaptation and resilience program for all the Indigenous Peoples (IP) communities, as well as for urban poor communities.

LINKING SCIENCE, POLICY, AND PRACTICE: EXPERT FORUMS

In 2017, the CCC launched its series of Expert Forums, which emphasizes the value of science informing policy and practice in the context of climate action. This initiative is in line with the CCC's mandate under the Climate Change Act to promote broader multi-stakeholder participation and to mainstream climate change mitigation and adaptation in national policy and planning processes.

In 2018, the CCC brings the expert forums to HEIs and SUCs nationwide. Moreover, more forums will be conducted particularly on food security, water sufficiency, and ecological stability in the context of climate action.

STRENGTHENING MULTI-HAZARD, IMPACT-BASED FORECASTING AND EARLY WARNING SYSTEMS

The CCC sees the need to improve interagency and multi-stakeholder coordination on impact-based forecasting and multi-hazard early warning, especially for remote communities at risk. This entails strengthened cooperation among key agencies. To this end, CCC is coordinating with hazard mapping agencies and other relevant institutions to establish a national integrated risk information system — a platform that will integrate all existing risk information currently scattered in institutions.

“I am directing the Cabinet Cluster on Climate Change Adaptation and Disaster Risk Management to immediately work hand in hand with the concerned LGUs, the private sector and the affected communities themselves, in undertaking disaster resiliency measures, antidotes. We all need to act fast.”

- Philippine President Rodrigo Roa Duterte during the 2017 State of the Nation Address

ENGAGING CIVIL SOCIETY ORGANIZATIONS

The CCC has the country's leading civil society organizations (CSOs) as its indispensable partners in advancing climate action in all sectors across the country and in upholding climate justice in international climate negotiations.

The CCC and various CSOs have agreed to meet regularly to sustain cooperation on various fronts of climate action, including capacity building of LGUs, policy research and development, and nationwide monitoring, evaluation, and reporting of climate action.

MAINSTREAMING CLIMATE CHANGE IN THE NATIONAL RESEARCH AND DEVELOPMENT AGENDA

Recognizing that scientific research is key to climate policy reform and innovative climate actions, the CCC, through its National Panel of Technical Experts, identifies priority research studies for climate adaptation and mitigation as part of the National Research and Development Agenda. This initiative is in line with the CCC's mandate under the Climate Change Act to exercise policy coordination to ensure the attainment of goals set in the National Framework Strategy on Climate Change (NFSCC) and National Climate Change Action Plan (NCCAP).

COORDINATING CLIMATE ACTIONS THROUGH THE CABINET CLUSTER ON CLIMATE CHANGE ADAPTATION AND MITIGATION-DISASTER RISK REDUCTION (CCAM-DRR)

Addressing the impacts of climate change requires a convergent and whole-of-government approach. Thus, the CCC has been carrying out its mandate of coordinating the programs and action plans of the government relating to climate change as the Secretariat of the Climate Change Adaptation, Mitigation, and Disaster Risk Reduction (CCAM-DRR) Cluster System, which was created^{lxix} under Executive Order No. 24, s. 2017.

REPORTING THE STATE OF PHILIPPINE CLIMATE ACTION

Pursuant to its mandate of coordinating, monitoring, and evaluating the action plans of the government on climate change, the CCC has commenced the consolidation of the national government agencies' reports on programs and activities on climate change, which will be included into the First State of Philippine Climate Action Report.

To be released in November 2018, the Report will serve as a comprehensive baseline on the country's climate action and the implementation of the NCCAP 2018-2028.



Photo from Malacanang

PHILIPPINE GOOD PRACTICES: CLIMATE CHANGE ADAPTATION INITIATIVES

Being an insignificant emitter of GHGs, the Philippines puts greater emphasis on adaptation, complemented by disaster risk reduction and resiliency measures that also reduce emissions. The following local government units are implementing innovative adaptation practices to manage climate and disaster risks in line with the policies laid out by the Philippine Government:

FOOD SECURITY: COMMUNITY-BASED GARDENING

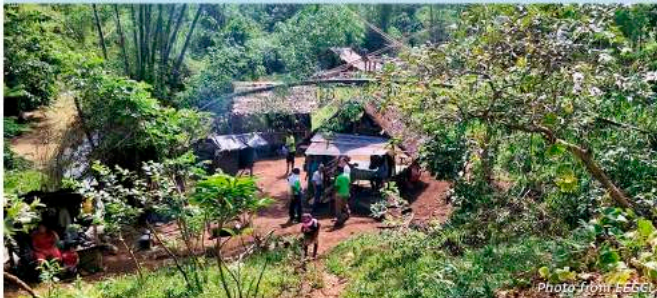


Photo from EEGCI

Negros Occidental. The *Gulayan sa Bakod* Program of the Eco-Entrepreneurial Greens Communities, Inc. (EEGCI) promotes community-based food gardening as a climate change adaptation practice in the province.

HUMAN SECURITY: MANGROVES PLANTING AND PRESERVATION



Photo from Department of Environment and Natural Resources

Banacon, Bohol. The Banacon Island Mangrove Forest is an eco-tourist destination with an approximate area of 425 hectares of mangroves. Aside from sequestering carbon emissions, mangroves could protect coastal communities from extreme weather events.

WATER SUFFICIENCY: RAINWATER CATCHMENT



Marikina City. Public schools like H. Bautista Elementary School use rainwater harvesting systems (RHWs) to collect water for watering plants, cleaning rooms and flushing toilets. RHWs alleviate the impacts of climate change on water security.

CLIMATE-SMART INDUSTRIES AND SERVICES: AGROFORESTATION



Photo from Coruilla Travel

Tublay, Benguet. The municipality's coffee-based agroforestation program, empowers the community to participate in environmental conservation, climate change adaptation, and disaster mitigation initiatives while gaining economic benefits from it.

ECOSYSTEM AND ENVIRONMENTAL STABILITY: ECOTOURISM SITES



Photo from Iloilo Government Website

New Lucena, Iloilo. The municipality's Eco Park serves as an ecotourism site for students and private groups who want to learn about organic agriculture. It also enables the local government to manage its solid wastes in an environment-friendly manner.

SUSTAINABLE ENERGY: SOLAR PANEL INSTALLATION



Kalayaan, Laguna. The GreensPH and Green Earth Resolution installed a two-kilowatt solar panel and electrical system in the remote island community of Pulot-Bay, which now energizes the Pulot-Bay Elementary School.

KNOWLEDGE AND CAPACITY DEVELOPMENT: PUROK SYSTEM



Photo from Republic

San Francisco, Camotes Island, Cebu. The town, famed for its zero casualty during Typhoon Yolanda, has established the purok system since 2004 where the local community organizations were equipped with the understanding and discipline on how to manage wastes properly and prepare for emergencies.

KNOWLEDGE AND CAPACITY DEVELOPMENT: CLIMATE FIELD SCHOOLS



Calasiao, Pangasinan. The municipality is one of the beneficiaries of the Climate Change Commission's Climate Resiliency Field Schools (CRFS) Program, which was implemented by Rice Watch Action Network. The program aims to complement the efforts of the Department of Agriculture to raise awareness on the different climate change adaptation strategies for farming.

- i. Long term is ten years or greater. The year to year change is called climate variability.
- ii. (n.d.). Retrieved January 23, 2018, from <https://www.ipcc.ch/report/ar5/>
- iii. World Meteorological Organisation. (2018, January 18). WMO confirms 2017 among the three warmest years on record [Press release]. Retrieved January 19, 2018, from <https://public.wmo.int/en/media/press-release/wmo-confirms-2017-among-three-warmest-years-record>
- iv. Ibid.
- v. Taylor, L. (2017, September 19). Rise in global warming triggered by Pacific 'flip': UK Met Office. Reuters. Retrieved January 29, 2018, from <https://www.reuters.com/article/us-global-climatechange/rise-in-global-warming-triggered-by-pacific-flip-uk-met-office-idUSKCN1BT20P>
- vi. The World Bank. (2012, November 18). New Report Examines Risks of 4 Degree Hotter World by End of Century [Press release]. Retrieved January 24, 2018, from <http://www.worldbank.org/en/news/press-release/2012/11/18/new-report-examines-risks-of-degree-hotter-world-by-end-of-century>
- vii. (n.d.). Retrieved January 23, 2018, from <https://www.ipcc.ch/organization/organization.shtml>
- viii. Harvey, F. (2013, September 27). IPCC climate report: human impact is 'unequivocal'. The Guardian. Retrieved January 19, 2018, from <https://www.theguardian.com/environment/2013/sep/27/ipcc-climate-report-un-secretary-general>
- ix. Ibid.
- x. Ibid.
- xi. (n.d.). Retrieved January 23, 2018, from https://www.ipcc.ch/organization/organization_history.shtml
- xii. Ibid.
- xiii. (n.d.). Retrieved January 23, 2018, from <https://www.ipcc.ch/report/ar5/>
- xiv. United Nations Framework Convention on Climate Change. (2016, August 16). Retrieved January 23, 2018, from http://unfccc.int/essential_background/convention/items/6036.php
- xv. Climate negotiations timeline - United Nations Sustainable Development. (n.d.). Retrieved January 23, 2018, from <http://www.un.org/sustainabledevelopment/climate-negotiations-timeline/>
- xvi. 16th Session of the Conference of the Parties (COP16), 2010
- xvii. COP21, 2015
- xviii. Articles 9.3-9.4 of the Paris Agreement
- xix. Article 9.8 of the Paris Agreement
- xx. The World Bank. (2012, November 18). New Report Examines Risks of 4 Degree Hotter World by End of Century [Press release]. Retrieved January 24, 2018, from <http://www.worldbank.org/en/news/press-release/2012/11/18/new-report-examines-risks-of-degree-hotter-world-by-end-of-century>
- xxi. Levin, K. (2015, November 9). INSIDER: Why Are INDC Studies Reaching Different Temperature Estimates? World Resources Institute. Retrieved January 25, 2018, from <http://www.wri.org/blog/2015/11/insider-why-are-indc-studies-reaching-different-temperature-estimates>
- xxii. Climate Analysis Indicators Tool. (2016). World Resources Institute.
- xxiii. (n.d.). Retrieved January 23, 2018, from <https://www.ipcc.ch/report/ar5/>
- xxiv. Asian Development Bank. (2013). The Economics of Climate Change in the Pacific.
- xxv. Cruz, R. V. O., Aliño, P. M., Cabrera O. C., David, C. P. C., David, L. T., Lansigan, F. P., Lasco, R. D., Licuanan, W. R. Y., Lorenzo, F. M., Mamaog, S. S., Peñafior, E. L., Perez, R. T., Pulhin, J. M., Rollon, R. N., Samson, M. S., Siringan, F. P., Tibig, L. V., Uy, N. M., Villanoy, C. L. (2017). 2017 Philippine Climate Change Assessment: Impacts, Vulnerabilities and Adaptation. The Oscar M. Lopez Center for Climate Change Adaptation and Disaster Risk Management Foundation, Inc. and Climate Change Commission. Retrieved January 23, 2018, from <http://climate.gov.ph/images/knowledge/PhilCCA-WG2.pdf>
- xxvi. Ibid.
- xxvii. Schaeffer, E., Rocha, M., & McKinnon, M. (2016, November 16). The Low Carbon Monitor.
- xxviii. IPCC Fifth Assessment Report. (2013-2014). Retrieved January 23, 2018, from <https://www.ipcc.ch/report/ar5/>
- xxix. Peng, S., Huang, J., Sheehy, J., Laza, R., Visperas, R., Zhong, X., ... Cassman, K. (2004, May 27). Rice yields decline with higher night temperature from global warming. Retrieved January 24, 2018, from <http://www.pnas.org/content/101/27/9971.abstract?tab=author-info>
- xxx. Thompson, A. (2017, May 18). El Niño Again? This Is Why It's Hard to Tell. Retrieved January 25, 2018, from <http://www.climatecentral.org/news/el-nino-again-why-its-hard-to-tell-21451>
- xxxi. El Niño 2015-2016 | GOVPH. (n.d.). Retrieved January 25, 2018, from <http://www.gov.ph/laginghanda/el-nino/2015-2016/>
- xxxii. 2015-2016 El Niño Early action and response for agriculture, food security and nutrition. (2016). Food and Agriculture Organization. Retrieved January 25, 2018, from <http://www.fao.org/3/a-i6049e.pdf>
- xxxiii. Macas, Trisha. (2016, April 4). How the protest of hungry farmers turned into a deadly dispersal in Kidapawan. GMA News. Retrieved January 25, 2018, from <http://www.gmanetwork.com/news/news/regions/561478/how-the-protest-of-hungry-farmers-turned-into-a-deadly-dispersal-in-kidapawan/story/>
- xxxiv. Aside from climate change, the estimated sea level rise is also caused by the Pacific Decadal Oscillation (PDO).
- xxxv. Coastal infrastructure, disaster, sea-level rise, climate ... (2015, October 19). Retrieved January 24, 2018, from <http://www.homelandsecuritynewswire.com/dr20151019-philippines-coastal-areas-go-underwater-due-to-sea-level-rise>
- xxxvi. Luo, T., R. Young, P. Reig. (2015). Aqueduct Projected Water Stress Country Rankings. World Resources Institute. Retrieved January 24, 2018, from <http://www.wri.org/publication/aqueduct-projected-water-stresscountry-rankings>
- xxxvii. Kjellstrom, T., Otto, Matthias, Lemke, Bruno, et al. Climate Change and Labour: Impacts of Heat in the Workplace (p. 15, Tech.). (2016). United Nations Development Programme. Retrieved January 28, 2018, from http://www.ilo.org/global/topics/green-jobs/publications/WCMS_476194/lang-en/index.htm
- xxxviii. Climate change blamed for increasing number of dengue, typhoid cases. (2008, November 20). GMA News. Retrieved January 24, 2018, from <http://www.gmanetwork.com/news/news/nation/134739/climate-change-blamed-for-increasing-number-of-dengue-typhoid-cases/story/>
- xxxix. World Health Organization. (n.d.). Gender, Climate Change and Health.
- xl. Karunungan, R. (2017, November 16). PH one of 10 most vulnerable countries to climate change. Rappler. Retrieved January 24, 2018, from <https://www.rappler.com/move-ph/issues/disasters/152554-philippines-vulnerable-climate-change-20-years>
- xli. Monzon, A. (2015, March 17). Philippines ranks third on list of nations prone to disasters. Retrieved January 24, 2018, from <http://www.bworldonline.com/content.php?section=Nation&title=philippines-ranks-third-on-list-of-nations-prone-to-disasters&id=104466>
- xlii. Lagmay, A., Agaton, R., Bahala, M., Briones, Jo Brianne., et al. (2014). Devastating Storm Surges of Typhoon Haiyan. Retrieved February 2, 2018, from <http://center.noah.up.edu.ph/devastating-storm-surges-of-typhoon-yolanda/>
- xliiii. National Disaster Risk Reduction & Management Council. (2013). Final Report on the Effects of Typhoon Yolanda. Retrieved January 24, 2018, from http://ndrrmc.gov.ph/attachments/article/1329/FINAL_REPORT_re_Effects_of_Typhoon_YOLANDA_%28HAIYAN%29_06-09NOV2013.pdf
- xliv. Ibid.
- xlv. Yap, D., & Dizon, N. (2012, December 5). Typhoon 'Pablo' pounds Mindanao. Inquirer. Retrieved January 31, 2018, from <http://newsinfo.inquirer.net/318449/typhoon-pablo-pounds-mindanao>
- xlvi. National Disaster Risk Reduction & Management Council. (n.d.). Situation Report No. 38 on the Effects of Typhoon Pablo. Retrieved January 24, 2018, from <https://reliefweb.int/report/philippines/ndrrmc-update-sitrep-no-38-effects-typhoon-pablo-bopha>
- xlvii. Ibid.
- xlviii. Corrales, C. & Gloria, V. (2011, December 17). At least 327 dead in Cagayan de Oro, Iligan floods. MINDANIEWS. Retrieved January 31, 2018, from <http://www.mindanews.com/environment/2011/12/at-least-327-dead-in-cagayan-de-oro-iligan-floods/>
- xliv. Philippines, National Disaster Risk Reduction & Management Council. (2012). Final Report on the Effects of Tropical Storm Sendong. Retrieved January 24, 2018, from http://www.ndrrmc.gov.ph/attachments/article/1347/Final_Report_on_the_Effects_and_Emergency_Management_re_Tropical_Storm_SENDONG_%28WASHI%29_Status_of_Early_Recovery_Programs_in_Region_X_issued_10FEB2014.pdf
- l. Ibid.
- li. Cardinoza, G., & Sotelo, Y. (2011, October 02). Pangasinan towns flooded due to flashfloods from breached dikes, storm surges. Inquirer. Retrieved January 31, 2018, from <http://newsinfo.inquirer.net/69269/pangasinan-towns-flooded-due-to-flashfloods-from-breached-dikes-storm-surges>
- lii. National Disaster Coordinating Council. (n.d.). Final Report on the Effects of Tropical Storm Ondoy and Typhoon Pepeng. Retrieved January 24, 2018, from http://www.ndrrmc.gov.ph/attachments/article/1543/Update_Final_Report_TS_Ondoy_and_Pepeng_24-27SEP2009and30SEP-20OCT2009.pdf
- liii. Ibid.
- liiv. Dunbar, B. (2009, October 01). Hurricane Season 2009: Typhoon Ketsana (Western Pacific). Retrieved January 31, 2018, from https://www.nasa.gov/mision_pages/hurricanes/archives/2009/h2009_Ketsana.html
- liv. Ibid.
- li. Ibid.
- lvii. Lagmay, A.M.F. et al. (2006) 'Scientists investigate recent Philippine landslide'. Eos. 87(12). pp. 121-124.
- lviii. Lagmay, A.M.F., R.S. Rodolfo, A.M.P. Tengonciang, J.L.T. Soria, J.B.T. Ong, D.F.D. Fernandez, M.R. Lapus, E.G. Baliatan, Z.P. Quimba, C.L. Uichanco, E.R. Paguican. (2008). Science guides search and rescue after the 2006 Philippine landslide. Journal of Disasters 32 (3): 416-33.
- lix. Bagayaua Mendoza, G. (2006, March 27). Looking back: Guinsaugon landslide. Retrieved January 24, 2018, from <https://www.rappler.com/newsbreak/flash-back/35987-aftermath-guinsaugon-landslide-saint-bernard-southern-leyte>
- lx. The El Niño Phenomenon. (2007, July 26). Retrieved January 31, 2018, from <http://www.gmanetwork.com/news/news/content/52900/the-el-ni-phenomenon/story/>
- lxi. Ibid.
- lxii. Administrative Order No.220, s. 1991. (1991). Retrieved January 28, 2018, from <http://www.officialgazette.gov.ph/1991/05/08/administrative-order-no-220-s-1991/>
- lxiii. Administrative Order No. 171, s. 2007. (2007). Retrieved January 28, 2018, from <http://www.officialgazette.gov.ph/2007/02/20/administrative-order-no-171-s-2007/>
- lxiv. Republic Act No. 9729. (2009). Retrieved January 28, 2018, from <http://www.officialgazette.gov.ph/2009/10/23/republic-act-no-9729/>
- lxv. Ibid.
- lxvi. Climate Change Commission. (2010). National Framework Strategy on Climate Change 2010-2022. Retrieved January 28, 2018, from http://www.neda.gov.ph/wp-content/uploads/2013/10/nfsc_sgd.pdf
- lxvii. Climate Change Commission. (2011). National Climate Change Action Plan 2011-2028. Retrieved January 28, 2018, from <http://climate.emb.gov.ph/wp-content/uploads/2016/06/NCCAP-1.pdf>
- lxviii. Republic Act No. 10174. (2012). Retrieved January 28, 2018, from <http://www.officialgazette.gov.ph/2012/08/16/republic-act-no-10174/>
- lxix. National Economic and Development Authority. (2017). Philippine Development Plan 2017-2022 (p. 27).
- lxx. National Economic and Development Authority. (2017). Philippine Development Plan 2017-2022 (p. 176).
- lxxi. Executive Order No. 24 s. 2017. (2017). Retrieved January 28, 2018, from <http://www.officialgazette.gov.ph/2017/05/16/executive-order-no-24-s-2017/>



CONTACT US

Climate Change Commission
info@climate.gov.ph
www.climate.gov.ph