ANNEX 4.

Climate Change Analysis for the Philippine Country Development Cooperation Strategy

Purpose

The climate change analysis summarized in this annex aims to inform the CDCS (see ADS 201 mat) and to make it robust to climate risks. The preliminary results of the climate risk screening are summarized in Part I of this analysis. Parts II and III outline opportunities for reducing greenhouse gas (GHG) emissions in the Philippines as a co-benefit of the mission's programs to strengthen the country's resilience and self-reliance.

Methods Used on Analyzing and Integrating Climate Risks

The Philippine mission integrated climate change in the CDCS development in compliance with ADS 201.mat. In September 2018, the mission, with USAID/Washington support, conducted an initial screening of climate risks utilizing USAID's climate risk screening (CRS) and management tool by leveraging the climate risk assessments previously completed at the project level for the Environment, Health, Education, Economic Growth and Democracy portfolios. The screening team verified, updated, and supplemented the project level assessments by reviewing relevant literature and consulting with two key Philippines government agencies, the Department of Environment and Natural Resources (DENR) and the National Economic and Development Authority (NEDA), and the Manila Observatory, a non-profitable research science institution. Upon the completion of the CRS table and initial assessment, the screening team presented and verified the information with the mission. A total of six consultation and discussion meetings within the mission were conducted. During the two-day mission-wide CDCS retreat in November 2018, the Climate Integration Lead (CIL) presented the initial results of the climate assessment with emphasis on the Philippines' capacity and commitment to climate resilience in line with the ***country's journey towards self-reliance*** and ***as a self-reliant Indo-Pacific partner***. Three (3) guiding questions were presented in the workshop as the mission develops the CDCS' Results Framework. These are:

- *How might projected changes in climate stressors affect the identified DOs (and IRs)?*
- *Can the risks be addressed within the strategy? If not, what steps must be taken during project and activity design to address the risks?*
- *What opportunities (in policy or practice) exist to strengthen overall resilience? Opportunities may include adaptation or mitigation to the effects of climate change.*

In July 2019, after the Mission presented the latest Results Framework to USAID Washington and approved it, the CIL with support from USAID/Washington revisited the CRS summary table. Said table was updated to ensure that climate risks are addressed and appropriate language is utilized at the strategy level. See page 9 of this Annex report.

Part I – Climate Risk Screening

A. Background and Country Profile

Climate risk[1] management (CRM) is crucial in the Philippines. The country is comprised of three major island groups, Luzon, Visayas and Mindanao, made up of a total of 7,107 islands. It has a coastline of 36,289 kilometers

[1] Potential impacts from climate stressors (increased temperature, shifting rainfall, stronger storms, droughts, sea level rise, etc.) caused by climate variability and change.

with a land area of 301,780 sq. kilometers, with many people residing in flood and sea-level rise-prone areas. The Philippines is extremely vulnerable to climate variability as well as geophysical hazards. The country is situated in the 'Pacific Typhoon belt' where it experiences an average of 20 typhoons per year, of which seven to 9 make landfall. It also lies in the 'Pacific ring of fire' where it is exposed to earthquakes and volcanic eruptions. Since 2009, the country has experienced destructive typhoons on an almost annual basis. In November 2013, Super Typhoon Haiyan made landfall in the Philippines as one of the strongest storms on record, equivalent to a Category 5 hurricane, and caused storm surges that led to thousands of deaths and billions of dollars in damage. High population density in urban and coastal areas, environmental degradation and loss of watershed forests,[2] and other factors render frequent exposure to these hazards into national disasters that threaten development setbacks and continued reliance on foreign assistance.

The Philippines' vulnerability to typhoons is worsened by sea-level rise that affects its vast coastline and by its dependence on climate-sensitive natural resources. Sea-level rise will worsen storm surges and coastal flooding in the coming years, as well as impact access to freshwater. More than 25 percent of the population of 100 million lives below the poverty line. Agriculture, industry and services are the main economic sectors, employing 29, 16 and 55 percent of the workforce respectively. The country is continuing to urbanize and cities in the Philippines are among some of the most at risk areas for floods, water shortages and typhoons.

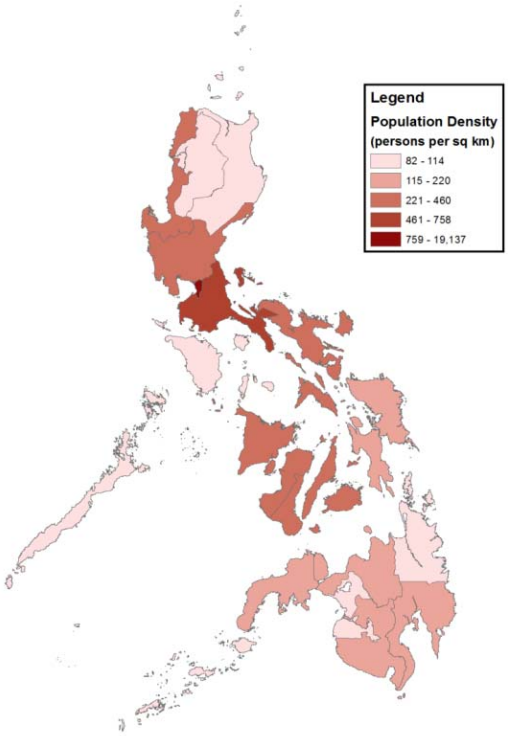
The Philippines is one of 17 mega-biodiverse countries in the world, home to about 1,100 terrestrial vertebrates and five percent of the world's flora, a significant proportion of which are endemic to the country. Much of this biodiversity depends on forested habitats that are threatened by overexploitation, land conversion, poor governance, population pressures and climate change. A study by Hansen et al. (2013) published in Science showed that from 2000 to 2012, the Philippines lost 622,700 hectares of forest and gained only 272,600 hectares in recovering forested areas, resulting in an overall net loss of 350,100 hectares. The Philippines hosts a rich, yet increasingly depleted natural and marine resource base, which supports livelihoods through fisheries, agriculture, forestry, energy, mining, and tourism. It provides critical ecosystem services such as shoreline protection, flood control, soil stability and biodiversity habitat.[3] The climate of the Philippines is tropical and maritime with mean annual temperatures of 25°C throughout the year. It is characterized by relatively high temperature and humidity and abundant rainfall. May has historically been the warmest month with a mean temperature of 28.3°C and the coolest month falls in January with a mean temperature of 25.5°C.[4] Rainfall patterns exhibit high variability from year to year, but typically range from 965 mm/year in southeast Mindanao to over 4,064 mm/year in central Luzon. Rainfall is governed by the southwest monsoons from June-August and by the northeast monsoons from December-February. El Niño events are generally associated with reduced rainfall and weakened typhoon activity and La Niña events with increased heavy rainfall and increased typhoon activity.[5] The following thematic maps once overlayed show the different hazards, exposed USAID's investments and population concentration (density) as well as the most vulnerable communities in the country to the impacts of climate vulnerability and disasters.

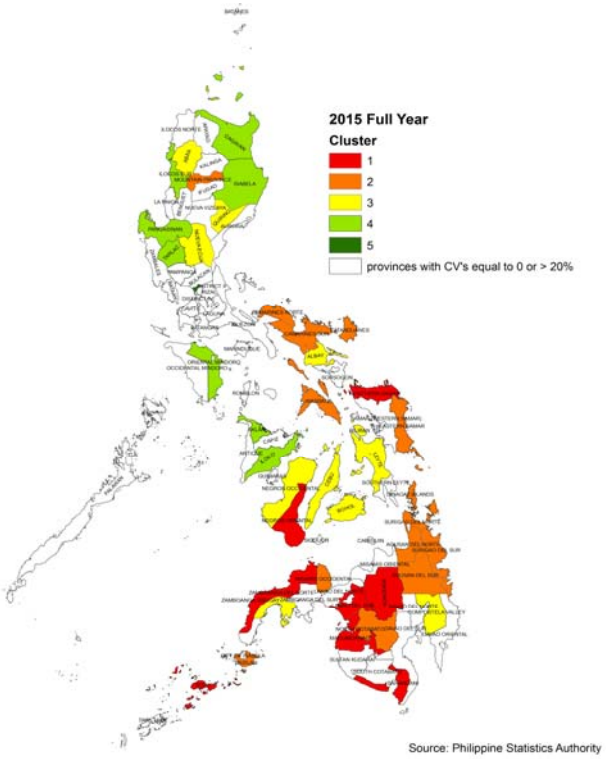
[2] See 118/119 analysis for details on the condition of natural resources, and threats to biodiversity, forests, and the environment in the Philippines.

[3] USAID Environment Project Appraisal Document 2017-2022.

[4] DOST-PAGASA website http://www.pagasa.dost.gov.ph/index.php/climate-of-the-philippines

[5] USAID's Factsheet on Climate Change Risk Profile: Philippines





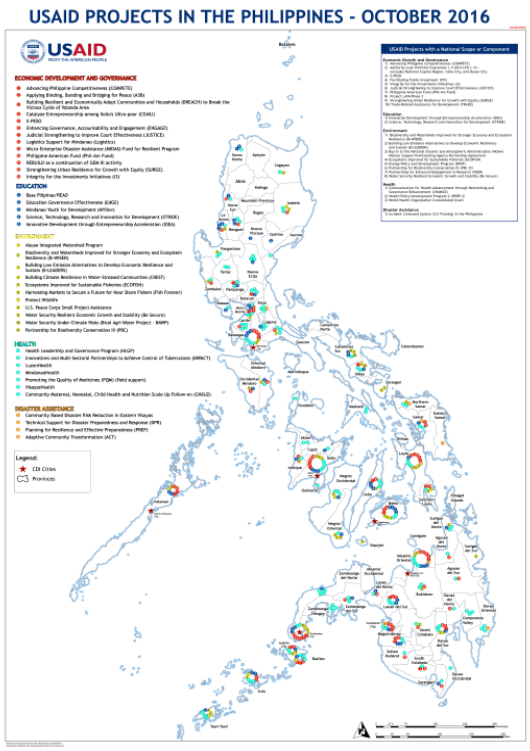
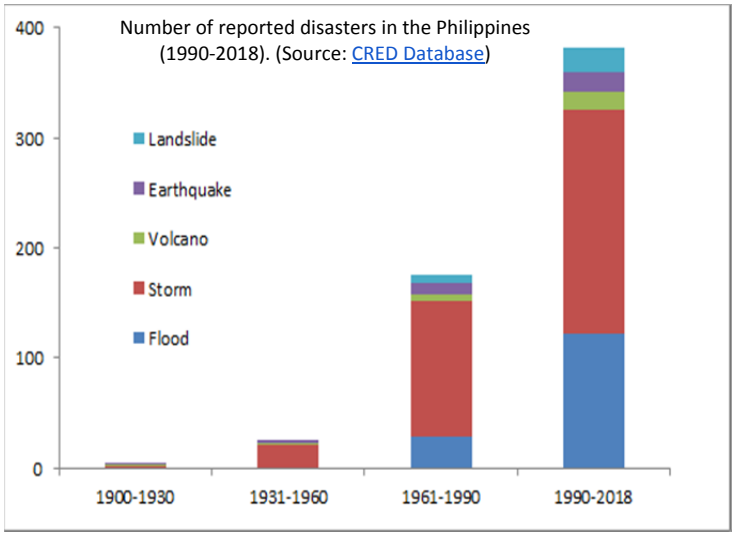


Figure 1. (Top most left) Geophysical Hazards Map (Rudinas et al., 2013) shows areas prone to landslide, erosion and flooding; Figure 2. (Top most right) Exposed population concentration (PSA, 2015)– densest are Metro Manila, Southern and Central Luzon areas; Figure 3 (Bottom most left) Most vulnerable communities in the country- Poverty Incidence (PSA, 2015) with Level 1 as the poorest; Figure 4. (Bottom most right) Exposed USAID projects to multi-hazards.

B. Review of Literature

There is abundant information about climate change and risk in the Philippines. References of this information include the World Risks Index Reports; Global Climate Risk Index; World Wildlife Fund and the Bank of the Philippine Islands Foundation's "Business Risk Assessment and the Management of Climate Change Impacts;" the Department of Environment and Natural Resources' "The Philippines Strategy on Climate Change Adaptation;" and World Bank's "Climate Change, Disaster Risks and Urban Poor: Cities Building Resilience for a Changing World, among others. Recently, a Philippine Climate Change Assessment Working Group synthesized scientific information from international to local literature to come up with an assessment of climate change in the Philippines and identify gaps in scientific literature. The working group produced three reports, which focused on the Physical Science Base; Impacts, Adaptation and Vulnerability; and Mitigation of Climate Change. The latter is the first most comprehensive assessment of scientific literature on mitigation in the country.



The Philippines is the 5th most climate change-affected country from 1998-2017 according to the 2019 Global Climate Change Risk Index,[6] the 13th most vulnerable country in the 2016 Climate Change Vulnerability Index, and the 3rd most at risk country to disasters, including climate change, in the 2017 World Risk Index.[7] Climate projections for 2020 to 2050 from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) indicate that increases in temperature and changes in rainfall and extreme events nationwide and are likely to cause more droughts, floods and storms. Increasing intensity of typhoons and shifting typhoon paths are also projected to occur, as well as sea-level rise.

The Philippines has existing laws and policies that mandate consideration and mainstreaming of climate change adaptation and mitigation into plans and programs. Among the important laws in the country is Republic Act 9729 or the Philippine Climate Change Act of 2009. This Act was passed to strengthen, integrate, consolidate, and institutionalize sector-based government initiatives. The law mandated the formulation of a National Framework Strategy on Climate Change which defines the overall parameters for developing a National Climate Change Action Plan (NCCAP). The NCCAP is the Philippine Government's road map for climate action and the lead policy document to guide the climate agenda at all government levels. The law also provides the creation of a commission, an independent and autonomous body that has the same status as that of a national government agency. The commission, called the Climate Change Commission, is under the Office of the President and is the sole policy-making body of the government which is mandated by law to coordinate, monitor and evaluate the programs and action plans of the government relating to climate change. The Climate Change Act also defines the responsibilities of the national government agencies and the local government units

[6] Winges, M. et al., (2018) https://www.germanwatch.org/sites/germanwatch.org/files/Global%20Climate%20Risk%20Index%202019_2.pdf
[7] Mucke, P. et al, (2017) https://reliefweb.int/sites/reliefweb.int/files/resources/WRR_2017_E2.pdf

who act as frontline agencies in the formulating, planning and implementing climate change action plans in their respective jurisdictions.[8]

C. Climate Stressors

There is a wealth of information on the impacts of climate change for the Philippines due to its high level of vulnerability. Below is a short synthesis of existing information on climate stressors and potential impacts on the specific sectors of this Project.[9]

Temperature. The PAGASA's Climate Change in the Philippines Report (2011) details future climate data for 2020 and 2050 under mid-range scenarios.[10] PAGASA projects that all areas of the Philippines will get warmer, particularly in the summer months. Annual mean temperatures in all areas in the country are expected to rise by 0.9 °C - 1.1 °C in 2020 and by 1.8 °C - 2.2 °C in 2050.

Rainfall. Projected seasonal rainfall change varies across the Philippines, but in general by 2050 the wet season is expected to have more rainfall and the dry season will be drier. This increases the likelihood of both flooding and drought. The number of hot days (temperature above 35 °C) will increase, as well as the number of wet (exceeding 300mm of rain) and dry (less than 2.5 mm of rain) days. There is also the potential for an increase in the intensity of typhoons, which could bring more rain during storm events.

Sea-Level Rise. Based on a World Bank report (2013), sea-level rise in this century will affect a significant percentage of the Philippines coastline compared to other developing countries in the region. By the end of the century, sea-level rise in the region is expected to increase by 125 centimeters, exceeding the global average by 10 to 15 percent.[11] Coupled with the potential for increased intensity of typhoons, this scenario makes the Philippines' very vulnerable to the related intensifying storm surge as 14 percent of the total population and 42 percent of its total coastal population will be affected.[12] The physical effects of sea-level rise include inundation (submergence) of low-lying wetland and dryland areas, erosion, salt water intrusion, increased risk of flooding and storm damage.

Extreme Weather Events. Typhoons are common in the country with most occurring between the months of June and December. These extreme events are projected to intensify with rising sea surface temperatures. The heavy rainfall associated with these typhoons is projected to lead to more frequent and more intense floods and landslides. Tropical cyclone paths shift due to the changing climate. Thomas (2017) states that tropical cyclone paths have shifted southward of the Philippines, hitting areas that are not usually struck by typhoons.[13] The Mindanao Region of the country experienced the devastation wrought by Typhoons Washi in 2011 and Bopha in

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[8] Review of related literature from USAID Environment Project Appraisal Document 2017-2022.

[9] USAID Environment Project Appraisal Document 2017-2022.

[10] PAGASA (2011) http://dilg.gov.ph/PDF_File/reports_resources/DILG-Resources-2012130-2ef223f591.pdf

[11] World Bank's Getting a Grip… on Climate Change in the Philippines: Executive Report (2013) http://documents.worldbank.org/curated/en/473371468332663224/pdf/788090WP0P13010nge0Executive0Report.pdf

[12] World Bank's Getting a Grip… on Climate Change in the Philippines: Executive Report (2013) http://documents.worldbank.org/curated/en/473371468332663224/pdf/788090WP0P13010nge0Executive0Report.pdf

[13] Thomas, V. (2017) Climate Change and Natural Disasters: Transforming Economics and Policies for a Sustainable Future

2012. Climate change projections also suggest that severe droughts associated with weather patterns (e.g., El Nino) may increase, which have implications for agricultural production such as reduction in crop yield and greater incidence of pests.

D. Climate Projections

The latest projections[14] suggest that climate change will likely exacerbate this situation. In the next 20-30 years, average temperatures in the Philippines could increase by 0.9°c to 2.3°C and tropical cyclones and other extreme events could become more intense. As ocean temperatures warm and pH levels fall, coral reefs and marine fisheries are expected to experience severe degradation. Coral bleaching (driven principally by warmer sea water) has already been observed in the Philippines, which is an epicenter of coral reef ecosystem diversity. By 2100, sea levels on average could increase by 48 to 65 cm, though relative sea levels in some places like Metro Manila are increasing faster and to a greater extent due to geological subsidence and groundwater withdrawals (See Manila SLR map from Tufts; News article). Stronger tropical cyclones, greater storm surges, and more intense rain events leading to floods and landslides all increase the risk of death, injury, displacement and migration.[15]

The effect of natural disasters (storms, floods, earthquakes) on the economy, national psyche, and ability to prosper economically is significant. Climate-related disasters in particular have taken a major toll on the country and its people. Of the 621 natural disasters the Philippines has reported since 1990, about 80 percent have been weather-related (150 floods and 349 storms). Of the 213.7 million people affected (death, injury, etc.) during this period, about 93 percent (nearly 200 million) were affected because of storms and floods, and about 92 percent of the reported damages was attributable to the same. In the past 30 years alone, storms and floods caused US$7.6 trillion in damage.

One other 'consequence' of the major toll of these extreme events is that they have come to dominate discourse about climate change. Climate risk is about disaster risk for many in the Philippines. Understanding for and adaptation to slower onset manifestations of climate change, including temperature increases, shifting rainfall patterns, and sea level rise, have not garnered as much attention as preparedness for extreme events. Yet, over the medium term, these changes could have major impacts on agricultural and fisheries productivity as well as on coastal areas where most of the population resides.

E. Leveraging Opportunities (Commitment vs. Capacity)

The Philippines' vulnerability to disasters has galvanized the country to elevate climate change as a major issue it must confront. Using the self-reliance lens and in consideration of a free, and open Indo-Pacific partner, the Government of the Philippines (GPH) has done much to combat climate change (see action list below) and is committed to continue and extend these actions. Follow-through on this commitment (i.e., laws and policies), by some localities has been limited by inadequate capacity to successfully implement key actions it, and hence is still a concern. Still, since 2000 the GPH has:

[14] See Philippines Climate Risk Profile, PAGASA 2018, Observed and Projected Climate Change in the Philippines, and Philippines Climate Change Assessment.

[15] See ADB's Region at Risk report page 87-93).

- Established key institutions. The GPH has a Climate Change Commission under the Office of the President and a cabinet level cluster comprising 20 Departments which recently developed a 5-year roadmap to strengthen resilience to climate risks in priority provinces, coastal communities, and cities.
- Enacted policies and laws such as Republic Act 9729 or the Philippine Climate Change Act of 2009 and Philippine Disaster Risk Reduction and Management Act requiring consideration of climate change adaptation and mitigation (CCAM) as well as disaster risk reduction and management (DRRM) by different Departments and Agencies. The GPH policies require Departments to consider climate and disaster risks in their planning, however, the extent to which climate information is shared and used for planning, programming, and budget allocation is unclear. In many localities there is poor understanding on how to use climate information and multi-hazard maps for planning and decision-making processes.
- Formulated a National Framework Strategy on Climate Change (as mandated by laws) which defines the overall parameters for developing a National Climate Change Action Plan, the GPH's roadmap for climate action and is the lead policy document to guide the climate agenda at all government levels;
- Passed Republic Act 10174 that mandates the allocation of budget resources, i.e., People's Survival Fund (PSF), and specified rules that LGUs allocate five percent of their budget for disaster preparedness and relief per the Republic Act 10121 Philippine Disaster Risk Reduction and Management Act. By law, the national government must allocate resources for DRRM and CCAM through the PSF. The PSF is annually allocated Php1 billion pesos (US$ 19 million) to fund select CCAM/DRRM projects of municipalities and cities. However, many localities still have low capacity to access this fund due to both stringent Fund rules and weak capacity to develop effective proposals. The country has a strong DRRM governance structure organized from the national to the barangay level. Because of the Philippines' successive experience with disasters, Local DRRM Councils are more proactive now in disaster preparedness especially when there is an imminent typhoon, following a zero-casualty policy. However, there are still some cases when coordination of responses to emergencies by multiple agencies and concerned groups could still be improved, e.g., use of funds and fragmented information.
- Several agencies have been established to strengthen resilience, such as the Philippine Disaster Resilience Foundation (established in 2009) which assists with post-disaster recovery, and the National Resilience Council (private-public partnership on DRRM engaging both the government and private sector with civil society), which has a roadmap for basic and applied research as well as capacity building and institutional strengthening on CCAM and DRRM.
- By law, the local government units (LGUs) are the frontliners on reducing disaster risks, increasing disaster preparedness, mitigating greenhouse gas emissions and adapting to climate variabilities. LGUs are supposed to mainstream CCAM and DRRM in local land use and development planning processes as well as when implementing local zoning ordinances and programs/projects. While LGUs are also mandated to develop Local Climate Change Action Plans (LCCAPs) and Local Disaster Risk Reduction and Management Plans (LDRRMPs), not all are able to comply mostly due to limited technical capacity.
- Commissioned assessments, e.g., the Philippines Climate Change Assessment.
- Invested in improving regional forecasting capabilities, e.g., the national weather agency, PAGASA. The Philippines has strong capacity in weather forecasting and climate modeling. However, not all LGUs have access to usable data on climate impacts (e.g., on environment, water and energy), which can be used for planning and programming of climate-resilient activities as well as for decision-making.

- Passed into law the "Personal Property Security Act" or Republic Act 11057 gives opportunities for small scale business owners particularly those owned by women, farmers and fisherfolks to access financial business insurance.
- Based on the Philippines' Nationally Determined Contribution, the country pledged to reduce greenhouse gas (GHG) emissions by 70 percent relative to business as usual by 2030 despite contributing only about 0.3 percent of total global GHG emissions.
- The energy sector has also adopted rules for mainstreaming consideration of climate and disaster risk. See Adoption of Energy Resiliency in the Planning and Programming of the Energy Sector to Mitigate Potential Impacts of Disasters, and Republic Act 11039, An Act Institutionalizing the Electric Cooperatives Emergency and Resiliency Fund and Appropriating Funds Therefor.

Recently, a cabinet level cluster of 20 Departments of the GPH developed a Roadmap for 2018-2022 that identifies four key outcomes the GPH wants to achieve in the most vulnerable provinces, coastal communities, and large cities. These are (a) increased adaptive capacity of vulnerable communities; (b) adequate supply of clean air, water, and other natural resources; (c) increased resilience of critical infrastructure; and (d) enhanced knowledge, access to information, and institutional capacities.

The Roadmap prioritizes actions in 22 provinces (Figure 6), 822 coastal communities, and four large cities namely: Metro Manila, Cebu, Iloilo, and Davao spanning 9 regions. Selection of these priority areas was based on criteria that overlap with the mission's strategy which includes: (a) high poverty incidence; (b) high susceptibility or exposure to climate hazards (risks), including drought, strong winds, floods, landslides, and storm surge; and (c) situated in a critical watershed.

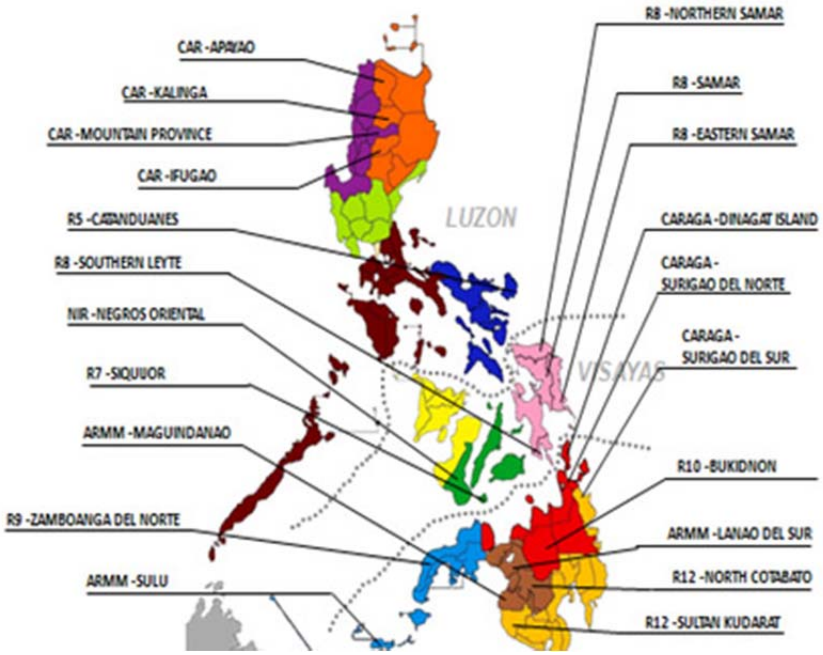

Figure 6. CCAM-DRR Cabinet Cluster Roadmap's Geographical Focus: 22 Vulnerable Provinces
(Source: climatechange.denr.gov)

USAID can leverage opportunities created by these and other policies and actions to help the country build resilience to climate risks and pursue a low emissions development path on its journey to self-reliance. This move can help USAID attain its goal for the Philippines to become a well-governed and more self-reliant Indo-Pacific partner. The development of the mission's strategy took account of these opportunities as well as key climate risks. As a result, CRM is well integrated in the strategy and will cascade through projects and activities aimed at achieving the strategic objectives and results. To be effective in this regard, USAID needs to take steps to ensure its strategy is robust to the same climate stressors that make Philippines vulnerable.

F. Analysis of Climate Risks

As specified in the methodology in the first section of this analysis, the DO teams used the framework provided by the climate risk screening and management tool and consulted the tool's sector annexes to conduct an initial climate risk screening. The teams also reviewed existing climate vulnerability assessments conducted or commissioned by government agencies, and consulted with officials from government agencies and research institutions. An initial screening assessed climate risks that could affect the goals and results of existing project appraisal documents (PADs) for the mission's programs on (i) Economic Development and Democratic Governance with Equity, (ii) Education, (iii) Environmental Resilience, and (iv) Health. Based on existing adaptive capacities and the screening team's judgment, risks to the DOs were rated as either high or moderate, and initial ideas to address the risks within the strategy as well as next steps were identified. The initial screening also identified opportunities to strengthen resilience.

In July 2019, the screening's summary table below was then refined following the CDCS' Results Framework version which was approved on the same month. The CIL together with the support from USAID/Washington revisited the climate risk summary table. The updated table will ensure that climate risks are addressed and managed at the strategy level.

Table 1: Climate Risk Summary Table

Development Objective and/or Intermediate Result			
Risk Rating of DO and/or IR *Based on the screening, rate the potential climate risk to each DO or IR and describe the risks and adaptive capacity. Indicate the timeframe applied in the analysis.*	**Integration into Strategy** *How does the strategy address the climate risks? Reference the page number in the strategy. Note in particular if a Goal, the DO, or an IR or sub-IR specifically addresses the risks.*	**Next steps** *Is monitoring and/or further analysis of risks needed to inform project planning, design, and implementation? What needs to be done at the project and/or activity levels to address the risks?*	**Accepted risks** *What climate risks does the mission accept? Why?*
DO 1: Democratic Governance Strengthened IR 1.1 Rule of Law and Human Rights Advanced; IR 1.2 Public Transparency and Accountability Improved; IR 1.3 Civic Engagement Increased; IR 1.4 More Responsive Local Governance			

Rating: ***High Risk*** ***Adaptive Capacity:*** ● The Philippines has active science-based institutions that can provide local climate projections and assessments. However, various stakeholders (government, NGO, civil society, private sector, and communities) still have limited capacities on how to use climate data to manage climate risks in their long-term and business planning and decision-making processes. ***Climate risks:*** ● Reduced ability of people , especially marginalized populations, to participate in democratic processes due to impacts of extreme events, temperature increase, and other climate stressors • Increased reliance of LGUs on provincial, national, and international support to provide basic services, local infrastructure, and manage natural resources due to increasing intensity and recurrence of major storms; coastal LGUs may face additional challenges, e.g., in providing clean water, due to sea level rise (SLR) and salinity intrusion • Democratic processes and economic stability may be challenged especially as LGUs struggle to adequately and fairly deliver services (e.g., water) in the face of recurrent and stronger droughts, potentially leading to resurgence of conflict • Marginal populations which include women, girls as well as LGBTI individuals, may be displaced or further marginalized due to flooding triggered by extreme weather events	In general, climate change (CC) is discussed in the whole document of the CDCS as well as the process of CRM as mentioned in the Executive Summary (page 2). Enhancing resilience is evident in the RF (page 4) The section on Country Context and a map depicting the country's vulnerability to various hazards are shown in pages 7 and i, respectively. IR 1.4 More Response Governance recognizes the presence of CC challenges which can affect the LGUs where emphasis was given to CC's impact on the resilience of infrastructure development, the budgets of local governments who plan for disaster preparedness and delivery of basic services. Recurrent extreme climate variability could hamper advancement of the government toward self-reliance (pages 19-20).	Additional new or updated PADs and scope of work developed after the CDCS would need to address especially the risk to slower onset risks and mitigation options. If found deemed necessary, Mission targeting of resilience activities needs to continue focusing on provinces or cities/municipalities that are more vulnerable to the effects of climate change.	Increased prevalence of extreme weather events e.g. typhoons that causes flood incidence) as well as drought caused by El Nino phenomenon are climate risks that the Mission has to accept and program accordingly.
DO 2: Inclusive, Market-Driven Growth Expanded IR 2.1 Regulatory Quality Improved; IR 2.2 Government Capacity to Finance Self-Reliance Increased; IR 2.3 Human Capital Development Improved; IR 2.4 Private Sector-led Growth Promoted			
Rating: ***Moderate Risk*** ***Adaptive Capacity*** *Economic, Inclusive and Market-driven Growth* ● The Philippines has active science-based institutions that can provide local climate projections and	IR 2.2 Government Capacity to Finance Self-Reliance Increased incorporates disaster and climate change in its productivity and	Additional new or updated PADs and scope of work developed after the CDCS would need to address especially the risk to slower onset risks and	Increased prevalence of extreme weather events, e.g. typhoons that causes

assessments. However, various stakeholders (government, NGO, private sector, communities) still have limited capacities on how to use climate data to manage climate risks in their long-term and business planning and decision-making processes. ● Some private sector and other stakeholders do not use climate data in their respective business planning and service provisions. Some lack the capacity to access climate financing and use appropriate climate adaptation and mitigation technologies. ● Low capacity of stakeholders to access local and private funding sources to expand and/or improve basic services. *Education* ● Most educational curricula include climate change information but focus mostly on disaster risks and could be improved to include lessons and modules on slower onset risks and mitigation options. Some schools are making lessons or courses on DRRM and CCAM compulsory. ● Schools may have flexibility to extend class hours. ● Despite relatively strong economic growth many Filipinos, especially young college-educated Filipinos are unemployed and vulnerable to climate risks. *Health* ● The Philippines has a Climate Change Adaptation in Health Strategic Plan (2014- 2016) and national CC assessment. ● GPH has not yet incorporated climate information (including on place-based impacts for diseases like tuberculosis or TB) in its Integrated Disease Surveillance and Response systems. ● GPH is working to strengthen institutional and technical capacities to work on CC and health. It has projects on health adaptation to CC and has taken some steps to increase climate resilience of health infrastructure. ● GPH has provisions for social health financing in emergencies that affect health clinics. However, the government has not allocated budget to implement health resilience programs. ***Climate Risks:***	competiveness approaches with emphasis on the Government's budgeting which can be strained by the need to repeatedly allocate funds for disaster and climate change impacts (page 24).	mitigation options. If found deemed necessary, Mission targeting of resilience activities needs to continue focusing on provinces or cities/ municipalities that are more vulnerable to the effects of climate change. Support use of public finance to mobilize and incentivize investments in climate adaptation and mitigation technologies and enterprises. Support GPH's efforts to develop low-emission strategies across all economic sectors so that it shifts toward a greener economy. Encourage GPH to invest in climate resilient infrastructure that can be operated and maintained with reduced emissions. Encourage GPH to consider fiscal policies (e.g., tax incentives) for businesses that relocate facilities to less. risky sites and/or protect facilities Address need for age-, context, and development-appropriate messaging to adolescents by looking for synergies with other mission programs (Local Works,	flood incidences, as well as drought caused by El Nino are climate risks that the Mission has to accept and program accordingly.

Economic Growth ● National and subnational budgets strained by the need to repeatedly allocate funds for disaster preparedness and recovery; coastal infrastructure to address SLR especially affecting Metro Manila, saltwater intrusion, and storm surges; and replacement of key ecosystem services lost to SLR (e.g., water filtering services of coastal wetlands) ● Livelihoods, family income, and productivity in various economic sectors could be negatively impacted (e.g., crop losses, declines in fish catch, reduced tourism) by recurrent extreme events (unsafe workplace conditions, e.g., Mangkhut) as well as rising temperatures (e.g., causing crop loss, coral bleaching), rising sea level, and acidifying oceans (affecting marine food webs and hence fish catch), all of which could result in ongoing needs for humanitarian assistance rather than advancement toward self-reliance ● Infrastructure for trade and investment, mobility, and basic services (water, sanitation, schools, health centers, etc.) may all be damaged or disrupted by a variety of climate stressors. *Education* ● Reduced training attendance, teacher, and learning performance possible due to disruption and/or damage caused by extreme weather events (floods, droughts, extreme heat) ● Damage to materials and facilities from floods caused by heavy rainfall and storms ● Student and teacher/trainer performance and quality of workforce development activities could be affected by increases in very hot days unless facilities have air-conditioning (AC) and demand for AC can be met by power supply ● Prolonged and/or more frequent droughts could reduce job opportunities in the agriculture sector[16] (and other sectors) including opportunities for technopreneurship interventions in this sector especially. ● Skills and knowledge being taught could be less useful/marketable than expected due to increasing temperatures, shifting rainfall patterns, sea level rise, and extreme events rendering some entrepreneurship opportunities less viable and a need for the workforce to learn new skills		CDI, OED programs, etc.) Encourage studies that explore potential linkages between TB and temperature (and other climatic variables) Guidelines can be developed to apply DOH memo / AO specific to TB treatment and on MISP (minimum initial service package) in reproductive health in disasters to identify the biggest gaps and challenges Leverage Health Emergency management Bureau (HEMB) plans that are oriented towards systems strengthening for disaster preparedness, responsiveness and resilience or risk reduction Explore synergies among supply chain systems strengthening efforts of HEMB, other DOH units, USAID, and other international development agencies to minimize or prevent treatment disruption Look for opportunities to leverage GPH's national strategy for climate change mitigation, which includes consideration of the health implications of its climate change	

[16] This sector is the dominant livelihood for rural Filipinos and contributes 12% to the country's GDP.

Health ● Disruptions in health systems strengthening activities (e.g., monitoring, training, coaching, documentation) as well as in health service delivery due to extreme weather events ● Potential increases in waterborne, food-borne and vector-borne diseases (including malaria and dengue) as well as diarrheal disease and deaths in children under 15 (see WHO 2015) influenced by temperature increases, rainfall changes, and SLR ● Increases in cardiovascular and respiratory diseases, especially for at-risk groups including elderly and children, as increasing temperature, shifting rainfall patterns, and air pollution interact ● Increases in malnutrition resulting from the negative impact of rising CO2 concentrations on the nutritional value of staple crops as well as from food scarcity due to temperature effects on crop yields ● Loss of livelihoods and homes due to extreme weather events could increase risky behaviors including transactional and/or unprotected sex or result in trafficking into sex trade during evacuations ● Increasing scarcity of clean water due to temperature increases, drought, and floods (which may damage water provisioning and sanitation systems) may impede or cause setbacks in adoption of healthy behaviors ● Spikes in prices of healthy foods due to crop failure or reduced productivity from heat stress may impede or cause setbacks in adoption of healthy food choices ● Possible disruptions to supply chains (TB medicines & FP supplies) due to damage to facilities (in the Philippines or elsewhere) from extreme weather ● Increase in teenage pregnancies due to increase in risky behaviors (see above) and/or loss of access to FP services and supplies due to extreme weather events ● Increased likelihood of pregnancy complications during evacuations from storm-affected areas ● Increased challenges with surveillance, diagnostic, and other health systems during and following extreme weather events ● Storm and flood damage to health facilities and records as well as disruptions to health care services		mitigation actions, in health infrastructure expenditures	
DO 3: Environmental and Community Resilience Enhanced IR 3.1 Advanced Energy Sector and Markets Expanded; IR 3.2 Sustainable Use of Natural Resources Strengthened; IR 3.3 Response to Transnational Threats Strengthened; IR 3.4 Capacity to Mitigate Risks of and Respond to Disaster Strengthened			

Rating: ***High Risk*** ***Adaptive Capacity*** *Energy* ● National government agencies and LGUs have limited capacity to use climate data in estimating energy capacity e.g., hydropower capacity. ● Energy planners from the government and private sectors have limited capacity in using climate information in planning, siting and monitoring energy projects. *Environment* ● While the Philippines is a mega-diverse country and rich in natural resources, these resources are over-extracted, overused, and poorly managed. This can reduce the ability of ecosystems to recharge and heighten vulnerability of communities and their livelihoods to disasters. ● Although some LGUs (e.g., USAID's Cities Development Initiative (CDI) city governments) have used downscaled climate projection data on rainfall and temperature. This information can be used for planning and programming purposes making the LGUs more resilient to climate change and disasters. ● Not all LGUs have access to usable data on climate impacts on the environment and biodiversity which can be used for planning and programming of climate-resilient activities. ● Majority of stakeholders do not have the capacity to access and to use appropriate technologies that can reduce the impacts of CC ● LGUs and other stakeholders have limited capacity to access climate funds such as People's Survival Funds, Global Climate Fund, and Forest Carbon Partnership Facility, to address climate risks. ● Few LGUs have LCCAP that has biodiversity management plans to address climate change impacts. ● Coastal zone management is not always incorporated in land use planning among LGUs. ● Most stakeholders such as water service providers lack the capacity to collect and analyze climate, and water resource information as well as integrate these into business, water safety and investments plans as well as water and sanitation infrastructure, siting, design and procurement. ● Water utilities have different capacity levels and	DO3 recognizes the Philippines' vulnerability to climate variability specifically on the various shocks, stresses, such as extreme weather events and severe flooding incidences, transnational threats that affects natural resources that includes water, energy, as well as infectious diseases and tuberculosis are considered (pages 26-31). IR 3.4 Capacity to Mitigate Risks and Respond to Disaster Strengthened under this DO has climate considerations and resilience particularly in the urban settings (page 30).	Additional new or updated PADs and scope of work developed after the CDCS would need to address specially the risk to slower onset risks and mitigation options. Mission targeting of resilience activities needs to continue focusing on provinces or cities/municipalities that are more vulnerable to the effects of climate change. Leverage GPH commitments and community interests in NRM to establish new and strengthen management of existing resources Encourage and leverage public-private partnerships to implement joint management of PAs Leverage GPH requirements for Departments and Agencies to use climate information for conservation planning and programming Work with regional offices of DENR to strengthen stakeholders' capacity to use climate information Facilitate REDD+ to help GPH achieve GHG mitigation goals and to provide conservation-based income via the kinds of PES arrangement	Increased prevalence of extreme weather events e.g. typhoons that causes flood incidences as well as drought caused by El Nino are climate risks that the Mission has to accept and program accordingly.

approach in monitoring water resources and WASH services. There is a need to verify hydro-meteorological monitoring is being conducted. ***Climate risks:*** ● Warmer temperatures, shifting rainfall patterns, stronger droughts and storms that may lead to flood incidences, and sea level rise which potentially could undermine efforts to build environmental resilience or cause resilience thresholds to be overwhelmed. ● Coral bleaching due to increase in ocean temperatures and changes in ecosystem structure and composition due to acidification impacts on calcifying organisms ● Loss of reefs, seagrass and mangrove habitats due to sea level rise and changes in salinity and ocean chemistry ● Loss of coastal land due to erosion (SLR, stronger storms, and changes in river flow) ● Changes in fish distributions and reproduction, as a result of SLR, temperature increase, and other climate stressors, potentially leading to reductions in fish stocks and loss of livelihoods ● Distribution of forest types, forest structure, and forest composition could all shift as temperatures warm and rainfall patterns change; some forests may become more vulnerable to conversion to agriculture ● Forest fires could become more likely as temperatures rise and rainfall patterns shift causing heat stress and potentially increased mortality as well as causing additional warming due to the positive feedback of increased emissions ● Diversion of funds from conservation /protected area management due to competing priorities		B-WISER helped broker in the Bago City watershed Seek opportunities to increase carbon sequestration and reduce GHG emissions via improved forest management or forest restoration Leverage GPH requirements to consider CCAM and DRRM in design of new and rehabilitation of older WASH infrastructure Leverage formal and informal curriculums on CCAM and DRRM to build support and constituencies for water conservation and management, increased efficiency in use, programs to manage demand, and development and implementation of CRM measures Help build capacity of water service providers to access funds (including, or especially) the PSF for improvements in infrastructure as well as supply and demand management Help build capacity of financing institutions in incorporating climate resilience as a criteria for evaluating and approving water supply and sanitation projects Support integrated watershed management planning, which includes	

		meaningful participation of diverse stakeholders, to accomplish among other things equitable water allocation plans	

During the climate risk screening, the strategy development teams considered climate risks specific to each development objective and sought feasible CRM actions to address the risks. The teams also identified next steps to be undertaken during project and activity design and implementation. The teams then incorporated CRM throughout the strategy's narrative and in the MEL plan in order to highlight the need to adaptively manage the climate risks and identify a timeframe to pause and reflect.

G. Conclusions and Recommendations

The main conclusion from the climate risk screening was that climate risks could seriously affect the mission's strategic objectives if not tracked, addressed, and adaptively managed. To the extent possible the mission should address climate risks during project and activity design and implementation. The mission could adaptively manage climate risks by monitoring the effectiveness of CRM measures. This can be done by including relevant performance indicators in Monitoring, Evaluation and Learning (MEL) plans. Where appropriate, the mission could also include relevant context indicators in MEL plans, including for any projects and activities for which climate risks might be rated low in future assessments.

Given that the Strategy's objectives connect and that each could be negatively affected by climate risks, it will be important to devise CRM actions that address climate risks across the DOs. This is the main recommendation from the initial screening, and can be the main focus of efforts to refine the risk screening once the RF is drafted.

One gap identified in the initial climate risk screening is the lack of attention to slower onset risks (especially impacts of temperature increase, sea level rise, ocean warming and acidification). Although the Philippines has demonstrated a strong commitment to strengthen climate resilience where it set aside annually Php1 billion (US$19 million) fund called People's Survival Fund, existing GPH capacities are mainly focus on preparedeness for and recovery from extreme weather events rather than climate change, it may be useful for the mission to support efforts to better understand and address some of the slower onset risks. At the same time, consultations with GPH officials revealed a need for USG support on better use of climate information at all levels (national government to LGUs) to inform decisions.

Although the Strategy does not include specific focus on agriculture (e.g., through food security programs), to the extent possible the Strategy should support resilience building in the agricultural and fisheries sectors. The Philippines' economy and people still rely heavily on agriculture (12 percent of GDP). A recent ADB study estimated that avoided damages from resilience building investments in agriculture and coastal zones could be worth 10 times the cost of those investments by 2100. Recurrent damage to food production and coastal areas could undermine the mission's efforts to achieve inclusive economic development. Thus, the Strategy could include CRM actions relevant to agriculture and coastal zones through Local Works, the Cooperative Development Program, Fish Right, workforce development, and other future activities.

Part II: Climate Change Annex: Greenhouse Gas (GHG) Mitigation

Part II and III of this document answers the list of GHG mitigation questions required in ADS 201mat.

Theme / Question	Response
GHG Sources from Sectors	
What are the major sources of GHG emissions in the Philippines?	According to the 2016 USAID GHG Emissions Fact Sheet for the Philippines, the country emitted nearly 160 $MtCO_2e$ in 2012, the latest year for which data were available in WRI's Climate Analysis Indicators Tool (CAIT) database, the main source for the fact sheets. These emissions accounted for only 0.33 percent of the global total. More than half (54 percent) of the country's emissions came from the energy sector, with electricity and heat accounting for 45 percent and transportation accounting for about 25 percent of energy emissions. One-third of the country's emissions came from agriculture with rice cultivation accounting for about 64 percent and enteric fermentation (from livestock) accounting for another 13 percent. Industrial processes and waste accounted for 8 percent and 7 percent of total emissions respectively. According to government of Philippines (GPH) statistics, the country's forests served as a sink offsetting about 1 percent of total emissions. The Philippines 2nd National Communication to the UNFCCC (NC2), using GHG inventory information from 2000, noted that energy and agriculture accounted for most of the country's emissions. In 2000, transportation accounted for about 37 percent of energy emissions. USAID's B-LEADERS project conducted a detailed cost-benefit analysis (CBA) based on the 2010 national GHG inventory indicated the following emissions proportions by sector: Energy - 59 percent; Agriculture - 49 percent; Transport - 25 percent; Industrial Processes - 11 percent; and Waste - 12 percent. Forestry served as a sink, offsetting nearly 11 percent of total emissions. Total emissions increased by about 24.8 percent between 2000 and 2010. Emissions increased during this period as follows for each sector: Agriculture - 31.5 percent, Energy (excluding transport) - 34.6 percent, Industrial processes - 27.5 percent, and Waste - 2.4 percent. Transport emissions decreased by 2.5 percent. Forestry emissions increased by 0.3 percent according to this analysis, but the report noted that review of methodological differences between the 2000 and 2010 inventories may alter the result.
How has the distribution and composition of the GHG emissions profile changed over time historically and how is the profile expected to change in the future considering the major emitting sectors and/or sources?	The GHG emissions profile, in terms of distribution and composition, for the Philippines has not changed substantially since the early 1990s, though some emission trends for the period 1990-2012 are noteworthy: ● Energy related emissions increased by 43 $MtCO_2e$ (3.4 percent annually). Electricity and heat production, and transportation drove most of the increase. Energy generation tripled during this period. Although oil use decreased, the use of coal and gas increased. By 2012, the portfolio share of renewables reached 28 percent. The number of vehicles increased 12 percent annually from 2000. ● Agricultural emissions increased by 13 $MtCO_2e$ (1.5 percent annually) driven mostly by an increase in rice cultivation. ● Emissions from industrial processes increased by 7 percent annually and from waste by 2 percent annually. ● Removals (emission offsets) from land use change and forestry apparently increased by 12 percent, with the biggest change taking place in the early 1990s when the country's forests transitioned from a source of emissions to a sink (according to country and FAO statistics).

	USAID/B-LEADERS project's CBA study projected that total emissions would triple by 2050 (relative to 2010) under a BAU scenario. Due to population growth and an expanding economy, emissions were projected to increase in all sectors, with energy and transport related emissions showing the largest increases. By 2050, forests in the Philippines would also no longer remain a carbon sink.
How are the sectors and sources that contribute to GHG emissions contributing to the growth and development of the economy and to meeting development objectives?	● Energy (Power) - In 2012, about 77 percent of households had access to electricity (up from about 62 percent in 1990 according to the World Bank). The GPH goal in 2012 was to achieve 90 percent access by 2017. According to the World Bank, 97 percent of urban residents and 86 percent of rural residents had electricity access in 2016. The GPH is working to integrate power grids across the islands. Use of coal for power production has been increasing for the past decade, apparently because it is perceived as the cheapest way to achieve electrification targets. ● Transport - The GPH noted in NC2 that a growing population and expanding economy requires an expansion of transport networks. It projected GHG emissions from transport to increase from about 24 (2012) to 37 $MtCO_2e$ by 2030. However, recognizing the suite of problems (including congestion, air pollution, and GHG emissions) generated by the expansion of roads and vehicles, the GPH stated its desire to pursue a lower emissions path to develop its transportation infrastructure and sector (see 2nd National Communication). ● Agriculture - The GPH is focusing on increasing self-sufficiency in food supply. The Philippines INDC omitted mention of emission reductions from the Agriculture sector. The Department of Agriculture is focusing on enhancing resilience to disasters and climate change, and has noted that it will consider mitigation where possible. Climate smart agriculture is being promoted.
What climate change mitigation or low emission development plans, targets, commitments, and priorities has the government articulated?	Over the past decade, the GPH embraced the idea of low emission development. Its INDC submission pledged a 70 percent reduction in GHG emissions by 2030 relative to a BAU scenario for 2000-2030. Subsequent analysis in the B-LEADERS CBA found this pledge to be unrealistic and identified feasible emission reductions of about 40 percent across all sectors. Given continued commitment to the National Greening Program (NGP), emissions abatement from the forestry sector appears to be a priority. In contrast, despite many negative cost mitigation options, emissions abatement in the transport sector does not appear to be a high priority. In 2011, the GPH developed a national strategy for environmentally sustainable transport (EST), which aimed to reduce energy consumption and GHG emissions from the sector, shift toward lower carbon fuels and transport systems, and enhanced mobility. The GPH's new national strategy, "Build, Build, Build", appears inconsistent with the older EST. ADB apparently will make US$8 billion available in loans to improve transport infrastructure across the country.
USAID work in Sectors	
Which sectors is USAID planning to program in?	The mission plans to work in the forestry, water, and energy sectors. In the energy sector, the mission's focus is largely on improving efficiency, reducing electricity costs, strengthening overall resilience (especially in times of crisis) and restoring basic services (post-crisis recovery), the latter two areas especially considering the energy-water nexus.
What opportunities exist to reduce emissions in those sectors?	The B-LEADERS CBA estimated that implementation of all mitigation options (considered in the analysis) could result in a reduction of total cumulative emission reductions of 3,832 $MtCO_2e$ by 2050. Forest restoration and protection could abate about ⅓ of these emissions. Implementation of all the negative cost mitigation options could reduce cumulative emissions

	relative to the BAU by 1,769 $MtCO_2e$ by 2050. Most of these negative cost options are in the energy (e.g., switching to renewables) and transport (e.g., improving efficiency, electric vehicles, and road maintenance) sectors. Given plentiful geothermal resources, the energy sector may not have explored wind power, but newly available power density maps show that the Philippines could develop its wind resources, which are mostly concentrated around the bays of southern Luzon, the coast of northern Luzon, and the mountains of Luzon. Although the GPH is focused on climate adaptation and building resilience in the Agriculture sector, there are opportunities to achieve double wins by encouraging investments in climate smart agriculture (aka climate resilient agriculture) that includes reduced emissions as a co-benefit. Other opportunities include affordable index insurance schemes (to incentivize farmers to embrace low-emissions practices), provision of capital and training for farmers, extension agents, and loan officers, and value-added processing which includes efficiencies to reduce emissions.
What opportunities exist to reduce emissions associated with USAID activities?	The mission's work in the forestry, energy, and water sectors can contribute to GHG mitigation. Emission reductions and carbon sequestration benefits can be achieved through the mission's work on strengthening forest protection and management systems, supporting forest restoration efforts, supporting private sector investments in forest production activities, and via replication of successful payment for ecosystem services arrangements with water service providers and local government units (LGUs) in priority watersheds. Many of these entry points will focus on building resilience and strengthening the ability of LGUs to manage and provide clean water. Quantification of emission reductions should be facilitated once a forest reference emission level is set and the National Forest Monitoring System, which USFS is supporting, is finalized and deployed. In the water sector, efforts to improve resilience, improve efficiency of water supplies, and manage demand also presents mitigation opportunities. Diminishing the need for water treatment and using renewable energy sources for moving water also can help avoid emissions. The mission's work in the energy sector offers potential mitigation benefits via improvements in grid integration and efficiency, promotion of renewable energy sources, strengthening policies and regulations, and strengthening watershed management to ensure the viability of hydropower options. Given the focus in the Philippines on resilience and disaster risk reduction and management, it will be important to frame mitigation as a co-benefit. One opportunity where this approach could be tested is in the restoration of basic services including water and electricity in post-conflict Marawi. Design of water and energy infrastructure, and the energy sources could include mitigation considerations especially if USAID can demonstrate that the design options with the greatest resilience also will generate appreciable GHG mitigation benefits.
Climate mitigation in the Strategy	
Does the strategy incorporate ways to reduce GHG? [Note: need to reference page # in strategy and whether GHG mitigation	Yes. GHG mitigation opportunities are most explicitly incorporated in the strategy's DO on building environmental resilience, and in the IRs on strengthening conservation of biodiversity, improving water security for vulnerable populations, and reducing vulnerability to climate stresses. They could be included in the IRs on bolstering health systems and improving education

is incorporated in a goal, DO, IR, or sub-IR]	quality, if feasible, and if the mission supports any new construction (e.g., clinics or schools). Finally, the mission's work on enhancing democratic governance, fostering economic and political inclusion, and advancing social stability could include GHG mitigation via promotion of approaches and technologies that strengthen resilience and also reduce emissions.
Next steps	
What are the next steps at the project / activity levels to reduce GHGs?	Under the Development Objective 3: Resilience to Natural and Man-Made Shocks Improved, reduction/sequestration/avoidance of GHG emissions may be done at the Project/Activity-levels through improving management and governance of natural resources and improving conservation of biologically diverse areas.

Part III: Climate Change Annex: Greenhouse Gas Mitigation - SL Questions

1. *How does the CDCS integrate planning and implementation of LEDS into its DOs and/or IRs and support the host country in meeting its domestic and international GHG targets and commitments?*

The mission will frame mitigation (emission reductions) as a co-benefit rather than a targeted objective. Specifically, the CDCS will seek opportunities to promote low emission development emission reductions as one of the synergies in its efforts to support resilience-building.

Assuming the mission continues to receive SL funding, the mission may support the Philippines in meeting its commitments by:

- Working with GPH, local stakeholders, and private sector to strengthen forest protection and management (e.g., by consolidating progress in scaling up application of the LAWIN system)
- Working with LGUs to develop comprehensive land use plans (CLUP) that include low emission development strategies
- Leveraging the national biodiversity strategy, which includes provisions for climate change adaptation and mitigation and working with the Housing and Regulatory Board to effectively implement guidelines that include the biodiversity strategy provisions
- Continuing to seek emission reduction opportunities across the mission's portfolio

2. *How does the R/CDCS incorporate the goal of reducing net emissions from deforestation or from other land uses such as agriculture, consistent with USAID's Climate Change and Development Strategy?*

Consistent with the answer to question 1, the CDCS positions its SL program to link with resilience building activities. The SL program will also capitalize on the fact that, according to GPH statistics, deforestation in the Philippines is more than offset by forest growth (via protection and management) and restoration. The mission's SL program will help the Philippines maintain its forests as a carbon sink by supporting:

- Protection and restoration of critical forests and watersheds by leveraging the National Greening Program as well as the GPH Cabinet-level Cluster Roadmap on CCAM and DRRM, which has prioritized climate resilience-building initiatives in 22 provinces, 822 coastal municipalities, and 4 cities they rated as most vulnerable to climate hazards in part because of their location in critical watersheds

- Development of an effective water user fee (residential and commercial), which would generate revenues for forest restoration and to sustain water services, and
- Development and deployment of a national forest monitoring system

The mission does not directly support activities in the agriculture sector, but its economic development and education programming will support efficiency gains across sectors including agriculture. If applicable, the education program may support incorporation of low emission considerations in Agriculture school curriculums to develop more resilient production methods that also result in fewer emissions.

3. How does the R/CDCS enable or promote a transformational change to low emissions development?

The work noted above under Question 2, will set the foundation for helping the Philippines shift toward a lower emission development path. In addition, the mission will support the GPH's efforts to mobilize private sector investments in sustainable management of forest plantations. Participation in an envisioned carbon accounting and verification system will allow these investors to burnish their reputations, in order to crowd in additional investments. At the same time, the mission will support DENR's efforts to evaluate forestry concessions already allocated to ensure the concessionaires are committed to sustainably managing production forests.

The mission will also leverage its Cities Development Initiative program, which includes efforts to strengthen policies and institutions. Having a cohort of exemplary cities that pursue how low emission paths to development -- which includes management of watersheds that provide critical services -- will demonstrate how low emission development can build a more inclusive, resilient economy.

As concluding remarks on GHG emission reduction, the Philippines' NFSCC illustrates the road map towards climate resilience which is being implemented through the NCCAP. Both these documents serves as guides in mainstreaming climate change mitigation strategies into the local policies, projects and programs as well as into the different sectors at the national level through departmental policies and regulations. The Philippines remains its participation in international climate change discussions and agreements. It remains to be a supporter of the UNFCCC. "Although the Philippines is not a major contributor to global GHG emissions, the country's economy is on a growth path that is likely to lead to much higher emissions in the future" (Buendia et al., 2018). Buendia et al., continues that with the "international commitments, the Philippine government supports international cooperation and highlights the importance of the country's potential to contribute to the achievement of global emission reduction targets."[17]

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