

CLIMATE THREATS IN THE NORTHERN TRIANGLE

How the United States Can Support
Community Resilience

Lisa Viscidi and MK Vereen

Foreword

I am pleased to present “Climate Threats in the Northern Triangle: How the United States Can Support Community Resilience,” by Lisa Viscidi, Director, and MK Vereen, Assistant, of the Energy, Climate Change & Extractive Industries Program of the Inter-American Dialogue.

The Central American countries of Guatemala, Honduras and El Salvador are today experiencing the negative impacts of climate change, which is worsening already precarious living conditions for many of their citizens. As the Biden administration continues to craft its Northern Triangle policy and seeks to address the root causes of migration, climate change adaptation should be a fundamental focus.

Against this backdrop, in 2021, the Dialogue launched a special project that aims to provide recommendations for the Biden Administration’s policy on supporting climate adaptation in the Northern Triangle, with an emphasis on climate justice and mitigating the impacts on vulnerable communities to reduce inequalities in the region. To pursue this objective, a Task Force on Climate Change in the Northern Triangle, coordinated by the Dialogue, was formed to provide varied perspectives on this critical policy challenge for the region. This task force includes a diverse group of representatives from the Northern Triangle, including representatives of environmental organizations, rural, Indigenous and Afro-descendant communities, youth activists, and prominent former government officials and business leaders, as well as technical experts.

Informed by valuable inputs of task force members, this report is the second in a series of three publications on climate change adaptation in the Northern Triangle. It outlines the impacts of climate change on key sectors in the Northern Triangle, including agriculture and forestry,

infrastructure and energy, and finance, and examines how this affects communities. The report concludes with specific recommendations for short and longer term assistance from the United States.

The first report in this series, which was released in November 2021, provided broad recommendations for the US strategy on climate change adaptation in the region, including to strengthen partnerships with local organizations, provide economic opportunities to vulnerable groups, and involve the private sector in adaptation programs. The third and final report will address how US support can strengthen key local actors in a sustainable, long-term manner—including by “localizing” foreign assistance—and improve awareness of climate change among key constituencies.

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MICHAEL SHIFTER
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Introduction

The impacts of climate change are increasingly apparent around the world, as average global temperatures have increased by slightly more than 1 degree Celsius since pre-industrial times.¹ The Central American countries of the Northern Triangle—Guatemala, Honduras and El Salvador—are particularly vulnerable to climate change due to their exposure to hurricanes, droughts and floods. Climate change impacts are exacerbating endemic ills like poverty, inequality and malnourishment, and research increasingly suggests that climate change is a major contributing factor to migration, mainly to the United States.² A 2021 study shows that climate events occurring in conjunction with regional violence, insecurity and inequality cause outward migration, while exacerbating the violence that leads to internal migration.³ While it is critical that all countries around the world contribute to emissions reductions to strengthen global action on climate mitigation and transition to a low carbon economy, the Northern Triangle bears little responsibility for climate change. The three countries together contribute around 0.15 percent of global greenhouse gas emissions.⁴

Rural subsistence farmers, women, ethnic communities, and young people in the region are disproportionately affected. Extreme weather events impact agricultural and forestry productivity, particularly for micro, small and medium enterprises that have limited technology and access to capital to adapt. Climate change threatens the way of life of many Indigenous and other ethnic communities, the majority of whom live in rural areas and depend on subsistence farming and natural resources. Extreme weather also damages infrastructure, threatening housing and electricity access for urban populations that lack resources to upgrade their homes. Floods and droughts put pressure on limited water supplies, particularly in poor communities. Young people, who will grow up in a world even more affected by climate change, are disproportionately impacted.

The Northern Triangle governments have developed adaptation plans, but the institutional capacity to execute programs to prepare for climate change is extremely limited. Moreover, governments in the region rely mainly on scarce domestic finance to cover adaptation costs, while few private companies are investing sufficient sums in adapting their businesses to the changing climate. International donors, including various US agencies, and international financial institutions are supporting climate adaptation efforts, but more assistance is needed.

The administration of US President Joe Biden has pledged greater support to the Northern Triangle. Biden has promised billions of dollars in aid and has developed a strategy to tackle the root causes of migration.⁵ The administration has also enhanced the United States' global commitment to addressing climate change and vowed to increase international support for resilience and adaptation, particularly to developing countries.⁶ In addition, in November 2021, the US Agency for International Development (USAID) published a draft climate change strategy for 2022 to 2030, which includes a target to enable the improved climate resilience of 500 million people during that period and emphasizes locally led action, private sector engagement and leadership for Indigenous peoples, local communities, women and youth. Climate assistance that targets disadvantaged populations offers an opportunity to strengthen cooperation and foment positive discussions in bilateral relations between the United States and Northern Triangle countries.

Bearing little responsibility for climate change, the Northern Triangle contributes around 0.15 percent of global greenhouse gas emissions.

This report, which is based on inputs from the Task Force on Climate Change in the Northern Triangle, coordinated by the Inter-American Dialogue, analyzes the critical challenges to climate adaptation in the region and outlines recommendations for US assistance. The task force urges the United States, in designing and implementing aid programs, to involve local civil society as lead actors in development and climate activities, include outcome-based indicators that measure adaptation outcomes and improvements in living standards among vulnerable populations, and coordinate assistance with other donors and international financial institutions operating in the region.

In the agriculture and forestry sectors, specifically, this report recommends helping small-scale agricultural and forest workers with education on supply chain

management and market access; supporting sustainable agricultural practices; strengthening agricultural associations, Indigenous organizations, and community-based forest management; and providing capacity building to governments to improve land governance and protected areas. For urban populations, recommendations include implementing clean water and conservation programs using nature-based solutions and supporting design and enforcement of climate-resilient building regulations. In the energy sector, the recommendations focus on providing risk assessments for electricity systems and advancing investment in diversified, sustainable, and reliable energy generation. To support access to finance, the report recommends providing technical assistance to governments to apply for and execute international climate finance; stimulating private sector investments in adaptation; and working with the banking sector to democratize and “green” access to capital. Finally, the report recommends aiding governments to provide direct assistance to the most vulnerable populations.

In damages and economic losses, Hurricanes Eta and Iota cost Honduras \$1.9 billion and Guatemala \$780 million.

Impacts of Climate Change on the Northern Triangle

Northern Triangle countries are today experiencing the impacts of climate change, which is worsening already precarious living conditions for many people. Central America has been identified as the tropical region most sensitive to climate change, according to the Intergovernmental Panel on Climate Change (IPCC).⁷ In the past few decades in Central America, extreme floods, temperature changes, storms and droughts have all increased in frequency, and the number of cold days and nights has decreased, according to the IPCC.⁸ In the highly biodiverse region of Central America, climate change is also expected to increase the rate of species extinction. Within the Northern Triangle, the impacts of extreme

events are exacerbated by high levels of deforestation and land degradation.⁹ In Honduras, more than half of the population was affected by floods in 2020, and severe to moderate drought conditions were reported in Guatemala and Honduras in the same year, according to the World Meteorological Organization.¹⁰ In the last 40 years, average temperatures in Guatemala have increased by at least one degree Celsius, and the onset of yearly rains has become increasingly delayed in the past seven years.¹¹ The effects of climate change are particularly pronounced in the Dry Corridor, a tropical dry forest which covers most of El Salvador and parts of Guatemala and Honduras. Looking ahead, these impacts are expected to worsen as global temperatures increase reach an average of 1.5 ° C around 2030, according to IPCC projections.

Climate change is particularly detrimental to agriculture, a critical sector in Northern Triangle economies and essential to food security. Floods and droughts reduce agricultural yields, and storms, droughts or irregular rains sometimes wipe out entire harvests. In recent years, in the Dry Corridor, extreme flooding followed by months-long droughts has affected agricultural yields for subsistence farmers, resulting in a humanitarian crisis.¹² After an irregular rainy season in Guatemala in 2018, farmers lost almost 80 percent of corn grown in the highlands. In El Salvador, 50 percent of corn and bean farmers lost half of their crop following Tropical Storms Amanda and Cristobal in May and June 2020. Rising temperatures also drive the growth of a fungus called “coffee rust” that has decimated coffee crops, a major source of income in the Northern Triangle.¹³

Hurricanes, tropical storms, and floods also frequently damage infrastructure in the Northern Triangle. Since a large number of people live on or near highly unstable and landslide-prone terrain, extreme weather results in high casualty rates. In El Salvador, heavy rainfall combined with droughts has led to flooding and landslides. When tropical storms Amanda and Cristóbal hit the country in 2020, they caused 30 fatalities and affected almost 30,000 families.¹⁴ Later that year, Hurricanes Eta and Iota swept through Honduras and Guatemala, causing \$1.9 billion and \$780 million in damages and economic losses in the two countries respectively.¹⁵ In Honduras alone, the hurricanes adversely affected 4.6 million people, exacerbating pre-existing food insecurity and reducing the country’s GDP by almost 1 percent.^{16, 17}

Climate change has also impacted public health outcomes, as evidenced by an increase in morbidity, mortality, and disabilities. Rising global temperatures have also led to the emergence of diseases in non-endemic areas and an

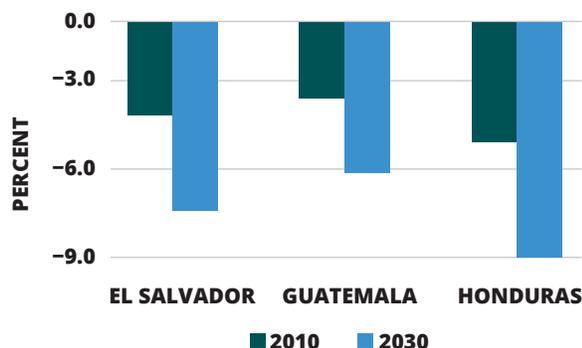
increase in both the incidence and severity of diseases in zones where they were already present.

Toward the end of this century, as temperatures are projected to rise by between 2.1° C and 3.3° C, the Northern Triangle will likely experience increased aridity and drought, increased fire-prone weather conditions, and more extreme weather events. High temperatures would result in increased evapotranspiration, reducing water availability. Under this scenario, the Northern Triangle region will likely face sea level rise, flooding in low-lying areas, and a receding coastline on most sandy shores. This sea level rise is expected to cause floods in coastal zones and port infrastructure, threatening the population of fish, corals, and mangroves in Central America and causing considerable losses in biodiversity. A projected increase in marine heat waves could cause the Mesoamerican Reef to collapse between the years 2050 and 2070.

These long-term impacts will be detrimental to economic development (see Figure 1). Droughts and water shortages will likely lead to higher food prices and food insecurity. Higher temperatures will reduce production of basic foods such as corn and beans as well as export products like coffee, while fish populations will migrate further north.¹⁸ Sea level rise and the loss of coral reefs would threaten recreation and tourism. Water shortages are also expected to diminish hydroelectric power generation. If the planet warms by 2° C, hydropower output in Central America is estimated to fall by 5 percent on average, while a temperature increase of 4° is projected to cause a 30 percent drop, according to one study.¹⁹ In addition, heavy rains combined with deforestation result in intense erosion and sedimentation of rivers, reservoirs and turbines which could overwhelm hydroelectric power in the future.

FIGURE 1: PROJECTED GDP DECLINE DUE TO CLIMATE CHANGE IMPACTS

Source: United Nations Economic Commission for Latin America and the Caribbean (ECLAC)



Sector-Specific Context and Adaptation Challenges

Agriculture and forestry

The agricultural sector plays an important role in the economies of the Northern Triangle, especially in Guatemala and Honduras. Agriculture formed 20 percent of GDP in Guatemala, 12 percent in Honduras and 5 percent in El Salvador in 2020.²⁰ Similarly, agriculture is a critical source of employment in Guatemala and Honduras, with around 30 percent of workers employed in those sectors in each country in 2019. In El Salvador, 16 percent of workers were employed in agriculture that year (see Figure 2).

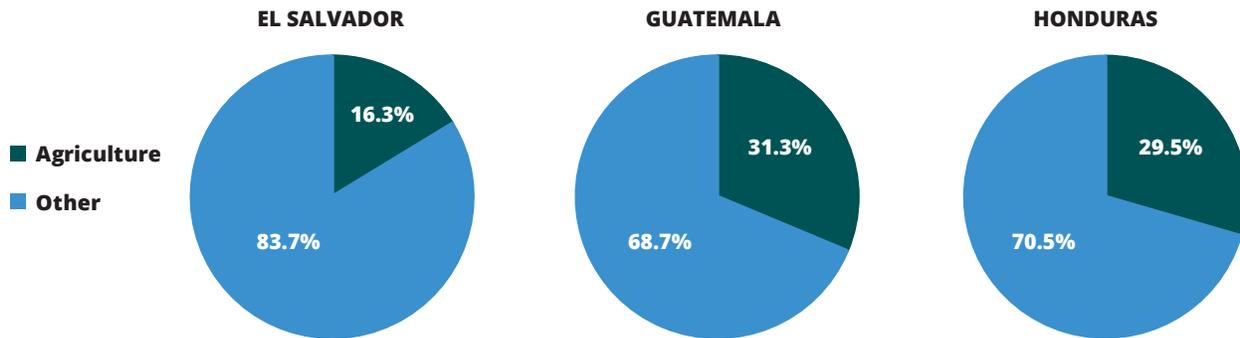
Climate change puts farming livelihoods in peril, particularly for the large number of subsistence farmers in the Northern Triangle. Over 90 percent of agricultural producers in all three countries are subsistence farmers.^{21, 22, 23} Some have adapted farming methods over decades to their specific environment and weather patterns, but as climate change accelerates, these practices are not sufficient for most farmers to remain productive enough to live off the land. For some farmers, adaptation will not be feasible: as the climate changes, some land will not be fertile in the future, and some farmers, particularly those in very drought- and flood-prone areas, will be forced to relocate. However, relocating is difficult due to lack of land titling in some areas and procedural hurdles to identifying and assessing available fertile land. Moreover, many younger generations do not want to endure the difficult conditions of subsistence farming and will continue to migrate internally or abroad unless labor-saving mechanisms, including modern farming techniques and equipment, can make the sector more attractive to them.

Lack of access to technology and business practices also poses a challenge to climate adaptation. Subsistence farmers have limited access to modern technology to produce climate-resilient crops. In addition, many small-scale agricultural workers lack training in business. They have received no formal training to identify and produce high-value crops, produce value-added goods and services, manage supply chains, and access markets. Their lack of a formal business plan, accounting records, and other information in turn prevents them from applying for financing.

Limited access to water also poses a challenge for rural residents. Irrigation uses a large share of available

FIGURE 2: EMPLOYMENT IN AGRICULTURAL SECTOR, PERCENT OF TOTAL, 2019

Source: The World Bank



freshwater in the Northern Triangle, and the majority of water for irrigation is consumed by large farms.²⁴ Meanwhile smallholder farmers face shortages and rely on the use of rainfall. A 2012 study on Guatemala, for example, found that 86 percent of existing irrigation was used by large scale companies exporting crops like sugarcane, African palm, and bananas.²⁵ In Honduras, 92 percent of irrigation supported large scale exporters of crops like banana, tobacco and sugarcane, according to a 2014 study.²⁶ In El Salvador, the agriculture and fishing sectors consumed over half of all water available in the country in 2017, with a large share of the demand coming from sugarcane monoculture production and cattle rearing.²⁷ Monocultures of African palm and pineapple caused reduction of the water table in many areas of Honduras. Due to limited access to credit, technical assistance, markets, and productive assets, small and medium scale producers cultivating staple crops often rely on rain or use highly inefficient irrigation systems.

The expansion of monoculture and cattle ranching has made conditions more difficult for subsistence farmers while also contributing to climate change. Monoculture and cattle ranching have put pressure on land use and pushed small agricultural producers toward less productive lands.²⁸ The expansion of monoculture also reduces the amount of food grown for consumption, contributing to food insecurity by using land that could have been used for subsistence crops. Moreover, without genetic engineering, many monocultures are more biologically vulnerable to climate extremes than are genetically diverse plants.²⁹ In Honduras, more palm oil is produced than food crops, and palm oil production has caused water shortages in nearby towns.³⁰ Monocultures there are over-absorbing nutrients from the soil, and this, combined with overgrazing, is causing massive soil degradation.³¹ In 2009, an estimated 40 percent of land in Honduras was characterized

as degraded with reduced water retention capacity.³² Likewise, in Guatemala, the rapid expansion of palm oil has exacerbated land conflicts, labor disputes, and water shortages.³³ Cattle ranching is also a major driver of deforestation, which enhances the negative effects of climate change.³⁴

The forestry sector also provides an essential source of income for Northern Triangle countries through economic activities like logging, forest management, sap collection, and the production of artisanal wood products and foods harvested from the forest. Forest products also provide economic safety nets for local communities when agricultural crops fail.

However, forests are threatened by human activities as well as climate change. Protected lands cover 24 percent of Honduras, 20 percent of Guatemala, and 9 percent of El Salvador, and Guatemala is home to the Maya Biosphere Reserve, the largest protected area in Central America.³⁵ But while many forests in the region are officially protected areas, enforcement is weak.³⁶ Since 2000, Guatemala, Honduras and El Salvador have lost 21, 15, and 8 percent of their forest cover, respectively (see Table 1).³⁷ Agricultural expansion and illegal cattle ranching tied to drug traffickers are the main human-led drivers of deforestation in each country.³⁸ Government awarding of licenses to develop forested areas (for example for mining, oil exploration, agricultural production or the construction of hydroelectric dams) as well as land invasion also constitute drivers of deforestation. Meanwhile, regulations on sustainable forest management are not always enforced, government budgets and resources to fight deforestation are inadequate, and the countries lack accurate demarcation and forest management plans.³⁹ For example, Honduran regulation requires the development

TABLE 1: FOREST PROTECTION AND LOSS

Source: The World Bank and Global Forest Watch

	PERCENT DECREASE IN TREE COVER, 2001-2020	PERCENT OF NATIONAL LAND PROTECTED, 2018
El Salvador	8%	8.8%
Guatemala	15%	20%
Honduras	21%	23.9%

of state forest management plans, but reports have found that proper silviculture practices were not being followed.⁴⁰

Changing weather patterns and increased temperatures also threaten forests with plagues. The Dendroctonus beetle, which increases in population amid high temperatures and droughts, has destroyed coniferous ecosystems in Central America.⁴¹ Heavy rains and flooding make it more difficult to manage forests and hotter, drier conditions increase the risk of forest fires. These conditions also reduce yields of certain edible forest products.

At the same time, deforestation is exacerbating climate risks to people living in the Northern Triangle. Forests provide essential ecosystem services that act as a buffer against the worst impacts of climate change. For example, mangroves protect coastal areas against storms and waves. Forests also provide hydrological ecosystem services, such as water conservation, storm flow regulation, and erosion control, to buffer the impacts of climate change on water users. The high rates of deforestation in the upper parts of watersheds in the Northern Triangle result in soil runoff and landslides that impact lower areas where citizens live.

Thus, climate adaptation solutions must make the forestry sector more sustainable and climate-resilient while also reducing deforestation and degradation. However, Northern Triangle countries have not developed robust economic incentives for investment in sustainable natural resource management. Producers of sustainable forest products need to improve business knowledge in areas such as commercialization, supply chain logistics, value addition, and scaling up production. Domestic demand is too small to prop up the sustainable forestry industry. However, the export process lacks proper regulation and is too complex to incentivize forestry workers to pursue sustainable resources projects, and producers struggle to

access foreign markets, according to local organizations. Moreover, finance for sustainable forestry is very limited.

Infrastructure and energy

Infrastructure, including in buildings, transport, and energy, is highly exposed to climate change. In urban and semi-urban areas in the Northern Triangle, rapid population growth coupled with poor planning and a lack of climate-resilient infrastructure endangers the lives and economic conditions of the most vulnerable populations. From 1960 to 2020, the share of the total population living in an urban area grew by 36 percent in Honduras, 35 percent in El Salvador, and 21 percent in Guatemala.⁴² Within these urban areas, the share of the population living in informal housing areas was 39 percent in Honduras, 22 percent in El Salvador and 31 percent in Guatemala, as of 2018.⁴³

Rapid, unplanned urban growth has meant buildings were constructed without consideration for climate risks. Cities in the Northern Triangle have seen the expansion of informal housing built in areas affected by storms and flooding, often on steep hillsides and along rivers. Heavy rain regularly causes landslides that lead to the loss of homes, damage to roads, and casualties. El Salvador has identified those living in informal settlements as among the most vulnerable segments of the population to climate impacts. In most Honduran cities, informal commercial activities have grown next to informal settlements, generally located in areas of high risk, generating a large amount of solid waste in unsafe buildings.⁴⁴ Similarly, in Guatemala, in densely populated cities, population growth of around four percent per year has increased demand for housing, even in locations clearly vulnerable to landslides and significant damage during disasters.⁴⁵ In La Limonada, Guatemala, a shortage of formal housing led to houses being constructed of cardboard, tin sheets, flimsy wood sheets and, more recently, cement blocks.⁴⁶ These settlements are highly susceptible to damage from

climate change. Many of the most precarious housing settlements in Guatemala also lack water, electricity or drainage services which are essential to climate resilience.⁴⁷ Tropical storms and hurricanes have destroyed entire bridges and highways that were not constructed with climate risks in mind. Unplanned urban expansion also damages ecosystems by causing soil erosion and water contamination.⁴⁸

Buildings are not constructed using the most climate-resilient materials and construction methods due largely to the lack of engineering expertise, outdated building codes, and weak enforcement. Honduras's National Action Plan, for example, mentions weak enforcement of building codes as a primary national concern for climate resiliency. The country's current code does not consider the location of settlements, characteristics of the electrical and sanitary installations, or aspects of building safety and climatic conditions.

Buildings are not constructed to be climate resilient due to a lack of engineering expertise, outdated building codes, and weak enforcement.

Water infrastructure is also affected by climate change. Floods and storms inundate drinking water systems. For example, most of the population of Honduras lives in the low part of the country where flooding often submerges the land due to a lack of water filtration systems. These weather events put further pressure on a system that already faces water shortages and conflicts over water. In El Salvador, the Río Lempa watershed supplies water for 800,000 inhabitants in metropolitan San Salvador while four hydroelectric plants and one irrigation system are also vying for usage.⁴⁹ Cross-border mining, industrial waste, agrochemicals and sewage discharge contaminate the watershed.⁵⁰ High levels of toxicity and poor water purification make surface water unsafe to drink even when using conventional purifying methods.⁵¹ In the high zones of the country, agriculture uses so much water that drinking water has to be brought in and sold from trucks, at considerable expense to families in a country where the minimum wage for agricultural workers is only \$114 per

month.⁵² In Honduras, about half the population did not have access to the public drinking water service in 2013, relying instead on private water services, wells, and other sources such as streams, rivers and lakes.

In many cases, there is no institutional mandate or body to regulate watersheds and negotiate water use, so water-intensive projects are often implemented without thorough consideration of potential water conflicts. This lack of coordination means that in areas with abundant water, developers of many water-intensive projects try to gain access to a single water source. El Salvador, for example, lacks mechanisms to regulate the use of water by companies or to oblige them to carry out treatment, remediation or even basic cleaning of known contaminants, although a recently approved law on water resources will establish regional administrative bodies to manage water resources.⁵³ In Honduras, state and local governments have not given the existing entities in charge of water management proper technical training, capacity-building, or economic and legal support.⁵⁴ In Guatemala, water legislation is fragmented and the multiple governmental entities that manage it lack integrated water management plans or a centralized source of water management information.⁵⁵

The impacts of climate change on energy infrastructure are also visible. El Salvador, Guatemala and Honduras all have high electrification rates, at 100 percent, 96 percent and 93 percent respectively.⁵⁶ However, electricity access is unreliable for much of the population, with frequent blackouts and planned outages that reduce living standards and economic opportunities. For example, in 2013, in Honduras, there were on average 31 hours of power outages per month, and power outages totaled about 12 percent of firms' operational time.⁵⁷

Extreme weather events further threaten reliable energy access by damaging transmission and distribution infrastructure. Insufficient investment in transmission and distribution infrastructure has contributed to increased vulnerability. From 2009 to 2014, average electricity loss amounted to 25 percent in Honduras, 14 percent in Guatemala, and 12 percent in El Salvador. High losses in Honduras have resulted in an estimated 1-2 percent reduction in GDP on average. Most losses are in the distribution segment, the result of electricity theft, but technical losses are substantial in rural areas.⁵⁸ As a result of insufficient investment in resilience, transmission and distribution networks face potential collapse during extreme weather events. In Honduras, Hurricane Eta brought down many transmission lines, towers, and substations.⁵⁹

Additionally, six national power grids in this region are interconnected through the Central American Electrical Interconnection System (SEIPAC), meaning extreme weather in one area can affect the larger region. For example, in 2017, heavy rain caused a transmission line to go out in Panama, which led to a blackout affecting 15 million people in Central America (60 percent of the region’s population), including parts of El Salvador, Guatemala, and Honduras.

Rapid growth in power demand, heavy dependence on hydroelectric power, and insufficient diversification of generation sources are also weakening the countries’ ability to generate reliable power amid climate change impacts. Hydropower makes up almost 40 percent of installed capacity in Guatemala, 27 percent in El Salvador, and 30 percent in Honduras. Fossil fuels contribute 30-45 percent of installed capacity in all three countries (see Figure 3).⁶⁰ While hydroelectric power is a renewable energy source, expanding hydro capacity would have huge drawbacks. Rising temperatures are expected to reduce hydroelectric availability at a time of growing competition for limited water supplies. The construction of large dams has also caused local environmental degradation and violent social conflicts.

Non-hydro renewable energy generation is growing but still has to be backed up by a firm power source to provide

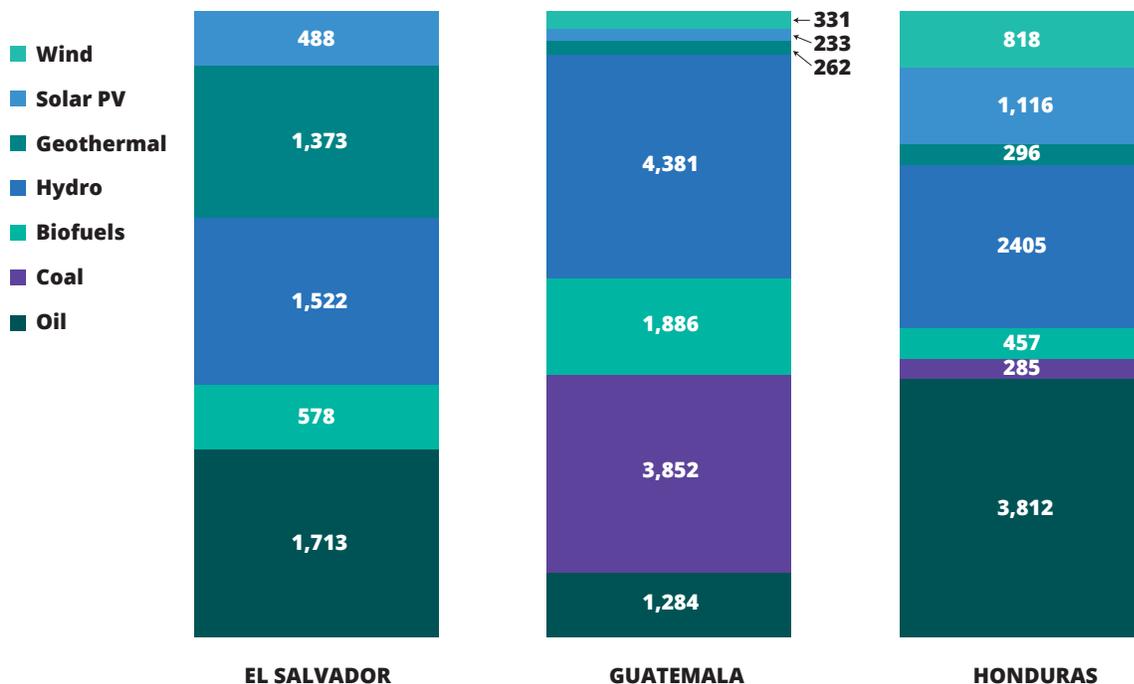
reliable energy supply. Energy storage and decentralized energy systems are currently not widely used, though some progress has been made.⁶¹ At least four energy storage projects are operational or planned in Honduras, and the IDB is financing mini-grids with solar generation and battery storage in the country.⁶² El Salvador recently built the largest energy storage project in Central America and has begun developing energy storage regulation as the share of intermittent energy in the national grid increases. US utility AES in El Salvador is also employing new network technologies and smart meters to modernize distribution, as well as aerial drones to inspect distribution networks and provide intel on areas in need of maintenance or pruning. Guatemala has been promoting distributed energy generation through regulatory legislation since 2008, introducing a net metering policy for distributed generation.^{63, 64}

Access to finance

Access to finance for adaptation from international funds, domestic public funds, and private capital, represents a major hurdle for Northern Triangle countries. Climate change mitigation and adaptation require countries to make enormous investments. Yet international climate

FIGURE 3: ELECTRICITY GENERATION BY SOURCE, GWH, 2019

Source: Central American Integration System (SICA)



finance has been inadequate. At the 15th Conference of Parties (COP15) of the United Nations Framework Convention on Climate Change in 2009, developed countries committed to a collective goal of mobilizing \$100 billion per year by 2020 for climate action in developing countries, but by 2019, they had only reached \$79 billion per year.⁶⁵ Globally, 6 percent of international finance comes from bilateral development finance institutions (DFIs) like USAID (see Figure 4). In Latin America, most international climate finance is allocated to mitigation rather than adaptation measures and the greatest amounts flow to the larger countries in the region. From 2003 to 2020, 75 percent of international climate funding supported mitigation activities in the region, while only 12 percent of funding supported adaptation projects.⁶⁶ During that period, Brazil, Mexico and Colombia alone received 41 percent of the total international climate finance allocated to Latin America.⁶⁷ Honduras is the only Northern Triangle country in the top 10 receivers of climate finance in Latin America, in 6th place, but 93 percent of all climate financing the country spent was funded through national finance rather than international finance. Northern Triangle governments and civil society organizations have not received much of the climate adaptation funds for which they are eligible due largely to lack of institutional capacity to design and execute projects and the difficulties of assessing long-term costs and benefits.

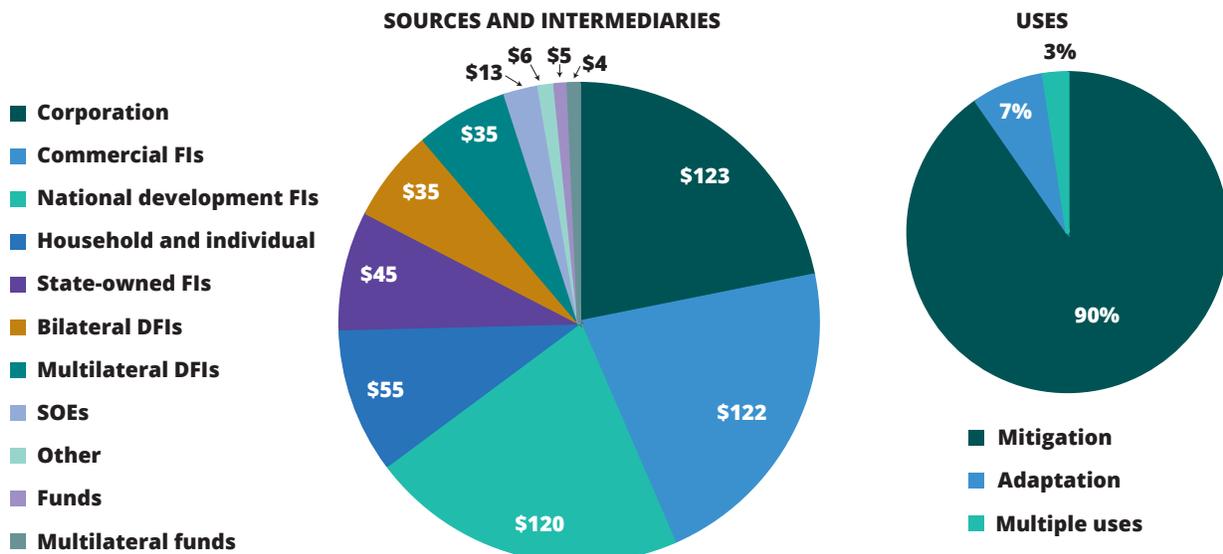
Despite limited international finance, governments in the region have invested in climate action. However, overall

these governments have made greater strides in financing mitigation than adaptation. In Guatemala, for example, from 2014 to 2017, just 16 percent of national spending went toward adaptation.⁶⁸ In Honduras in 2020, adaptation-only projects received only 23 percent of public climate spending, compared to 40 percent for mitigation projects and about 30 percent spent on projects that combined mitigation and adaptation measures.⁶⁹ In contrast, in El Salvador, between 2011 and 2015, where over 95 percent of climate finance came from national funds, most investments went toward adaptation, with 63 percent allocated to adaptation, 10 percent to losses and damages caused by extreme events, and 27 percent to mitigation.⁷⁰ Community leaders also report that little climate finance reaches them directly. Furthermore, Northern Triangle countries lack domestic development banks that could fill the gap in public sector funding.

Private investment in adaptation in the Northern Triangle is also wanting. Private capital in the Northern Triangle is almost exclusively accessible to large businesses.⁷¹ In Guatemala, for example, the financial sector is highly concentrated with 55 percent of all capital held by three banks, and most investments made by private banks are dedicated to large companies, including agricultural and cattle companies that also produce significant emissions.⁷² The micro, small and medium-sized enterprises making up the rest of the private sector are informal and thus without access to financing from private banks, which makes it difficult to grow their businesses and access

FIGURE 4: GLOBAL CLIMATE FINANCE SOURCES AND USES, BILLIONS OF DOLLARS, 2019-2020

Source: Climate Policy Initiative



key technologies.⁷³ The little amount of finance that is available to smallholder farmers often comes from savings and credit cooperatives. This finance is used for consumption as well as small investments. Independent from banks and supported with remittances, these co-ops are a source of small-scale finance for many people.

Of the private finance available to larger businesses, little appears to be reserved for adaptation. Private banks do not lend for climate adaptation specifically, primarily because they do not have the technical expertise to analyze loan applications for adaptation finance. Assessing the economic benefits of increasing resilience is complicated by the difficulties of producing robust cost-benefit analyses. While increasing resilience can save money, improve sustainability metrics, or create jobs in the long term, in the short term, increasing resilience often implies substantial cost increases, and loans cannot be repaid with increased revenues. Without climate financing from private banks, and without national development banks, private sector initiatives like sustainable tourism or sustainable water management struggle to acquire funding.

Besides loans for adaptation and resilience investments, disaster risk insurance is an important financial tool for adaptation. In 2019, Guatemala became a member of the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and purchased insurance from the World Bank to cover damage caused by heavy rains, which then provided the finance needed to recover from damages caused by tropical storms Amanda and Cristobal.^{74, 75}

However, many informal businesses, rural workers and small farmers do not have the means to acquire insurance, leaving them extremely exposed to weather events. Agricultural insurance is available for individuals and cooperatives, but it is most accessible to large agribusinesses producing products for export. For smallholders, lack of knowledge about insurance and how to access it, high premiums, and limited government subsidies mean agricultural insurance is not widely used for weather related emergencies, in turn leaving micro-insurance markets underdeveloped. Multilateral development organizations in countries like Guatemala are working with the state to offer micro-insurance plans to smallholders.⁷⁶ In El Salvador, with the support of the United Nations Environment Programme, the state-owned *Banco de Fomento Agropecuario* recently began providing parametric insurance, a non-traditional insurance product that offers pre-specified payouts based on a trigger event. Through this scheme, the bank is providing insurance and low-interest loans to small and micro producers.⁷⁷

Social Impacts of Climate Change

The impacts of climate change are most pronounced for marginalized groups, such as Indigenous and Afro-descendent communities, women, and youth. Members of marginalized groups in the region experience high levels of informal employment, poverty and social exclusion, as well as lack of coverage of basic needs and services like education, health care and infrastructure. This, combined with barriers to access adaptation aid and resources due to discrimination and lack of education, make climate adaptation particularly difficult for marginalized groups.

Ethnic groups in the region face heightened struggles to adapt to climate change due to discrimination, higher rates of poverty, food insecurity, lack of education and greater dependence on subsistence agriculture.

Ethnic groups in the Northern Triangle are particularly affected by climate change and face heightened struggles to adapt due to higher rates of poverty, food insecurity, lack of education and greater dependence on subsistence agriculture than the general population. Indigenous people form a majority of the population in Guatemala at 60 percent, while in Honduras and El Salvador, Indigenous people make up 7 to 8 percent of the population.⁷⁸ The majority of Indigenous people live in rural areas in all three countries.^{79, 80} In Guatemala, within rural areas, 67 percent of those living in extreme poverty and the majority of familial agricultural workers are Indigenous.^{81, 82, 83} Rural communities often rely on subsistence agriculture and natural resources, so when an extreme weather event strikes, their source of livelihood may be instantly destroyed. Without employment, formal education, or a social safety net, people affected by extreme weather events in rural areas have few alternative sources of

income. In addition, many Indigenous people depend on forests for income, housing, and food. Forests also form a large part of many Indigenous peoples' cultural identity.⁸⁴

In recent years the poverty rate for all Indigenous people in Guatemala has hovered around 79 percent, almost 30 percent above the national average. Even before the COVID-19 pandemic, only 60 percent of Indigenous youths in Guatemala finished primary school, and only one in ten attended university. Where the majority of Indigenous Mayans live, in the Western Highlands, 48 percent of the population suffers from chronic malnutrition.⁸⁵

Studies project that globally youth will suffer more than 80 percent of the illnesses, injuries, and deaths attributable to climate change.

Likewise, in Honduras, Afro-Indigenous Garifuna communities—Honduras's third largest minority or Indigenous community—living on the coast rely on subsistence agriculture. These communities are threatened by coastal erosion and destruction of water basins, forcing many Garifuna men to migrate in search of income.

In addition, the government regularly authorizes permits to develop lands for activities such as mining, hydropower and monoculture without following internationally recognized standards for free, prior and informed consent, further encroaching on ethnic communities' lands.⁸⁶

Women are also particularly vulnerable to the impacts of climate change. In Latin America at large, a disproportionate number of women work in the informal economy, increasing their vulnerability to crises.⁸⁷ With many rural women acting as the head of their houses and relying on local natural resources to subsist, climate change threatens their access to water and food security. In addition, as only 30 percent of rural women in Latin America own agricultural land, and a large portion engage in unpaid labor, finding alternative income sources in times of emergency can pose a major challenge. In the Northern Triangle, between 2006 and 2015, on average, 26 percent of households were headed by women in the three countries.⁸⁸ Men acting as the head of house perform

a variety of jobs, but over 70 percent of women acting as head of house are self-employed, a precarious existence in extreme weather prone regions. Limited access to credit and insurance in the agricultural sector particularly affects women who often do not own land titles that can serve as collateral. In urban areas, women face restricted access to land tenure, public services, financing or subsidies, market opportunities, and political participation. When climate change causes landslides, droughts, soil erosion, or floods, women face disproportionate difficulty in adapting to those extreme events. Moreover, cultural norms restrict women's ability to learn lifesaving skills useful in emergencies, like swimming or driving.

Likewise, young people, who make up the majority of the population in all three Northern Triangle countries, are growing up in a region increasingly impacted by climate change, leaving them with fewer economic opportunities in rural areas. This is especially true for the children of agricultural workers who lack training in technology or marketing that would allow them to better adapt family farms to climate change. Looking forward, studies project that globally youth will suffer more than 80 percent of the illnesses, injuries, and deaths attributable to climate change.⁸⁹ While much of this owes to the heightened impacts of climate change predicted in the future, it is also partly due to characteristics inherent to youth such as their immature physiological defense systems, frequent and direct interaction with the natural environment, and dependence on adults. Overall, rural and ethnic populations, women and youth face heightened marginalization and vulnerabilities that decrease their ability to adapt to climate change.

Climate change is also driving rural-urban migration within countries of the Northern Triangle. Violence and lack of economic opportunity have produced over 320,000 internally displaced people throughout Honduras and El Salvador, according to the United Nations High Commissioner for Refugees (UNHCR).⁹⁰ Traditionally marginalized and vulnerable populations are most at risk of forced migration, particularly Indigenous peoples, Afro-descendants, LBGTQ+ people, women, children, and adolescents.⁹¹ While there are many drivers of migration, in the Northern Triangle, there is a positive correlation between hazardous weather events and internal migration. Disasters, including floods, droughts, earthquakes, extreme temperatures, and volcanic eruptions, were all correlated to internal migration.⁹² In addition, food insecurity is increasingly driving migration from rural areas.⁹³ As described in the previous section, climate change poses unique challenges to poor urban residents. Rapid

urbanization has led to concentrated, densely populated areas of informal housing, often on unstable land prone to landslides without access to clean water, electricity and sanitation services.

Current Efforts by Governments, International Organizations and Foreign Donors

National and local governments, local civil society organizations, and international organizations and donors are undertaking a wide range of efforts to strengthen climate adaptation and resilience in the Northern Triangle, with many successful projects showing positive results. Guatemala was the first country in the region to formally publish a National Adaptation Plan (NAP). The latest version of the country's NAP focuses on human health, coastal zones, agriculture and cattle rearing, forests and protected areas, infrastructure, integrated management of water, and risk management generally.⁹⁴ In 2018, Guatemala created a National Strategy for the Reduction of Deforestation and Forest Degradation in Guatemala as well as a National Development Strategy with Low Greenhouse Gas Emissions in order to promote strategic climate adaptation. The country also published a National Energy Efficiency Plan in 2019 which introduced minimum energy performance standards for buildings and energy savings targets, which could enhance adaptation in the electricity sector.⁹⁵

Honduras's NAP primarily focuses on nature-based solutions for water retention, green infrastructure, agriculture and food sovereignty, water management, reforestation, human health, biodiversity and ecosystem services, and socioeconomic development.⁹⁶ The country's key objectives are to manage disasters, prioritize gender and vulnerable groups, manage and democratize climate information, support land-use planning, and improve human rights. In 2021, Honduras became the first country to sign onto the EU's Forest Law Enforcement, Governance and Trade Plan which aims to reduce illegal logging by strengthening sustainable and legal forest management, improving governance and promoting trade in legally produced timber.⁹⁷ In December 2021, Honduras signed into law a set of sustainable forestry principles, criteria and

indicators, as well as a verification mechanism, in order to comply with this plan.

El Salvador's NAP includes sectoral plans for hydrological resources, biodiversity and ecosystem services, agriculture and fishing sectors, health, tourism, and infrastructure and cities.⁹⁸ In August 2021 the Salvadoran government announced the launch of a new nature-based climate change adaptation project.⁹⁹ Using impact indicators and grassroots workshops, the project will apply community-driven, nature-based solutions to address droughts, extreme weather events, floods and other climate change-related impacts that are increasing poverty, malnutrition and migration. El Salvador is also working with the Green Climate Fund and the UN to implement a project called Upscaling Climate Resilience Measures in the Dry Corridor Agroecosystems of El Salvador (RECLIMA), which aims to increase aquifer recharge in the dry corridor by 2024.¹⁰⁰ The government also created the Cuscatlán Plan, which includes commitments on greenhouse gas emissions, agricultural burning, environmental laws, land use planning, pesticides, and marine conservation.¹⁰¹

Guatemala was the first country in the region to formally publish a UN-approved National Adaptation Plan.

Numerous nongovernmental organizations have also been working on adaptation and resilience efforts for years. Alliances between various civil society groups as well as the public and private sectors have spurred adaptation efforts in the region, from weather monitoring to increased resilience on water and farming systems. For example, in El Salvador, two million coffee and cacao producers were taught flexible, resilient farming methods through alliances between academic institutions, smallholders, and co-ops. In the highlands of El Salvador, the Catholic Church is supporting communal water management to increase access to clean drinking water. Across the country, alliances between sugar producers and academic institutions have resulted in 30 meteorological sites for studying weather patterns. Civil society organizations are also taking action by installing mini meteorological stations to help predict disasters, although often the data is not as robust as needed.

A wide variety of international donor organizations, climate funds, and international financial institutions are also supporting climate change adaptation in the Northern Triangle. These countries are receiving assistance for adaptation from international donors and funds, including USAID, the Global Environment Facility, Adaptation Fund, Climate Investment Funds, and the Green Climate Fund among others, as well as substantial technical assistance from the Inter-American Development Bank and the United Nations Environment Programme.

The United States is also increasing support for climate adaptation after aid for Central America and for climate change had been pared back under the administration of Donald Trump. The Trump administration cut some \$370 million that had been allocated in aid for Central America for fiscal year 2018, cut all funding to the Green Climate Fund, and slashed USAID spending on environmental initiatives by about 70 percent in its 2019 budget, compared to typical spending under the previous administration. As a result, many aid programs for climate change in the region had to halt funding, and civil society organizations lost support from the US government.

The Trump administration cut some \$370 million in aid to Central America for FY 2018 and slashed USAID spending on environmental initiatives by about 70 percent in its 2019 budget.

With a change in administration, renewed US attention has been directed toward climate change in the Northern Triangle. Under Biden’s strategy to aid Northern Triangle countries, his administration has prioritized supporting climate change adaptation and mitigation in the region. In its *Strategy for Addressing the Root Causes of Migration in Central America*, the administration outlined its pillars, objectives, and goals aimed at ameliorating living conditions in migrants’ countries of origin to tackle the root causes of migration, with a pledge to provide \$4 billion in aid to the region. This includes an objective to “Build Resilience to Address Climate Change and Food Insecurity,”

which aims to increase the resilience of agricultural production, resource management, and infrastructure, as well as to enhance renewable energy.¹⁰² The Biden administration is also increasing support globally for climate adaptation. In June 2021, the United States and G7 partners agreed to launch the global infrastructure initiative Build Back Better World (B3W). The initiative will help narrow the \$40+ trillion climate-friendly infrastructure need in the developing world, including in Latin America. Then, during COP26 in November 2021, the administration announced “PREPARE,” a global effort toward climate adaptation and disaster risk management.¹⁰³ Through this initiative, the United States will respond to partner countries’ priorities, strengthen cooperation with other donors, integrate climate risk considerations into multilateral efforts, and strive to mobilize significant private sector capital for adaptation. The program is still in the assessment phase to inform program design.

With the return of an annual budget for climate action in the Northern Triangle, USAID plans to increase climate adaptation projects in the region. This focus on climate adaptation and resilience is also seen in the first draft of their 2022-2030 Climate Strategy, which grants special considerations to women, Indigenous people and youth.¹⁰⁴ Historically, USAID projects in the region have included smallholder farmers, humanitarian aid, and watershed management. More recently, its agricultural projects have focused not only on food security and income diversification through value crops, but also on crop resilience, drought-tolerant seed distribution, climate-resilient coffee production, and supply chains and market access. While the explicit prioritization of adaptation to climate change is recent, much of USAID’s previous and ongoing programs involved climate adaptation benefits, such as those focused on early warning systems, mapping floods, and monitoring climate change risks, as well as working with water councils to improve water governance and reduce deforestation in upper basins. Energy programs have focused more on reducing emissions than climate adaptation.

Various other US agencies are also supporting climate adaptation within the region, from agricultural resilience to disaster preparedness. As part of the Root Causes Strategy, the US Department of Agriculture (USDA) is working on a year-long Agricultural Resilience Assessment for Northern Triangle Countries.¹⁰⁵ The US Department of Energy (DOE) is supporting natural gas use and clean energy generation in Guatemala and energy efficiency in El Salvador.^{106,107} The National Oceanic and Atmospheric Administration (NOAA) has a Climate Prediction Center for

Central America that predicts weather patterns to provide more information on climate risks.¹⁰⁸ In 2016 the US Forest Service established the Youth Conservation Corps Program to provide natural resources conservation technical training to youth living in rural Western Honduras; over 100 youths have already graduated the program.¹⁰⁹ The National Aeronautics and Space Administration (NASA) has continually worked on storm prediction, rain forecasts and mapping in the region. In fact, within hours of Eta's landfall and flooding rains, researchers at NASA worked to predict landslides and map the storm's aftermath, providing this information to national and international emergency response agencies.¹¹⁰

Policy Recommendations

In light of the challenges described above, the following section outlines policy recommendations for the Biden administration. Foreign assistance for climate adaptation in the Northern Triangle should include outcome-based indicators of success which measure not only activities carried out but also metrics of successful adaptation and improvements in living standards for those most affected and most in need. Some examples of potential indicators are included in the recommendations below. In addition, all assistance should be aligned with Northern Triangle government priorities and plans and should be coordinated with the many other donors and international financial institutions operating in the region. In designing and implementing aid programs, the United States should position local civil society organizations as lead actors in development and climate activities. To that end, the third and final report of the Task Force on Climate Change in the Northern Triangle will address how US support can strengthen key local actors in a sustainable, long-term manner—including by “localizing” foreign assistance—and improve awareness of climate change among key constituencies.

RECOMMENDATIONS

1 Support sustainable, resilient agricultural practices that avoid forest degradation and bring adaptation benefits

The agricultural and forestry sectors in the Northern Triangle are at once essential economic sectors and sources of environmental degradation exacerbated by climate change. The United States should support sustainable agroforestry practices, which integrate trees and shrubs into crop and animal farming systems and can improve crop resilience and protection against extreme weather events. The United States can provide technical assistance directly to farmers through local civil society and

Indigenous organizations. Success for this type of assistance can be measured not only by the number of recipients benefited but also by improved food security and income. The United States should also support policy reforms and incentives programs to promote agroforestry in the longer term. Guatemala in 2010 introduced legislation to pay small-scale landowners to plant trees or use agroforestry practices. Such programs can be administered by municipal governments.

2 Help small-scale agricultural and forest workers with training on supply chain management and market access for sustainable, climate-resilient products

Aid programs should prioritize training for micro, small and medium enterprises in the agricultural and forestry sectors to produce climate-resilient crops and forest products. Programs should include assistance for the production of climate-resilient crops that make up traditional diets for rural families and the integration of traditional ancestral practices to improve food security. Micro, small and medium enterprises particularly need support in supply chain management, value added products and services, and marketing. Support for national preferential purchasing schemes could also increase demand from the domestic market. Assistance should target women, ethnic

communities, and young people—all of whom are in particular need of economic opportunities—and incorporate poverty reduction and food security indicators. Some such projects already exist in the Northern Triangle, so assistance could focus on improving and scaling them up. The United States can also partner with larger international companies in the private sector that can provide training to workers and small businesses. Aid programs should also promote alliances with the private sector and regional research organizations such as the Zamorano Pan-American Agricultural School in Honduras that can advance the development of resilient crops over the long term.

3 Strengthen agricultural associations, Indigenous organizations, and community-based forest management

Agricultural associations uniting small-scale or subsistence farmers, Indigenous organizations, and communal forest management structures help to provide economic opportunities and security to their members to shield them from the effects of climate change. In the Maya biosphere reserve in Guatemala, community-based forest management has allowed 1,300 families to benefit from the forest without compromising conservation. Building on previous support from international donors, the United States should step up capacity building for agricultural associations and Indigenous organizations with a target to include more women

as members and leaders of these organizations. Many agricultural associations need assistance to become legally constituted entities which would allow them to access markets, disaster risk insurance, and financing, for example by putting up property as collateral. Aid programs can provide training in the formalization process, which would also empower the members of agricultural associations. Similarly, Northern Triangle countries have communal forestry models which should be scaled up, and the United States could create networks to share best practices from the region.

4 Provide capacity building to governments and organizations to improve land governance, land planning, and management of protected areas

Land governance issues need to be addressed to prevent environmental degradation that exacerbates the impacts of climate change and to allow communities to practice sustainable livelihoods. In some cases, land titling and regulation is needed to enable agricultural and forest associations to flourish. Legalizing national parks and Indigenous lands and enforcing regulations that govern their preservation also contribute to adaptation by maintaining forests that help regulate the climate. Both within and outside of protected areas, better enforcement of regulations is needed to prevent illegal land occupation and implement land use standards to prevent degradation. Land concession procedures should also include prior consultation with communities, and Indigenous communities should participate in land governance decisions

that affect them. The United States should provide capacity building to the Northern Triangle governments, including national and subnational governments, to title and regulate land, improve the local consultation process, and safeguard and expand protected areas. These actions would make land governance more equitable and mitigate against powerful actors usurping land from vulnerable populations, which would ultimately help these communities to confront climate impacts as well as poverty. Indigenous people and other communities living in forests also play a role in delineating and protecting ancestral lands and should be recipients of technical assistance as well. Authorities responsible for forest conservation would also benefit from grants for forest management for activities like fighting forest fires.

5 Implement clean water and other adaptation programs using nature-based solutions in urban areas

Nature-based solutions utilize biodiversity conservation and the ecosystem services they provide to benefit human society.¹¹¹ These solutions are often more cost-effective than conventional engineering or human-made solutions and can improve resilience in urban areas. Access to clean water and sanitation in both urban and rural areas is a particular concern, and storms and floods pose a further threat to clean water management systems. Nature-based systems, such as water harvesting systems, which cultivate certain plants that act as sponges to capture rainwater, and bio gardens for wastewater treatment, are low-cost solutions that protect residents' access to potable

water in the face of climate-related threats. Nature-based solutions can also improve urban air quality and reduce temperatures in urban areas through reforestation of native tree species and the creation of climate-resilient gardens. Working through local organizations, the United States could directly benefit Northern Triangle citizens by supporting these types of clean water and other nature-based adaptation programs. These programs can also bring job opportunities and reduce inequality for urban populations that face limited access to resources, such as young people and rural-urban migrants.

6 Support design and enforcement of climate-resilient building regulations

Northern Triangle countries need to update and enforce building codes and construction regulations to ensure climate-resilient housing and other infrastructure, particularly in urban areas. Before constructing new infrastructure, developers should carry out vulnerability assessments, and in some areas, housing should not be built due to the high risk of landslides. The United States can provide technical assistance to governments

for regulatory design and enforcement, as well as training to developers. Aid programs could also create networks to share lessons learned about climate-resilient infrastructure. Programs focused on climate-resilient infrastructure should also aim to provide economic opportunities, particularly to urban populations. For example, urban youth could be targeted for training and specializations on climate resilience in the construction sector.

7 Provide risk assessments for infrastructure systems

Climate and disaster risk assessments of infrastructure assets help governments and companies to mitigate damage from climate change. In the energy sector, for instance, risk maps can allow electric utilities to take preventative actions and adjust transmission networks to make them more resilient against extreme weather events like storms and forest fires. The United States could provide technology transfer and knowledge sharing by establishing partnerships between Central American utilities, including the national level utilities as well as the regional electricity company SIEPAC, and US utilities and the US Department of Energy (DOE). Various international organizations such as C40, a global network of mayors taking action on climate change, have

created risk assessment tools which US assistance could leverage. On a regional level, the Council of Ministers of Transport under the Secretariat for Central American Economic Integration (SIECA) has developed educational manuals on risk management, safety and environmental standards for the design of highways, roads and bridges, as well as hydrology and drainage structures in roads, which could be used as templates. It also created an operational plan to incorporate disaster risk reduction and climate adaptation in road infrastructure projects.¹¹² Risk assessments should include an analysis of the impacts on disadvantaged communities and indicators of how their living standards can be improved by upgrading infrastructure to improve climate resilience.

8 Advance investment in diversified, sustainable, and reliable energy generation

Electricity access is unreliable for much of the Northern Triangle population, while extreme weather events further threaten reliable energy access by damaging transmission and distribution infrastructure. With rising temperatures expected to reduce hydroelectric availability and the construction of large hydroelectric dams causing environmental and social devastation, these countries need assistance in developing non-hydro renewable energy generation, energy storage systems, and off-grid distributed renewable energy systems. Demand-side management and energy efficiency measures, such as time-of-use tariffs and smart metering technologies to manage peak

loads and encourage energy conservation, would also improve energy security and access. USAID, the DOE, and the State Department's Bureau of Energy Resources could provide technical experts to support regulatory reforms related to energy generation, energy storage, and demand-side management systems. Meanwhile, the United States could support community distributed generation projects with participation from women. Renewable energy and energy efficiency projects also generate employment in construction, service and maintenance and could provide jobs to reduce poverty and inequality for urban populations.

9 Provide technical assistance to governments and civil society organizations to apply for and execute international climate finance

Northern Triangle governments have not received climate adaptation funds for which they are eligible due largely to lack of institutional capacity to design and execute projects. Likewise, for civil society organizations, the costs and technical requirements of preparing proposals are often prohibitive. The United States could provide advisors for both government entities and civil society organizations to help them navigate climate finance requirements,

complete proposals, and execute projects. This could include applications for international funds like the Green Climate Fund, concessional loans, or grants that advance resilience measures. For governments, the United States could also support the design of national climate finance strategies which would help them mobilize larger amounts of aid.

10 Stimulate private sector investments in adaptation

Private sector investment for adaptation can be crowded in through loans, investments and political risk insurance from the US Development Finance Corporation, which has a new mandate to accelerate climate financing, including in adaptation. The DFC has supported adaptation efforts around the world. For example, DFC loans are helping financial institutions to develop insurance to protect smallholder farmers in developing countries against extreme weather and mobilizing capital for loans to micro, small and medium enterprises that are investing in distributed renewable energy products such as rooftop solar, mini-grids, and solar pumps in India. In Belize, DFC political risk insurance

will support a “Blue Bonds” transaction aimed at generating capital for conservation projects by purchasing and restructuring the country’s sovereign debt. Similar transactions could help promote disaster management, reliable energy generation, sustainable agriculture and forestry, and conservation in the Northern Triangle. The United States could also help the private sector in the Northern Triangle to adapt to climate change by providing technical assistance to develop long term climate adaptation plans, centralizing information about best practices, and supporting systems for corporate monitoring and reporting.

11 Work with banking sector to “green” and “democratize” access to capital

In order to improve climate adaptation, the Northern Triangle needs to increase the pool of capital finance allocated to climate-resilient projects and make finance more accessible to a broader swathe of the population. The United States should work with private banks in the Northern Triangle to develop specific climate adaptation credit lines, financial products, and insurance funds by providing technical advisors and knowledge sharing based on experience in other countries. Banks like Banrural, which provides funds for the rural- and micro-enterprise sector in Guatemala, would be ideal partners. In order to help individuals and companies to access these financial products, the United States

could train local specialists to advise potential borrowers on how to design bankable projects and access finance. More broadly, access to finance needs to be expanded among a larger share of the population. Innovative financial technologies, or fintech, could bring access to capital for climate adaptation investments to micro and small businesses. The expansion of savings and credit cooperatives and the use of remittances for climate adaptation would also broaden and democratize access to finance. The United States could support studies and strategic plans to expand fintech and cooperatives and to introduce incentive schemes to use remittances for adaptation.

12 Support governments to provide direct assistance to the most vulnerable

While most support should be aimed at allowing workers and companies of all sizes to grow and finance their adaptation investments, direct assistance will be needed to help the most vulnerable populations. The United States should work with governments in the region to provide conditional cash transfers for those most affected

by climate change and without other means to adapt, with a focus on ethnic communities, women and children. The United States should also work with governments to provide disaster risk insurance to the majority of the population that lives off subsistence farming and cannot cover the costs of such insurance.

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