

HELPING THE WORLD **PREPARE**



A Primer on U.S. International Adaptation and Resilience

2023



CONTENTS

Executive Summary	2
Introduction	
Cascading Climate Events Require a Clear Vision and Coordinated Approach for Unprecedented Urgent Action	4
Projected Impacts	5
The Foundations of PREPARE	
Past U.S. Government Adaptation Investments	6
Economic Value of Adaptation	10
U.S. Government Approach to PREPARE	11
What's New in PREPARE	11
Illustrative Examples of Progress in Pillar 1	
Knowledge - Information is Power	12
Illustrative Examples of Progress in Pillar 2	
Plans and Programs - Mainstream and Integrate Adaptation, Build Relationships, Execute, with Focused Action on Infrastructure, Food Security, Water, and Health	14
Illustrative Examples of Progress in Pillar 3	
Resources - Mobilize Finance and Private Capital	18
Fully Resourcing PREPARE & Measuring Results	22
Endnotes	23

Cover Images:

Left: GLOBE Program coordinator in Kenya, standing by a 3-D printed automatic weather station.

Middle: In Indonesia, Malang's Drinking Water Company is highly committed to maintaining the groundwater debit and quality. A member of Malang's Drinking Water Company is shown taking a sample of the spring water to test the water's physical parameters.

Right: A group of women mapping natural resources in Palabek refugee settlement in Northern Uganda.





Two agricultural extensionists from the Mam Mayan population of Todos Santos, Guatemala undergoing a field training day for improved post-harvest practices. Drought or extreme rainfall have serious effects on smallholder farmers' crops. Improving post-harvest practices can help smallholder farmers build their climate resilience in the face of these hazards.



EXECUTIVE SUMMARY

The climate crisis is existential, and the impacts of climate change that are being felt around the world threaten to undermine development gains, exacerbate geopolitical tensions, accelerate the food security crisis, and result in greater instability and humanitarian need.

Even if all nations implemented their announced mitigation pledges¹, with emissions peaking in the mid-2020s, climate change will still impact many facets of human life and every sector of society.

In November 2021, President Biden announced the President's Emergency Plan for Adaptation and Resilience (PREPARE). PREPARE unites the diplomatic, development, and technical expertise of the United States with the goal of **helping more than half a billion people in developing countries adapt to and manage the impacts of climate change by 2030**. Co-led by the U.S. Department of State and U.S. Agency for International Development (USAID), **PREPARE is America's contribution to the global effort to build resilience to the impacts of the climate crisis in developing countries**. PREPARE is helping to close the gap in early warning systems and put climate information

into the hands of people who need it; advancing security and resilience in agriculture, health, water, and infrastructure systems; and mobilizing private sector capital, innovation, and engagement.

Effective, inclusive investments in climate adaptation can minimize the impacts of climate change, and in some cases, even prevent them. Every \$1 invested in adaptation yields between \$2-10 in economic benefits.² These benefits help avoid losses in lives and livelihoods as well as lower financial costs, create meaningful jobs, contribute to greater security and stability, and strengthen capacity to protect hard-won development gains from being eroded by storms, droughts, rising sea levels, and other climate impacts.

PREPARE builds on over a decade of U.S. government (USG) experience in climate adaptation programming and diplomacy. Previous U.S. foreign assistance for climate adaptation has demonstrated the kinds of dividends that can be expected. This report highlights examples of programs—from USAID and NOAA to USDA and Millennium Challenge Corporation (MCC)—that the USG intends to scale and





further evolve to become more fit to tackle the compound risks that vulnerable countries and communities face in this increasingly complex and interconnected world.

This report includes examples of how U.S. federal agencies are beginning to implement the [PREPARE Action Plan](#)³, as well as underscores our commitment to design, monitor, evaluate, and learn from our investments in PREPARE. Since President Biden launched PREPARE in 2021, federal agencies who have worked on adaptation previously have built on past experiences with climate adaptation and rolled out new programs in support of the objectives in the PREPARE Action Plan. PREPARE has also activated agencies with

limited engagement to identify how they, too, can contribute to the objective of helping more than half a billion people in developing countries adapt to the impacts of climate change.

President Biden has committed to work with the U.S. Congress to provide a six-fold increase of finance for climate adaptation through PREPARE from the historically highest-funded level. If fully resourced, PREPARE can achieve its goal of supporting more than half a billion people to adapt to and manage the impacts of climate change. U.S. agencies can build on the work they have started—scaling what works and supporting new and innovative programs and ways of partnering.

“Today, I’m announcing the Presidential Emergency Plan for Adaptation and Resilience ... PREPARE will serve as a comprehensive framework to mobilize the U.S. government resources and expertise in support of climate adaptation efforts for more than a half a billion people worldwide. We’re going to invest in creating an early warning system ... build a [water] infrastructure for drought, supporting sustainable forestry and agriculture; and helping nature to work to reduce the climate change drivers and impacts; and protecting critical infrastructure, enhancing resilience of vulnerable nations in the face of a wide range of climate impacts.” – **Joseph R. Biden, President of the United States of America**, COP26, Glasgow, United Kingdom, November 2021⁴



Workers building embankments to increase resilience to climate change in West Africa.



Staff inspecting a meteorological station in Nepal.



Fire management training in the Democratic Republic of the Congo.

INTRODUCTION

CASCADING CLIMATE EVENTS REQUIRE A CLEAR VISION AND COORDINATED APPROACH FOR UNPRECEDENTED URGENT ACTION

Climate change is arguably the greatest existential challenge to human progress. The past few years provide a clear picture of why we need urgent and immediate adaptation action around the world to protect against the growing impacts of climate change. U.S. leadership on climate adaptation will prevent unnecessary loss of innocent human life, save U.S. taxpayer dollars, and limit negative consequences for U.S. national security and economic prosperity.

In Central America, persistent droughts over the past decade coupled with the impacts of severe storms and hurricanes have undermined smallholder agriculture and contributed to out-migration from the region. In South Asia, extreme flooding in 2022 left one-third of Pakistan underwater. More than 33 million people were impacted, more than 1,700 people died,⁵ and 30 percent of crops in Punjab were destroyed.⁶ In 2023, the South Pacific Island nation of Vanuatu faced two successive cyclones within days which battered the country, affecting hundreds of thousands.⁷ Extreme floods in South Africa, Mozambique, Uganda, and Niger killed hundreds and displaced tens of thousands, and the Horn of Africa is facing an unprecedented multi-year drought for the second time in a decade, with more than 18 million people suffering food insecurity as a result.^{8,9}

There is reason for hope: The impacts of climate change can be reduced, and in some cases, even prevented, by effective investments in inclusive climate adaptation.

Climate adaptation efforts—such as early warning systems, improved disaster risk management, climate-resilient infrastructure, alternative water storage, and climate-tolerant crops—that are put in place before disasters strike can reduce the severity of climate impacts and enable people, communities, business, and governments to recover more quickly. The USG has seen in countries such as Bangladesh how investments in forecasting, early warning, and preparedness have brought down deaths from severe cyclones from hundreds of thousands in the 1990s to almost no one dying in 2019. By prioritizing inclusive, climate-smart development, the number of people in need of international humanitarian assistance annually due to climate-related disasters could in fact fall to as low as 68 million by 2030, and even drop further to 10 million by 2050—a decrease of 90 percent compared to 2021.^{10,11}





PROJECTED IMPACTS

ECONOMIC IMPACT

Without adaptation, the global economy will **lose 4.2 percent of GDP**.



WATER SECURITY

Roughly **half of the world's population** currently experiences **severe water scarcity** for at least some part of the year.



~1 billion people in low-lying cities including on small islands will be **at risk from coastal climate hazards** by mid-century.



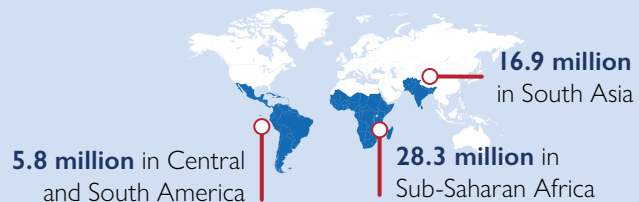
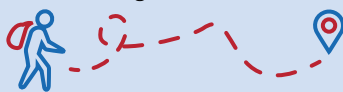
FOOD SECURITY

Globally, we are projected to **lose 7-10 percent of rangeland livestock**.



MIGRATION

By 2050, there is projected to be **more than 78.4 million internal climate migrants** across six regions.



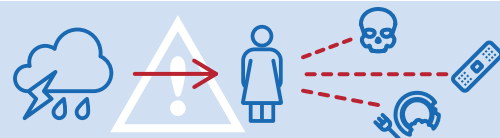
HEALTH

By 2050, **climate change could result in up to 250,000 more deaths per year** compared to 1961-1990. This will be due to heat, childhood undernutrition, malaria, and diarrhoeal disease. More than half of all of these additional deaths are projected to happen in Africa.



IMPACTS ON WOMEN

Women are more likely to suffer climate-driven food insecurity, according to findings from 80 percent of studies.

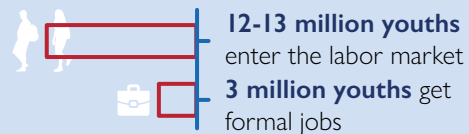


YOUTH EMPLOYMENT

More than 2/3 of young people in Sub-Saharan Africa who work in rural areas **work in agriculture – a sector highly sensitive to climate change**.



In Africa, only 1/4 of the youths entering the labor market obtain formal jobs.



Projected impacts even if announced emission reduction pledges are met include global economic loss (Representative Concentration Pathway (RCP) 2.6),¹² food insecurity (RCP 2.6),¹³ water insecurity (RCP 2.6),^{14, 15} reduced employment (RCP 1.9),¹⁶ migration (RCP 2.6),¹⁷ negative impacts on health (scenario AB1),¹⁸ and coastal hazards (all scenarios).¹⁹ Climate change is also disproportionately affecting women and youth.^{20, 21, 22}

THE FOUNDATIONS OF PREPARE

PAST U.S. GOVERNMENT ADAPTATION INVESTMENTS

“In Africa, with the world’s fastest growing populations and fastest growing economies, adaptation is lives saved—it’s jobs created—and it’s also common sense. Roads, bridges, and ports can only spur economic growth and reduce poverty next year if they are built for a growing and warming world.”

– **Special Presidential Envoy for Climate, John Kerry**, September 7, 2022, Senegal

PREPARE builds on over a decade of USG experience in climate adaptation programming and diplomacy. Previous U.S. foreign assistance for climate adaptation has demonstrated the kinds of dividends that can be expected.

The MCC’s long-standing work with the Philippines is an example of the strong foundation upon which PREPARE is built. Roads funded by the MCC and constructed to climate-resilience codes—with permeable pavement that could absorb floodwater—served as lifelines when Typhoon Haiyan hit in 2013. Those same roads became the corridors through which floodwater was diverted away from the capital city of Manila and humanitarian assistance was provided, simply because they were some of the only roads that were passable. With the support of the United States and other donors, and in cooperation with the government, disaster preparedness has improved remarkably since Typhoon Haiyan, thereby reducing the scale of humanitarian response needed.

PREPARE also builds on past U.S. investments in climate information services and early warning systems globally. These efforts range from

investments in weather and climate observations, to critical communications technologies, to the co-development of products and services and the delivery of decision support for emergency managers and government officials. To illustrate the importance of these efforts, after Hurricane Mitch killed 10,000 people in Central America in 1998, USAID supported the development of an end-to-end flood warning system in the region as one of several interventions. When Hurricanes Eta and Iota—of comparable size and intensity to Mitch—hit in November 2020, that same system was used to effectively issue warnings of rainfall and flash flooding risks. Hurricanes Eta and Iota killed 99 people. While this is 99 too many, the death toll for Eta and Iota was less than 1 percent compared to previous experiences. Investments like this demonstrate how, by investing in adaptation, the USG decreased projected spending on humanitarian assistance.



Slope stabilization using high-capacity, non-corrosive netting as part of climate-resilient design on the mountainous section of Samar Road between the towns of Wright and Taft in MCC’s Compact with the Philippines.





Construction of stone masonry walls for embankment protection along Samar Road in MCC's Compact with the Philippines.



Construction of reinforced concrete box culverts to manage stormwater from increased rainfall intensity and reduce flooding on Samar Road and adjacent properties in MCC's Compact with the Philippines.



In MCC's Compact with the Philippines, Samar Road was designed for improved road safety and drainage to account for climate change while minimizing environmental and social impacts.

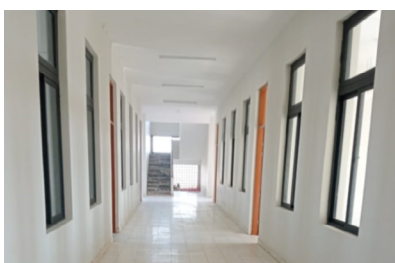


In Malawi, USAID and NASA helped close gaps in climate information services and climate-resilient agriculture. Through the SERVIR partnership, USAID and NASA worked with the government of Malawi and regional and local institutions to strengthen a United Nations Development Programme-supported, community-based flood early warning system. The initial system used river water level monitoring sensors positioned upstream of flood-prone, downstream areas. The collaboration integrated satellite data into the existing flood early warning system, thereby extending the warning lead time from hours to more than two weeks ahead of extreme weather and flooding. This capability was on full display in January 2022 when Cyclones Ana and Gombe hit Malawi: forecasts were transmitted via text message and email for emergency preparedness and response. Malawi's Department of Disaster Management Affairs announced that the early action prompted by these extended alerts prevented \$40 million in monetary losses and the loss of many lives.

Since 2015, NOAA and USAID have partnered with the University Corporation for Atmospheric Research (UCAR) to develop and work with

communities to deploy low-cost sensors and 3D-printed automatic weather stations that measure key weather variables and provide a foundation for climate information in Africa and the Caribbean. As examples, observation stations installed at schools in Kenya and Uganda have alerted local communities to impending drought and locust outbreaks that can ravage crops. Data from these networks were used by local and National Meteorological and Hydrological Services, NGOs, and the USAID Famine Early Warning Systems Network (FEWS NET) program in Kenya as inputs for early warning to reduce the risk of food insecurity in regions with prolonged and severe drought. When communities were made aware of these impending hazards, they were better able to prepare and respond by contacting local emergency managers, NGOs, donors, and other support agencies to help coordinate the delivery of resources (food, animal feed, medical supplies, etc.) to regions impacted by drought conditions and other hazards.

Following the major flooding in Pakistan in 2010, USAID partnered with the Pakistani government to build 109 schools to U.S. climate-resilient building standards. After the most recent



Left: The Meeran Machi school in the Sindh Province, Pakistan, in August 2022 after the province received five times its 30-year average rainfall. The school was funded by USAID and built to climate-resilient building codes.

Middle: The view from the inside of the Meeran Machi school after the flood water had drained. The school survived with minimal damage due to its resilient construction.

Right: Internally displaced people take shelter at the Mirput Buririo school in Sindh Province. The building was flood resilient despite still being under construction.





A multi-purpose disaster shelter in Sunamgonj, Bangladesh funded by USAID. Disaster shelters like this one play a vital role in saving lives during extreme weather events linked to climate change.

flooding in Pakistan in 2022, these schools were among the few that remained standing while 19,000 others were destroyed because they were not built to withstand extreme flooding events.²³ As a result, these U.S.-funded schools did not need to be rebuilt with any of the \$197 million in flood relief, humanitarian assistance, and recovery initiatives that the United States provided Pakistan.²⁴ In addition, these schools were able to serve as epicenters of recovery beyond resuming education.

The Department of Defense's Pacific Disaster Center's DisasterAWARE technology is a multi-hazard early warning, hazard monitoring, and risk intelligence platform. The Center currently provides global hazard coverage to the public through the free DisasterAlert App, which has over 2.4 million users worldwide. DisasterAWARE Pro provides early warning capabilities to the global disaster management and humanitarian assistance community, enabling cross-agency coordination and direct support for Department of Defense/Combatant Command mission requirements.

PREPARE also supports planning tools that help governments and businesses deepen their engagement on climate adaptation. The Adaptation Resource Center (ARC-X) interactive toolkit and Educational Partnerships for Innovation in Communities (EPIC), led by the Environment Protection Agency, help local government officials effectively deliver needs-based services to their communities as the climate changes. The U.S. Department of Commerce's International Trade Administration (ITA) supports U.S. businesses in bringing their climate adaptation and resilience solutions to global partners. For example, ITA has supported more than 2,100 market briefings, business-to-business matchmaking, and business-to-government meetings that have connected U.S. disaster resilience companies to global market opportunities.



Internally displaced people take shelter at a USAID-funded disaster shelter in Sunamgonj, Bangladesh. Heavy monsoon flooding in June 2022 displaced 384,000 people in the Sylhet region of Bangladesh.

ECONOMIC VALUE OF ADAPTATION

EARLY WARNING SYSTEMS AVOID LOSSES

Early warning systems save lives and assets worth at least 10x their cost.

Just 24 hours of warning before a coming storm or heat wave can cut the resulting damage by 30 percent, and spending \$800 million on such systems in developing countries would **avoid losses of \$3-16 billion per year.**



Returns to African farmers in the form of productivity or income average 30 percent and 23 percent, respectively.



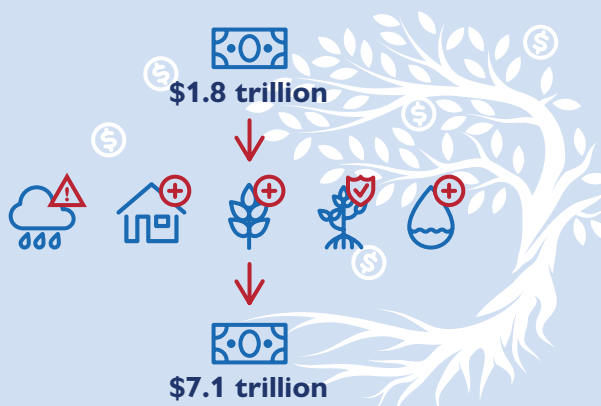
Co-benefits include enhanced input efficiency, farmer empowerment, and gross domestic product (GDP) growth.



ILLUSTRATIVE BENEFITS OF ADAPTATION

A hypothetical investment of \$1.8 trillion in the following **could generate \$7.1 trillion in total net benefits:**

- Early warning systems
- Climate-resilient infrastructure
- Improved dryland agriculture crop production
- Global mangrove protection, and
- Building water resource resilience from 2020 to 2030



Early warning systems save lives and assets. A hypothetical investment of \$1.8 trillion in five key areas of adaptation could result in \$7.1 trillion in total net benefits.²⁵ Digital climate advisory services can produce returns for African farmers – on average productivity can increase by 30 percent and average income can increase by 23 percent.²⁶





U.S. GOVERNMENT APPROACH TO PREPARE

PREPARE builds on an already strong foundation of USG programming and puts in place the U.S. interagency cooperation and coordination needed to meet the moment and address compounding climate impacts. Nineteen U.S. departments and agencies are working together to implement the [PREPARE Action Plan](#)³ that the White House released on September 16, 2022. This Action Plan details the coordinated actions that these agencies and departments will take to advance in three core pillars of PREPARE:

- Knowledge: Information is Power
- Plans and Programs: Mainstream and Integrate Adaptation, Build Relationships, Execute
- Resources - Mobilize Finance and Private Capital

As a result of PREPARE, agencies are more purposefully finding ways to coordinate programs in the same geography that address different climate vulnerabilities. The USG is also working to make full use of the adaptation analytics and planning approaches already available, and building additional adaptation capabilities into existing U.S.-funded tools. PREPARE supports country-driven, inclusive, gender-sensitive, and locally led adaptation priorities. Finally, the USG, through multiple agencies, is sending a strong signal to partners and the private sector that we need their resources, expertise, and capabilities to bring to bear on an issue that is affecting all. One year into implementation of PREPARE, the USG is beginning to show what is possible when climate adaptation efforts are coordinated and implemented.

“If the concern about investing in adaptation is cost, the world is being penny-wise and pound-foolish. Every dollar invested in adaptation can yield anywhere between \$2-to-\$10 of benefits and save up to \$4 of necessary humanitarian assistance down the line. So, the United States and other wealthy nations with a long history of carbon pollution have to come forward to our partner nations around the world. And that’s exactly what President Biden’s new emergency plan, PREPARE, seeks to do. As a major contributor to climate change, the United States seeks to be the major force for coping with its consequences.”
- **USAID Administrator Samantha Power**, COP26, Glasgow, United Kingdom, November 2021

WHAT’S NEW IN PREPARE

With PREPARE, the USG is scaling up effective adaptation programming and rolling out new programming. The USG can reference many illustrative examples of progress. Beyond the examples shared in this report, the PREPARE Action Plan provides a full picture of actions that the USG will take if PREPARE is fully resourced.



ILLUSTRATIVE EXAMPLES OF PROGRESS IN PILLAR 1

KNOWLEDGE - INFORMATION IS POWER

Pillar 1 of PREPARE aims to 1) respond to the UN Secretary-General's call to ensure “Early Warning for All” by 2027 and increase co-production and use of climate information, and 2) equip the decision-makers of today and tomorrow with the skills, knowledge, networks, and outlook needed to adapt to climate impacts. In support of the UN Secretary General's Early Warning for All Initiative, PREPARE has prioritized efforts to co-develop locally relevant climate information services and early warning systems among one-third of the world's population, including 60 percent of people in Africa, who do not currently have access to this critical information.

- The State Department and NOAA are working to expand early-warning systems in the Pacific and Caribbean islands and across Africa by accelerating the development and delivery of climate and resilience information and early warning services that will increase the capacity of developing countries to understand, anticipate, and prepare for climate impacts to public health and safety, food security, water resources, infrastructure, and coastal areas.
- In 2023 under PREPARE, the Famine Early Warning Systems Network (FEWS NET)—a long-standing USG program, led by USAID and operating with support from NOAA, USGS, NASA, and USDA—will incorporate early warning and risk assessments for health threats posed by climate change for the first time. This new functionality is being piloted in Somalia and Mozambique to allow FEWS NET analysts and users to assess a wider set of climate-related risks and their likely impacts on acute food insecurity and other humanitarian and development outcomes. The work will also support program managers and policymakers in considering possible adaptation approaches in fragile and conflict-affected contexts.
- Through the Local 2030 Islands Network, the State Department and NOAA are advancing island-led resilience through engagement and technical support through a growing network of 20 island economies representing diverse geographical regions across the globe, with the largest concentration of members currently in the Pacific and Caribbean. Under PREPARE, NOAA is expanding its support for the network to foster peer-to-peer learning opportunities such as communities-of-practice, and to support capacity-building activities including training, research, extension, and engagement in areas such as climate data and sustainable and regenerative tourism.
- The USG is expanding what works in climate information services. SERVIR, which is led by NASA and USAID, partners with countries and technical organizations to address critical climate adaptation challenges, such as those related to food and water security and disasters. At COP26, USAID committed to expand climate information and services in Central America and West Africa through the SERVIR program and is working with a consortium of ten partners to benefit the greater West Africa region, with a focus on Burkina Faso, Ghana, Niger, Nigeria, and Senegal. USAID is also in the process of standing up a Central America SERVIR hub and expanding gender-responsive services through SERVIR Southeast Asia.





- With the growing market for U.S. businesses on climate adaptation, the U.S. Trade and Development Agency (USTDA) will advance the development of climate resilience and adaptation projects in Africa, including reverse trade missions to multiple U.S. cities with a focus on climate-resilient infrastructure, early warning, and emergency management systems. USTDA is also supporting climate adaptation in Jamaica by providing technical assistance to Jamaica's Ministry of Science, Energy and Technology (MSET) to advance the development of national emergency communications infrastructure and strengthen the country's ability to adapt to and manage the impacts of climate change.
- Modeled after USDA's domestic Climate Hubs, USDA has launched an International Climate Hub to conduct science translation and delivery to support global science-based, climate-informed decision-making. USDA Climate Hubs serve as the premier model for developing and delivering science-based, region-specific information and technologies to U.S. agricultural and natural resource managers to reduce risk, build resilience, and enable climate-informed decision making. The USDA International Climate Hub is a new mechanism to share research and best practices with international partners to help support the goals set out in international initiatives including PREPARE.





ILLUSTRATIVE EXAMPLES OF PROGRESS IN PILLAR 2

PLANS AND PROGRAMS - MAINSTREAM AND INTEGRATE ADAPTATION, BUILD RELATIONSHIPS, EXECUTE, WITH FOCUSED ACTION ON INFRASTRUCTURE, FOOD SECURITY, WATER, AND HEALTH

Pillar 2 of PREPARE aims to partner with vulnerable countries and communities to plan for climate impacts and mainstream adaptation into broader decision making that protects lives, livelihoods, and the natural environment from the impacts of climate change. Pillar 2 includes focused action in infrastructure, food security, water, and health.

- In 2023, the USG and the government of Indonesia expect to sign a grant agreement (the Indonesia Infrastructure and Finance Compact) to support communities in the face of intensifying drought, floods, landslides, fires, and sea level rise. MCC and the government of Indonesia have developed a \$698 million Compact including investments that will establish climate-resilient infrastructure to withstand many of these impacts, especially for transportation and logistics.
 - U.S. Army Corps of Engineers (USACE) is supporting the Dominican Republic North Yaque River Basin Commission for climate-resilient watershed planning. Over the last two years, USACE worked with members of key ministries, agencies, and stakeholders to develop a decision support tool for efficient watershed development. Stakeholders provide their measures of success and failure, and these are used to guide decision making. The river basin commission will use the decision support tool to evaluate watershed project investments that build resilience to floods and droughts.
- USACE is currently training the river basin commission and stakeholders on the coding and configuration of the decision support tool.
- PREPARE leverages existing strong interagency initiatives like Feed the Future and encourages even more collaboration. In 2022, the USG expanded Feed the Future to eight additional countries, bringing the list of prioritized countries from 12 to 20. The new target countries—the Democratic Republic of the Congo, Liberia, Madagascar, Malawi, Mozambique, Rwanda, Tanzania, and Zambia—will be our closest partners in harnessing the power of agriculture to drive economic growth and transform food systems as Feed the Future continues to improve people's lives around the world.
 - USDA is expanding capacity building efforts for countries on climate-smart agricultural practices including, for example, a project in Tanzania to scale up practices that enhance soil health and farmer resilience.
 - The United States and the United Arab Emirates (UAE) are co-leading the Agriculture Innovation Mission for Climate (AIM for





Climate), a joint initiative with the UAE to address the climate crisis through encouraging country partners and private industry partners to increase and accelerate investment in climate-smart agriculture and food systems innovations. AIM for Climate fosters collaboration across partners and offers a platform to amplify the impact of participants' investments. AIM for Climate has grown to over 500 partners and has helped catalyze and increase investment of \$13 billion and has announced over 50 innovation sprints in support of R&D and deploying climate-smart food systems, many of which have adaptation benefits.

- In FY2022, Food for Progress awarded two climate-related programs. In Thailand, the five-year USDA Food for Progress project (September 2022 to August 2027) will work closely with the government of Thailand and the private sector to develop a Regional Climate Hub. The hub is a multifunctional agriculture-data network that will build the capacity of private- and public-sector partners to understand, promote, and market climate-smart agriculture and associated services. The project will reach 30,000 individuals and improve management practices on 24,000 hectares. Adaptation efforts may include soil and water management, introduction of new cash crops and/or new varieties of current crops, managing post-harvest loss and waste, integrated pest management, and forest management. Sales are expected to reach \$25 million by selling more than 86,000 metric tons of commodities under a cooperative grant valued at \$22.5 million.
- The USG is supporting national adaptation planning, which seeks to integrate adaptation into all relevant development sectors. The State

Department has provided support for this since 2015 through the NAP Global Network. In 2022, USAID launched the Comprehensive Action for Climate Change Initiative (CACCI) to provide technical assistance to countries in support of their climate goals, including better adaptation planning. The State Department and USAID are ensuring that these efforts are well-coordinated and are sharing lessons.

- USTDA has supported more than a dozen activities in the past two years to build resilient energy and water systems. These include a Caribbean Energy Procurement Assistance Program as part of USTDA's work to share best practices on integrating climate resilience considerations into public procurement of infrastructure. In the water sector, USTDA is funding technical assistance to El Salvador's National Administration of Aqueducts and Sewers (ANDA), the national water utility, to support ANDA in increasing water use efficiency through energy efficiency measures. This will help El Salvador manage the increased variability in water supply due to climate change and improve system reliability in the case of extreme weather conditions. USTDA is also funding a feasibility study for UST, Uzbekistan's national water company, to pilot technologies to model UST's water infrastructure and identify leaks, enhancing the country's water security in the face of climate stress.
- The Peace Corps has incorporated a Performance Goal for climate change into its 2022-2026 Agency Strategic Plan to contribute to host country efforts to combat climate change and its impacts. The Peace Corps is expanding the Peace Corps' climate change programming in support of host country priorities to adapt to and mitigate the impacts of climate change, and to increase community



resilience. As of the end of 2022, this includes 16 countries in which the Peace Corps has Agriculture or Environment projects that are designed to promote climate change adaptation and building resilience of people and ecosystems.

- Smallholder farmers are particularly vulnerable to climate change because they often lack insurance to protect against crop and livestock loss. In addition to suffering devastation from last year's floods, farmers in Pakistan also report losses from drought and irregular weather patterns, and female farmers often face greater economic hurdles recovering from such losses. A loan from the U.S. International Development Finance Corporation, (DFC) is helping the InsuResilience Investment Fund support smallholder farmers. InsuResilience works with financial institutions to develop and expand insurance to protect farmers and other climate-vulnerable populations against losses from extreme weather and other natural disasters. In Pakistan, InsuResilience partnered with a microfinance institution, the Kashf Foundation, to expand access to a livestock loan product that covers the loss of repayment if a cow becomes sick or dies. This coverage helps farmers avoid depleting savings or being forced to sell assets. One farmer used the loan to purchase a cow and later, when the cow died, made a claim on the loss. Without the loan, the farmer said she would have needed a new source of income to support her family. InsuResilience, a fund managed by BlueOrchard, aims to protect between 70 and 110 million of the most vulnerable people on the planet by 2025 by developing insurance products for smallholder farmers and micro, small, and medium enterprises.

- U.S. agencies are growing their awareness of the interplay between climate change and conflict dynamics, and how to take a conflict-sensitive, “do no harm” approach. As such, PREPARE integrates a focus on conflict prevention. One example is the State Department's efforts to advance climate security through the Sahel-Climate Advocacy and Peacebuilding with Pastoralists initiative. This initiative aims to reduce the risk of farmer-herder climate change-related conflict in communities spanning the border of Niger and Benin by concurrently increasing herders' access to political participation in local and national government and improving herders' and farmers' access to climate forecasts of rainfall, droughts, and other environmental factors.
- PREPARE works to elevate locally led approaches to adaptation. USAID endorsed the Principles for Locally Led Adaptation at COP26 and is implementing this work in line with the Localization Approach and Local Capacity Strengthening Policy. The State Department is supporting the Least Developed Countries (LDCs) Initiative for Effective Adaptation and Resilience (LIFE-AR), which is an LDC-led initiative intended to achieve a low-carbon, climate resilient future by focusing on locally led adaptation efforts in LDCs. Through LIFE-AR, LDC front-runner countries are integrating climate resilience and adaptation into national and local development objectives; developing strong climate finance architecture to ensure that at least 70 percent of finance supports locally led climate action by 2030; and building capacity and strengthening governance to develop more effective and inclusive climate decisions.





- Since 2019, NOAA, National Science Foundation (NSF), Department of the Interior (DOI) and other USG participants in the U.S. Global Change Research Program have worked with the Belmont Forum, a partnership of science and funding organizations, to support multi-country transdisciplinary research to advance understanding of the nexus between climate, environment, and health. This includes in-kind support from experts in the National Park Service, the U.S. Fish and Wildlife Service and the U.S. Geological Survey. In 2023, NOAA, DOS, and DOI will support the Forum's efforts to catalyze transdisciplinary project proposals—particularly from Latin America, Asia, and Africa—that build collaboration, understanding, and capacity to respond to health risks that emerge from the impacts of climate change on nature.
- PREPARE aims to leverage domestic capabilities of the USG to support international adaptation. As an example, FEMA collaborates with the

UN Office for Disaster Risk Reduction to promote resilient infrastructure systems. In 2022 and 2023, FEMA participated in global and regional platforms for disaster risk reduction to share information about the Building Resilient Infrastructure and Communities (BRIC) program, the Agency's building codes strategy and action plan, and other resilient infrastructure best practices and programs with thousands of international partners. FEMA encourages smart investments in system-based, community-wide projects to protect those most at risk of experiencing the severe impacts of climate disasters. FEMA's BRIC program seeks to shift the focus from reactive disaster spending toward research-supported, proactive investment in community resilience so when a hurricane, flood, wildfire, extreme heat, or other disaster occurs, communities are more resilient.



ILLUSTRATIVE EXAMPLES OF PROGRESS IN PILLAR 3 RESOURCES - MOBILIZE FINANCE AND PRIVATE CAPITAL

Pillar 3 of PREPARE aims to accelerate financing of adaptation measures by enhancing engagement with multilateral funds, strengthening capacity of partner countries to access finance for adaptation, developing bankable investments, mobilizing private capital, and supporting the development of climate risk finance strategies.

In all international climate adaptation work, the USG is not alone. We depend upon other donors and the private sector to do their part and to enable U.S. taxpayer funds to go further and have greater impact. If fully funded at \$3 billion, PREPARE represents a six-fold increase in adaptation funding from the historically highest-funded level and is the largest such commitment made to date. PREPARE is designed to be catalytic and is actively unlocking additional public and private resources, which are critical for achieving the scale of resources needed to support resilience and adaptation action.

- The USG is advancing PREPARE's goals through multilateral financial institutions, including: the Multilateral Development Banks, of which the United States is a shareholder; the Green Climate Fund; the Global Environment Facility; the Least Developed Countries Fund; and the Global Infrastructure Facility. In 2022, Treasury was active in the Coalition of Finance Ministers for Climate Action, where more than 70 finance ministers are exploring how to accelerate financing for adaptation and resilience.
- In FY 2022, the United States contributed \$155 million to the Global Agriculture and Food Security Program (GAFSP), which is a multilateral financing platform dedicated to improving food and nutrition security by building resilient and sustainable agriculture and food systems in the world's poorest countries.
- In an effort to continue to localize adaptation funding, in 2022 the United States made the first-ever contribution to the Adaptation Fund and doubled the U.S. pledge to \$100 million.
- DFC committed more than \$390 million in FY 2022 for projects that support PREPARE and an additional \$200 million in deals that will generate adaptation co-benefits. Along with establishing a dedicated small group within the agency to drive adaptation investments from across the agency, DFC has established a plan to incorporate a climate risk assessment tool that will be used to screen for the climate risks of every potential transaction so that they can be adapted to. In 2023, DFC is working to finalize the exact tool and integrate it across its internal processes. During COP27, DFC also announced a major push to accelerate investment in climate adaptation with an emphasis on agriculture, water, built environment, and health.
- Since early 2021, USTDA has approved funding for more than 15 infrastructure project preparation and partnership building activities. Since early 2021, USTDA has approved funding for 18 infrastructure project preparation and partnership building activities to support climate information services, energy resilience, and improvements to water and wastewater infrastructure. These activities are designed to help mobilize more than \$700 million in climate finance and more than \$500 million in U.S. exports. USTDA will partner with the International Trade Administration





at the Department of Commerce to learn more about how U.S. agencies can support U.S. exporters in deploying adaptation and resilience solutions.

- U.S. Commerce Department International Trade Administration (ITA) showcases U.S. adaptation and resilience technologies and coordinates export promotion programs at key industry trade shows, such as the Water Environment Federation's Technical Exhibition and Conference (WEFTEC), Waste Expo, Green Expo, Aquatech, and the Natural Disasters Expo.
- PREPARE is leveraging additional public and private investment in adaptation. To coordinate and catalyze private sector investments in adaptation and resilience, USAID, the State Department, DFC, and the White House launched a PREPARE Call to Action to the Private Sector at COP27 to underscore the power of corporate-led actions on adaptation to improve climate resilience for consumers and communities experiencing climate impacts firsthand.²⁷ Commitments in support of this Call to Action include expansions of climate information and early warning systems, introduction of new financial products and services, innovations for climate-smart food systems, and paradigm-shifting insurance solutions. Ten major companies responded to the Call to Action at COP27 and additional companies are expected to join by COP28. In addition, PREPARE is galvanizing the USG to explore additional approaches to accelerating private investment in low-income countries facing climate impacts.

Companies Responding to the PREPARE Call to Action to the Private Sector as of April 2023

- Google
- Gro Intelligence
- Mastercard
- Marsh McLennan
- Meta
- McCormick
- Microsoft
- Pegasus Capital Advisors
- PepsiCo.
- Pula
- SAP
- WTW (formerly Willis Towers Watson)

- To further mobilize private sector capital that advances adaptation and resilience in support of food security on the continent of Africa, the State Department launched the Food Security Accelerator at COP27, an effort led by the African Union-endorsed Africa Adaptation Initiative. The Accelerator will help identify, structure, and de-risk a pipeline of transformative private sector adaptation investments in food security, ranging from cold storage logistics to climate-resilient agriculture and post-harvesting processes. It will focus on building the capacity of African-owned micro, small, and medium enterprises, as well as African-owned investment funds.
- To accelerate technology transfer, the State Department is also supporting a technical assistance facility under the Climate Resilience and Adaptation Finance & Technology (CRAFT) fund. CRAFT is a first-of-its-kind growth equity, climate resilience-focused investment fund and



A local fire brigade is trained in how to control and suppress fire so that they can better respond to uncontrolled fires in their communities. This training is supported by the U.S. Forest Service and USAID.



was incubated out of a State Department-funded program, the Global Innovation Lab, in 2016. CRAFT has since closed on \$186 million in commercial investment. In 2021, the State Department, along with Nordic Development Fund, set up a technical assistance facility so that the adaptation technologies, products, and services from CRAFT could be brought to lower-income and small island markets. The CRAFT Technical Assistance (TA) Facility does this by supporting feasibility/market studies, project preparation, and initial capital investment. Since the operationalization of the CRAFT TA Facility in September 2022, it has already broken ground on pilot projects in Papua New Guinea and India.

- To promote the incubation and development of innovative financing instruments to drive private investment in adaptation, the State Department supported an adaptation window in the Global Innovation Lab. In the past year, the lab helped incubate a climate-resilient infrastructure-linked insurance instrument and this year, will be supporting the development of a pre-seed fund and accelerator for adaptation and resilience focused startups in Africa.
- To continue to elevate disaster risk finance solutions, the USG supported the launch of the Global Shield in 2022. USAID and the State

Department are delivering disaster risk finance solutions through Africa Risk Capacity (ARC) Replica and the Africa Disaster Risk Financing (ADRFi) Program. The Treasury Department engages in oversight of the Pacific Catastrophe Risk Insurance Company and the Caribbean Catastrophe Risk Insurance Company. As one example of this work, USAID funded drought insurance in Mali and Burkina Faso in 2021 and 2022. These policies were triggered during the catastrophic drought in the Sahel, resulting in an additional \$15 million of disaster relief going to drought-stricken farmers in Mali, and \$7 million in Burkina Faso in 2022 and 2023 that did not come from the U.S. humanitarian funds. The United States is supporting similar insurance policies in Madagascar and Mozambique for disaster risk management, especially for cyclones and drought, and in Sudan. These products that help countries cope with extreme weather events, food insecurity, and other issues exacerbated by climate change are made available through multilateral institutions. There are also options for private insurance provision, and the USG is supporting early efforts in this area, including for cities such as Durban, South Africa and Makati, Philippines.

FULLY RESOURCING PREPARE & MEASURING RESULTS

“There is a widening gap between what we are doing and what is needed as the climate continues to change. That’s why the Administration has developed an Action Plan to implement PREPARE and achieve its objectives.” – **Jake Sullivan, Assistant to the President for National Security Affairs**

If fully resourced, PREPARE can achieve its goal of supporting more than half a billion people to adapt to and manage the impacts of climate change. U.S. agencies can build on the work they have started—scaling what works and supporting new and innovative programs and ways of partnering.

The Biden Administration has been requesting additional funds for adaptation since PREPARE was launched in November 2021. If we are to realize the goals of PREPARE, we need concerted investment.

To ensure results and accountability, PREPARE is raising the bar on how the USG designs, monitors, reports on, and learns from its investments in adaptation. PREPARE commits the USG to build on the existing ways that we measure whether communities are becoming more resilient to the impacts of climate change as a result of adaptation. The Global Climate Change Indicators provide a starting point for departments and agencies engaged in PREPARE.

“The climate crisis is hitting hardest those countries and communities that have the fewest resources to respond and to recover. That’s why, last year, I committed to work with our Congress to quadruple U.S. support to climate finance and provide \$11 billion annually by 2024, including \$3 billion for adaptation. And that’s why the **Emergency Plan for Adaptation and Resilience—PREPARE**, we call it—will help more than half a billion people in developing countries respond to climate change.”²⁸ – **Joseph R. Biden, President of the United States of America, COP27, Egypt (November 2022).**

TABLE 1. FY22 USAID AND DEPARTMENT OF STATE STANDARD INDICATORS FOR CLIMATE CHANGE ADAPTATION AND DEVELOPMENT

Number of people trained in climate change adaptation supported by USG assistance (Disaggregates: Male, Female)
Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance (Disaggregates: National governmental; Sub-national governmental; Other)
Number of laws, policies, regulations, or standards addressing climate change adaptation formally proposed, adopted, or implemented as supported by USG assistance (Disaggregates: Proposed, Adopted, Implemented at the national level, sub-national level, and regional or international level)
Amount of investment mobilized in USD for climate change adaptation as supported by USG assistance (Disaggregates: Public, domestic funds; Public, international funds; Private, domestic funds; Private, international funds)
Number of people supported by the USG to adapt to the effects of climate change (Disaggregates: Male, Female)
Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by USG assistance (Disaggregates: Male, Female)





ENDNOTES

- 1 “World Energy Outlook 2022.” Paris: International Energy Agency, 2022. <https://www.iea.org/reports/world-energy-outlook-2022/key-findings>
- 2 “Adapt Now: A Global Call for Leadership on Climate Resilience.” Global Commission on Adaptation, September 10, 2019. <https://www.wri.org/initiatives/global-commission-adaptation/adapt-now-report>
- 3 “PREPARE Action Plan.” The White House, September 2022. <https://www.whitehouse.gov/wp-content/uploads/2022/09/PREPARE-Action-Plan.pdf>
- 4 Biden, Joe. “Remarks by President Biden at the COP26 Event on ‘Action and Solidarity: The Critical Decade.’” Glasgow, United Kingdom, November 1, 2021. <https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/11/01/remarks-by-president-biden-at-the-cop26-event-on-action-and-solidarity-the-critical-decade/>
- 5 Goldbaum, Christina, Zia ur-Rehman, and Kiana Hayeri. “In Pakistan’s Record Floods, Villages Are Now Desperate Islands.” The New York Times, September 14, 2022, sec. World. <https://www.nytimes.com/2022/09/14/world/asia/pakistan-floods.html>
- 6 “Pakistan: Flood Damages and Economic Losses Over USD 30 Billion and Reconstruction Needs Over USD 16 Billion - New Assessment.” The World Bank, October 28, 2022. <https://www.worldbank.org/en/news/press-release/2022/10/28/pakistan-flood-damages-and-economic-losses-over-usd-30-billion-and-reconstruction-needs-over-usd-16-billion-new-assessme>
- 7 Srivastava , Sanjay, Sudip Ranjan Basu, Madhurima Sarkar-Swaisgood , Temily Baker, and Soomi Hong. “Vanuatu Twin Cyclones Underscore the Pacific’s Vulnerability to Compounding Climate-Disaster Risks.” PreventionWeb (blog), March 9, 2023. <https://www.preventionweb.net/news/vanuatu-twin-cyclones-underscore-pacifics-vulnerability-compounding-climate-disaster-risks>
- 8 “Greater Horn of Africa Faces 5th Failed Rainy Season.” World Meteorological Organization, August 25, 2022. <https://public.wmo.int/en/media/news/greater-horn-of-africa-faces-5th-failed-rainy-season>
- 9 Button, Hannah. “Forecast Update: East Africa Likely to Experience Six Droughts in a Row.” AgriLinks, September 27, 2022. <https://www.agrilinks.org/post/forecast-update-east-africa-likely-experience-six-droughts-row>
- 10 “The Cost of Doing Nothing: The Humanitarian Cost of Climate Change and How It Can Be Avoided.” IFRC, 2019. <https://www.ifrc.org/document/cost-doing-nothing>
- 11 Between 2001-2021, 206 million people were affected annually by storms, floods, droughts, and wildfires. Ibid. p. 14 .
- 12 “The Economics of Climate Change: No Action Not an Option.” Swiss Re Institute, April 2021. <https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf>





- 13 Mbow, C., C. Rosenzweig, L. G. Barioni, T. G. Benton, M. Herrero, M. Krishnapillai, E. Liwenga, et al. "Food Security." In *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems*. Intergovernmental Panel on Climate Change, 2019. https://www.ipcc.ch/site/assets/uploads/sites/4/2022/11/SRCCL_Chapter_5.pdf
- 14 Clement, Viviane, Kanta Kumari Rigaud, Alex de Sherbinin, Bryan Jones, Susana Adamo, Jacob Schewe, Nian Sadiq, and Elham Shabahat. "Groundswell Part 2: Acting on Internal Climate Migration." Washington, DC: The World Bank, September 13, 2021. <https://openknowledge.worldbank.org/handle/10986/36248>
- 15 IPCC. *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Edited by H. -O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, et al. Cambridge: Cambridge University Press, 2022. <https://www.ipcc.ch/report/ar6/wg2/>
- 16 Working on a Warmer Planet: The Impact of Heat Stress on Labour Productivity and Decent Work. Geneva: International Labour Organization, 2019. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf
- 17 Clement, Viviane, Kanta Kumari Rigaud, Alex de Sherbinin, Bryan Jones, Susana Adamo, Jacob Schewe, Nian Sadiq, and Elham Shabahat. "Groundswell Part 2: Acting on Internal Climate Migration." Washington, DC: The World Bank, September 13, 2021. <https://openknowledge.worldbank.org/handle/10986/36248>
- 18 IPCC. *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Edited by H. -O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, et al. Cambridge: Cambridge University Press, 2022. https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf p. 1102
- 19 Ibid. p. 15 (B.4.5)
- 20 UNFCCC Secretariat. "Dimensions and Examples of the Gender-Differentiated Impacts of Climate Change, the Role of Women as Agents of Change and Opportunities for Women." Bonn Climate Change Conference, June 1, 2022. <https://unfccc.int/documents/494455>
- 21 Dunne, Daisy. "Mapped: How Climate Change Disproportionately Affects Women's Health." Carbon Brief, October 29, 2020. <https://www.carbonbrief.org/mapped-how-climate-change-disproportionately-affects-womens-health/>
- 22 Lutz, Wolfgang, Joeri Rogelj, Yoshihide Wada, and Ansa Heyl. "The Kids Are Not Alright." International Institute for Applied Systems Analysis, September 27, 2021. <https://iiasa.ac.at/news/sep-2021/kids-are-not-alright>
- 23 Power, Samantha. "Administrator Samantha Power At The Launch Of The Prepare Private Sector Call To Action." Sharm el-Sheikh, Egypt, November 12, 2022. <https://www.usaid.gov/news-information/speeches/nov-12-2022-administrator-samantha-power-launch-prepare-private-sector-call-action>
- 24 "United States Pledges \$100 Million to Support Continued Flood Recovery Efforts in Pakistan." U.S. Agency for International Development, January 9, 2023. <https://www.usaid.gov/news-information/press-releases/jan-09-2023-united-states-pledges-100-million-support-continued-flood-recovery-efforts-pakistan>
- 25 "Adapt Now: A Global Call for Leadership on Climate Resilience." Global Commission on Adaptation, September 10, 2019. <https://gca.org/reports/adapt-now-a-global-call-for-leadership-on-climate-resilience/>
- 26 Tsan, Michael, Swetha Totapally, Michael Hailu, and Benjamin K. Addom. "The Digitalisation of African Agriculture Report 2018-2019." Wageningen, The Netherlands: CTA / Dalberg Advisors, June 7, 2019. <https://cgspace.cgiar.org/handle/10568/101498> p. 111
- 27 Global Resilience Partnership. "PREPARE Call to Action to the Private Sector," n.d. <https://www.globalresiliencepartnership.org/calltoaction/>
- 28 Biden, Joe. "Remarks by President Biden at the 27th Conference of the Parties to the Framework Convention on Climate Change (COP27)." Sharm el-Sheikh, Egypt, November 11, 2022. <https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/11/11/remarks-by-president-biden-at-the-27th-conference-of-the-parties-to-the-framework-convention-on-climate-change-cop27-sharm-el-sheikh-egypt/>





