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<https://www.climatelinks.org/projects/atlas>

Cover Image: Joslin Isaacson

# Five Years' Progress on Climate Resilient Development

## *Final Report*

Adaptation Thought Leadership and Assessments (ATLAS)

**APRIL 2020**

Prepared for:  
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Prepared by:  
Chemonics International Inc.

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# ACRONYMS

AFR	USAID Bureau for Africa
ATLAS	Adaptation Thought Leadership and Assessments
CDCS	Country Development Cooperation Strategy
DCHA	USAID Bureau for Democracy, Conflict, and Humanitarian Assistance
E3	USAID Bureau for Economic Growth, Education, and Environment
FFP	Food for Peace
GCC	Office of Global Climate Change
SWM	Sustainable Water for the Mara
USAID	United States Agency for International Development
WHO	World Health Organization

# EXECUTIVE SUMMARY

## *ATLAS impact: progress in building climate resilience*

From September 2014 through March 2020, the USAID-funded Adaptation Thought Leadership and Assessments project (ATLAS) provided significant analytical capabilities to 1) help USAID integrate climate adaptation across its portfolio of development investments and 2) raise awareness among USAID and its partners of how adaptation can safeguard those investments against climate risks. ATLAS also helped build the climate resilience of national partners and strengthened methodologies to assess and respond to climate impacts in sectors as diverse as health, urban planning, transport, and water management.

Through innovative thought leadership, specialized assessments, targeted capacity-building, and broad-based knowledge-sharing, ATLAS made measurable contributions to the evidence base for climate adaptation. ATLAS provided transformational insight and information to decision-makers to regularize consideration of climate risks in sectors such as health and urban resilience, which traditionally have not done so. ATLAS activities formed part of a continuum: building on the existing body of work on adaptation by enhancing existing knowledge and offering a stepping stone to current and future host country governments, donors, and other development practitioners who will carry forward climate adaptation analytics within and beyond USAID.

Source: Neil Palmer (CIAT)





Source: TANGO

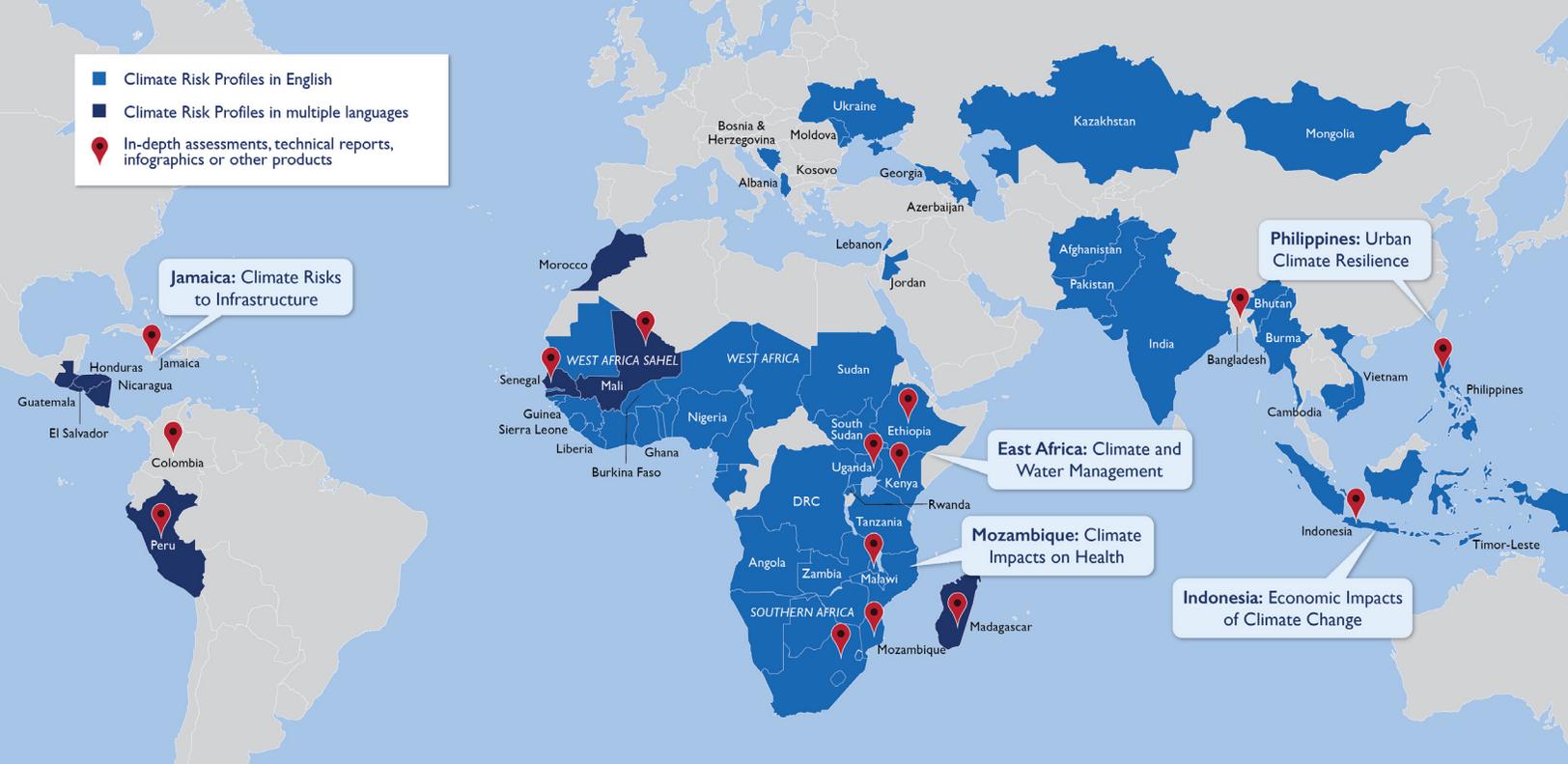
## ATLAS IN BRIEF

USAID's Adaptation Thought Leadership and Assessments (ATLAS) activity launched in 2014 to assist the Agency and its partners in refining approaches and promoting best practices in designing and managing climate-resilient program investments. Those partners included host country governments, non-governmental organizations, donor and development agencies, academic and research institutions, and others. ATLAS conducted user-tailored climate vulnerability assessments, provided thought leadership on emerging climate adaptation issues, and contributed knowledge and capacity-building to USAID, its partners, and the climate adaptation community more broadly. Supported by three USAID bureaus – Africa, DCHA, and E3 – ATLAS collaborated with global experts, universities, and specialist organizations on targeted technical assistance in Washington D.C. as well as with USAID regional and country missions. Implemented by Chemonics International, ATLAS concluded its primary work in March 2020, though discrete activities continue through December 2020.

*The goal of ATLAS was to increase the ability of USAID and country partners to **reduce the vulnerability of people, places, and livelihoods to climate variability and change.***

The project's impact must be understood in the context of its beginnings. The launch of ATLAS came after the release of USAID's 2012 Climate Change and Development Strategy. At that time, even with significant global action on climate, approaches to adaptation analytics and practice were diverse and not rigorously tested. Many adaptation practitioners were struggling to make climate change data and information useful to decision-makers. Practical guidance, good practices, and methods testing were needed to help USAID and the wider adaptation community strengthen approaches – and support development partners in doing the same. With USAID as its key audience, ATLAS's work focused on meeting this challenge. Today, nearly six years later, climate adaptation is a key component of USAID's efforts to build resilience to shocks and stresses and support countries in independently managing risks, enabling them to safeguard progress on the journey to self-reliance.

At the highest level, the goal of ATLAS was to improve development outcomes by increasing the ability of USAID and country partners to understand climate vulnerabilities and adaptation options and reduce the vulnerability of people, places, and livelihoods to climate variability and change. Over the course of its lifespan, the project worked with USAID/Washington and a dozen USAID missions and their partners to produce 231 resources, including: vulnerability assessments and cross-sectoral analyses; specialized decision-



## ATLAS Geographic Reach

making tools, including guidance, sample terms of reference, and templates; and communications products ranging from infographics to country-specific climate risk profiles. ([Annex I](#) provides a complete list of products with links.)

## KEY RESULTS

» **ATLAS helped USAID strengthen climate-resilience in its programming.** Partnering with three USAID bureaus (Economic Growth, Environment, and Education (E3); Democracy, Conflict and Humanitarian Assistance (DCHA); and the Africa Bureau (AFR), ATLAS offered an opportunity for coordination on climate adaptation in support of field missions, expanding the capacity of USAID to address adaptation challenges. The result was greater

analytical consistency, coordination across sectors, and increased knowledge and capacity of USAID technical staff working in health, infrastructure, urban resilience, peace-building, food security, water security, and other sectors. Here are three examples:

- **Improved information for mission strategy:** In Bangladesh, a tailored assessment helped the local mission integrate projections of future risks of flooding, sea level rise, and other climate impacts in its country development cooperation strategy (CDCS). ATLAS also developed a methodology and produced 60 climate risk profiles to support USAID's country-level approaches to climate risk management. These profiles summarize the available literature on climate risks by sector, enabling USAID staff and other development practitioners to understand the

key risks and consider them in the context of mission-level decision-making. Over five and one-half years, these profiles were the project's most downloaded products.

- **Improved humanitarian assistance planning:** By inserting ATLAS climate expertise into the Food for Peace (FFP) program development process, USAID more systematically integrated climate risks into FFP's program design cycle for the first time. FFP, which programmed some \$3.7 billion in food assistance in 2018, adopted mechanisms for regularizing integration of this analysis.
- **Improved planning of agriculture assistance:** Working with USAID/Mozambique, ATLAS analyzed the effects of likely changes in rainfall and temperature on local agricultural commodities, providing evidence to inform the mission's long-term planning and activity design.

» **Country partners became more resilient to the impacts of climate change.** Through vulnerability assessments that analyzed the

impact of future climate on key development sectors, ATLAS helped national and local governments develop better long-term plans, policies, and budgets while also building their capacity to conduct such analyses in the future. Examples include:

- **Preparing for malaria and cholera outbreaks in Mozambique:** As part of an extensive investment in the climate-health nexus, ATLAS conducted an in-depth technical study on how future climate changes might drive malaria and cholera incidence in Mozambique. Through novel collaboration between Mozambique's ministry of health and meteorological service, officials used the study as a building block for a new health and climate observatory that monitors and plans for disease outbreaks.
- **Protecting economic growth in Jamaica by protecting infrastructure:** An ATLAS assessment of infrastructure in Jamaica strengthened evidence for a government-wide strategic planning process and helped prioritize assets requiring more detailed

climate assessment. It also fostered coordination of ministries working on transport, housing, environment, and disaster risk management on actions and policies to avert disruptions to tourism, an economically vital sector.



Source: Chemonics



Source: ATLAS

- **Providing data to local governments in the Philippines to inform spending decisions:** In the City of Cagayan de Oro, on the island of Mindanao, ATLAS worked with officials on strategies to monitor and evaluate work under its local climate change action plan. These strategies measure the effectiveness of the plan's adaptation interventions, helping inform program and spending decisions for the city as well as donors supporting climate adaptation activities. Based on the success of work in Cagayan de Oro, a monitoring and evaluation resource guide and training program may be scaled up to other cities.

» **ATLAS broke new ground on climate in key sectors, particularly health:** Through its work, ATLAS added to the evidence base in sectors where little information was previously available. This work included assessments and thought leadership pieces in the areas of health, infrastructure, urban resilience, behavior change, conflict, monitoring and evaluation, and others.

As noted earlier, research on the impacts of climate on the health sector was a major focus, with activities targeting African countries and regions particularly. A leading example of ATLAS's health work is in ongoing contributions to a major effort to improve malaria forecasting. Focused on the Amhara region of Ethiopia and undertaken in partnership with USAID/Ethiopia and national agencies, the work centers on deployment of a 10-year-old early detection tool that uses epidemiological and climate data to predict malaria incidence up to eight weeks before it occurs. (ATLAS is expected to continue supporting this activity through 2020.)

» **ATLAS strengthened the U.S. and international community of practice on climate adaptation.** The project established deep and extensive communications and outreach channels that made a wide range of climate adaptation assessments and approaches accessible to USAID audiences and partners, as well as global development practitioners.

## ATLAS Contributions to the Community of Practice



231

climate risk assessments, tools, and communications products



83,000

Climatelinks users



33,600

documents downloaded



12

USAID missions supported



43

Adaptation Community Meetings



3

USAID bureaus in partnership

- **Online:** ATLAS' primary external platform was [www.climatelinks.org](http://www.climatelinks.org), a USAID-sponsored website, where some 231 reports, tools, infographics, and other project documents are publicly available. Over the life of the project, the [ATLAS pages](#) on Climatelinks hosted some 83,000 unique users from five continents who downloaded 33,600 documents, some of which were translated into Spanish, French, and Portuguese.
  - **Webinars:** ATLAS organized and convened 43 [Adaptation Community Meetings](#) (ACMs), monthly in-person and online webinars featuring the latest insights and innovations on climate adaptation programs and initiatives. The meetings, listed in [Annex 2](#), provided an informal mechanism and space for discussion, exchange, and sharing on successful climate adaptation practices with USAID and other audiences.
  - **Cross-posting:** ATLAS leveraged its communications and outreach by posting resources on numerous other climate and sector-specific platforms including: Climate Adaptation Knowledge Exchange (CAKE), Climate-L, PreventionWeb, WeAdapt, and others.
  - **Journals:** ATLAS studies informed academic journal articles on topics including climate adaptation and local governance in Mali; methodologies for assessing climate change adaptation options in Ethiopia; the shifting geographic risk of malaria transmission in Africa; climate change risk perceptions in Africa; and adaptation actions in sub-Saharan Africa.
- » **ATLAS influenced the methodologies used by key development partners.** Given the relative newness of climate adaptation as a field of study, learning and exchange among practitioners is high. Following collaborations with ATLAS, two major development partners have integrated aspects of ATLAS methodology in their own work:

- **Malaria:** The President's Malaria Initiative, a program launched in 2005 to eradicate malaria, is taking steps to consider future climate risk in its program decision-making.
- **Health vulnerability:** The World Health Organization (WHO) is increasing attention to climate risk in upcoming country-focused health studies.

» **ATLAS contributed to new and refined methods.** As noted earlier, ATLAS was created at a time that methodologies for assessing climate risk varied widely. ATLAS developed and standardized its methodologies -- particularly in the area of vulnerability assessment -- and disseminated those approaches so that others might replicate them. Examples of these refinements include:

- **Translating science for decision-making.** By tailoring assessment activities to specific development questions and making adaptation response a standard component of the analysis, ATLAS established a best practice for how such assessments should be conducted, regardless of the sector. ATLAS studies on [climate-health vulnerability in Bangladesh cities](#) and [water security in East Africa's Mara Basin](#), for example, used the same approach to analyzing vulnerability and response options, ultimately providing USAID and other development partners with actionable evidence to guide their decisions.
- **Disseminating learning aids on methods to key audiences, especially at USAID.** By creating and promoting access to [assessment templates](#)

[and other tools](#), ATLAS helped USAID/ Washington and mission staff standardize their approaches and add analytic rigor to climate risk assessment.

- **Investing in communication formats that helped target audiences understand, internalize, and act on research findings.** Examples include standardized graphics to represent climate data and other analysis and plain language products, such as the climate risk profiles. See [page 23](#) of this report for more information.



Source: ATLAS

## BUILDING ON THIS PROGRESS

With a critical mass of development practitioners and others recognizing that climate risks must be integrated across planning, policy, and budgets in all sectors, the investment in identifying scalable, replicable practices must continue. Emerging ideas, based on ATLAS experience over the last five years, include:

- » **Continued investment in educating both elected officials and civil servants** about the short- and long-term benefits of action on adaptation.
  - Accessible, nontechnical language is important to these discussions, as is transparency on the certainty of models and data. A key message for this audience is that while information may not be perfect, it is often sound enough to support actionable responses.
  - To support the dialogue, more information is required on what motivates various audiences to act; incentives are not the same across sectors. Elected officials, for example, may seek “quick wins” to satisfy voters, while practitioners generally focus on longer term, sustainable improvements. The economics and impacts of adaptation on different segments of society are often important.
- » **Increased support to leaders in urban areas and communities**, which face massive population increases and where there is significant momentum for action from both citizens and elected officials.
- » **Dedicated human and financial resources for sharing best practices and methodologies.** To achieve scale, this must be a standard component of programming.
- » **Continued efforts to fill information gaps on impacts and methodologies.** For example:
  - Expanding knowledge in under-analyzed areas, such as health, urban resilience, food security, migration, and conflict.
  - Continued work on approaches to monitoring and evaluation, which are critical for understanding the effectiveness of adaptation actions.
  - More frequent economic analysis describing the cost savings of adaptation versus repeated crisis response.
- » Continuing to **target assessments and new methodologies to real-world demands for decision-making** and then leveraging the approach in other contexts. In nearly all countries, at all levels of government, resources for adaptation are limited. As such, an applied science mentality must prevail. The knowledge itself is not enough; it must be applicable to the climate-related challenges that leaders increasingly face every day.
- » In terms of priority adaptation options, **climate-health early warning systems**, which can help reduce loss of life and disease, are a good option.

# ATLAS SCOPE AND APPROACH

## *Breaking new ground on methodologies to assess climate risk*

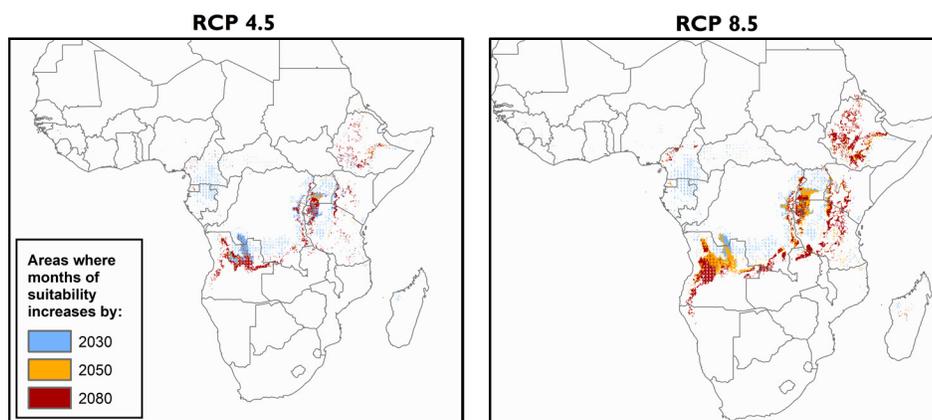
USAID created a framework for climate-related programming through its 2012 Climate Change and Development Strategy. The strategy centered on supporting sustainable economic growth in developing countries by improving the resilience of the USAID's activities to climate change. Both adaptation and mitigation activities were key elements of the strategy. The 2016 integration of climate risk management into USAID operational policy added further momentum to the Agency's work to systematically assess and address the increased risk to programmatic outcomes posed by climate change.

ATLAS was a vehicle for implementing the Agency strategy and carrying forward climate risk management within the international development agenda. It was intended as a direct contributor to USAID's overarching goal of reducing climate vulnerability in regions and countries where high exposure and sensitivity combined with low adaptive capacity create the conditions for constrained economic growth as the climate continues to change.

### ATLAS DESIGN

Both the design of ATLAS and its analytical tasks were based on lessons learned from two earlier USAID activities, Climate Change Resilient Development (CCRD) and the African and Latin American Resilience to Climate Change (ARCC) program. The structure of ATLAS, with joint coordination by the E3, DCHA, and Africa bureaus, was intended to streamline USAID's adaptation thought leadership work and foster consistency and integration across its entire portfolio.

ATLAS aimed to improve the quality and effectiveness of USAID and countries' development programming to reduce climate risks through: 1) tested and harmonized approaches to assessments, 2) thought leadership, and 3) capacity development of USAID and its partners. A strategic aspect of the project's design was its flexibility in responding quickly to a USAID bureau's or mission's needs, and then leveraging the work done into guidance, decision-making



These maps show the increasing suitability of regions of Africa to malaria considering two different climate projections. Included in the 2019 report, *Shifting Burdens of Malaria in a Hotter Africa*, this type of research is a good example of how ATLAS assessed climate impacts on health.

tools, and communication materials that helped the Agency and other development partners learn from and apply the methodologies. That approach ensured ATLAS activities had a direct impact at the bureau and mission level while also serving the larger strategic purpose of the project.

ATLAS activities were structured around three tasks:

<b>TASK 1:</b> Model assessments and options analysis	<b>TASK 2:</b> Thought leadership	<b>TASK 3:</b> Building knowledge and capacity
<p>These were sector or program-specific assessments to inform USAID and country partners’ strategies and planning processes. These assessments provided valuable evidence to support these processes and shed light on best practice methodologies. Along with technical reports, ATLAS produced and distributed guidance documents and templates to help other practitioners with similar assessments. Work under Task 1 yielded a number of innovations on methodologies for assessing climate risk.</p>	<p>This task included research and analysis on emerging adaptation issues, to help USAID, implementing partners and the adaptation community ensure effective programming and help avoid potential pitfalls in investments. These activities generated actionable analysis and practical tools to help bureaus, missions, and their partners understand adaptation options, behavior change, adaptation-centered monitoring and evaluation, and other topics. Work under Task 2 led to a wealth of new knowledge and information on under-analyzed sectors.</p>	<p>Dissemination of technical reports, plain language summaries and infographics, in-person and online webinars, and training and capacity-building activities fostered uptake of analysis, learnings, and other information among USAID, partners, and the global adaptation community. Task 3 activities were critical to maximizing the impact of Task 1 and 2 activities while also creating feedback loops that informed ATLAS work. <a href="#">Annex I</a> provides a list of all ATLAS products with links.</p>

USAID and ATLAS followed a six-step design and implementation process that ensured close cooperation and coordination. The steps centered on joint action on development of activity concepts, terms of reference, and scopes of work as well as collaborative review and finalization of all products. This ensured the clarity and relevance of the work to target audiences.

ATLAS's mission aligned with USAID's building blocks for climate-resilient development, which are based on:

- Improving the availability, quality, and use of weather and climate information
- Mainstreaming adaptation measures into governance, planning, and budgeting
- Piloting and disseminating risk-reducing management practices
- Mobilizing finance for adaptation measures from multiple sources

## ANALYTICAL APPROACH

Two particular aspects of ATLAS's practical, actionable approach are worth noting:

» **The value of a “fit-for-purpose” approach.**

ATLAS analysis was driven primarily by requests for specific information and data to inform and improve decision-making on investments. Working with USAID counterparts in Washington and in field missions, the ATLAS team identified appropriate entry points in the USAID programming cycle and collaborated with key stakeholders to develop strategies and planning tools. This demand-driven, “fit-for-purpose” approach grounded the project's work, linking it to real-life challenges. The result was context-specific information that empowered those decision-makers to take action. ATLAS analysis typically included a set of recommended adaptation interventions that responded to the climate risks identified through the analytical methodology. This

approach delivered impact in three ways: 1) stronger evidence for the decision at hand (i.e., a tailored set of risks and adaptation responses to those risks), 2) dissemination of an action-oriented methodology based on the demand that initiated the assessment, and 3) increased capacity to mainstream climate vulnerability assessment in the programming process.

» **Continuing to frame climate risk as a development challenge.**

Practitioners face a continued challenge related to the framing of climate variability and change. By using a standard analytical approach, ATLAS supported USAID's ongoing effort to reframe climate change from an environmental issue to a fundamental development challenge that complicates efforts across sectors and threatens historical approaches to poverty alleviation, economic growth, and health care. By articulating clear research questions and objectives, and effectively analyzing the implications of climate risk in specific contexts, ATLAS helped demonstrate the value of including climate risk in the set of core assumptions considered in investment decision-making. As an example, ATLAS assessed aspects of USAID's integrated programming approach in food security, which use multiple, interrelated objectives to make food security more resilient. This research provided early insights on how the identification of climate risk and adaptation efforts can effectively support food security objectives and help break down siloed approaches to program design and implementation.

## ATLAS Activities by Task

No.	Activity	Location	USAID lead(s)	Completion date
1.2	Mission climate risk screening feeding into Country Development Cooperation Strategy	Bangladesh	E3	Mar 2016
1.3a	Assessment of climate risks to Feed the Future investments	Mozambique	AFR	Oct 2016
1.3b	Assessment of climate risks to biodiversity investments	Uganda	AFR	Oct 2016
1.4	Assessment of climate risks within Food for Peace development portfolio	Ethiopia, Democratic Republic of the Congo, Liberia, Uganda (Karamoja), Kenya, Malawi, Madagascar, Zimbabwe	DCHA	Feb 2020
1.6	Risks, opportunities and capabilities for climate resilient growth	Indonesia	E3	Sept 2016
1.7	Analysis of adaptation interventions	Ethiopia	AFR	Dec 2018
1.8	Climate vulnerability assessment of the transport sector in Jamaica	Jamaica	USAID/Jamaica	Mar 2018
2.1	Improved use/synthesis of information services/climate information	Mozambique	AFR	May 2019
2.2a	Decentralized governance to strengthen adaptation	Mali	DCHA	Oct 2016
2.2b	Support for City-Level Heat-Health Action Plan Reference Guide	Global	E3/GCC	Jan 2020
2.3	Practical insights on resilience, adaptation, and food security	Ethiopia Honduras Malawi Nepal	E3/BFS	Jan 2020
2.4a	Methods identified for climate change and health assessment	Senegal, Mozambique	AFR	Nov 2016
2.4b	Explore heat related climate impacts to inform USAID programming	Asia	E3/GCC	Feb 2019
2.4c	Guidance to access climate and health funding	Africa	AFR	Jun 2019
2.4d	Methods identified for climate change and health assessment	Malawi	AFR	Jan 2020
2.4e	Methods identified for climate change and health assessment	Madagascar	AFR	Jan 2020
2.4f	Methods identified for climate change and health assessment	Southern Africa	AFR	Jan 2020
2.4g	Investigating and visualizing the links between climate and malaria	Ethiopia	AFR	Dec 2020
2.6	Climate vulnerability assessment in support of the Sustainable Water for the Mara Activity	Tanzania Kenya	AFR DCHA	May 2019

2.7	Behavior change analysis: learning from health and other disciplines	Global/Desk-based	E3	May 2019
2.8	Criteria to guide USAID adaptation priorities	AFR	AFR	Sept 2016
2.9	Identifying lessons learned about improved climate change adaptive capacity from conflict resolution initiatives in the Horn of Africa	Ethiopia, Kenya, Uganda, Sudan	DCHA	Oct 2019
2.9a	Fragility and climate risks	Global		Mar 2019
2.10	Synthesizing good practices in climate adaptation assessments	Global	AFR DCHA E3	April 2017
2.11	Governance and climate change adaptation/ guidance for activity design and implementation	Global	DCHA	Apr 2019
2.12a	Improving resilience to climate change in urban systems	South Africa Madagascar	AFR E3/LU	May 2017
2.12b	Urban adaptation monitoring and measurement	Philippines	E3/LU	Aug 2019
2.12c	Climate vulnerability assessment of the health sector in secondary cities – Bangladesh	Bangladesh	E3/LU	Jan 2020
2.13	Climate change adaptation building blocks	Global	E3	Dec 2016
2.14	Gender, conflict and climate change adaptation guide	Global	DCHA	Aug 2019
2.16	Climate variability and relocation	Global	E3/ GCC	Nov 2019
2.18	Using green infrastructure for urban climate resilience	Global	E3/ GCC	Nov 2018
3.1a	Climate risk management: country climate risk profiles	Global	AFR DCHA E3	Jan 2020
3.1b	Climate risk management: CDCS CRM assessments	Africa	AFR	Jan 2020
3.2	Adaptation communications	Global	E3/ GCC	Dec 2019
3.2a	Adaptation communications support to USAID/ Jamaica's climate change portfolio	Global/ Jamaica	Jamaica	Dec 2019
3.3	Prioritization of climate change by host country governments	Africa	AFR	Feb 2020
3.4	Adaptation Community Meetings	Global	AFR DCHA E3	Nov 2019
3.5	Annual regional meetings and thematic workshops for USAID staff in Africa	Africa	AFR	Apr 2018
3.6	ATLAS final event and report	Global	AFR DCHA E3	Nov 2019 Feb 2020
3.7	Research and communications support including fact sheets	Global	AFR DCHA E3	Feb 2020



# PROJECT HIGHLIGHTS

*Strengthening partners' ability to manage climate risks*

The following cases illustrate the breadth, depth, and impact of ATLAS work.

## **NEW INSIGHTS ON EMERGING IMPACTS OF CLIMATE ON HEALTH**

Among the changing climate's vast implications for planet Earth and its people, none may be as complex and far-reaching as the impact on health.

Along with loss of life, injury, disease outbreaks, and damage to health infrastructure from weather-related disasters, higher temperatures, extreme rainfall, cycles of drought, and other climate impacts will trigger major health shifts. These will affect disease patterns, nutritional health, mental health, and other aspects of human well-being. In many countries, health systems are unprepared for – and uninformed about – these changes.

In its five and one-half years, ATLAS invested a significant share of its resources in enhancing knowledge of climate-related health impacts, particularly in sub-Saharan Africa. This included collaborative work with global health experts and national leaders on analysis through various lenses; for example, 1) by disease, looking in-depth at malaria, diarrheal disease, and plague, and 2)



## A FACE OF LEADERSHIP

Eduardo Samo Gudo, Scientific Director at the National Institute of Health in Mozambique, was a driving force behind the creation of Mozambique's Climate and Health Observatory in 2016. An expert in immunology and virology, Eduardo says that while doctors may get immediate satisfaction from seeing patients recover, he is motivated by the belief that public health can prevent thousands from ever becoming sick. To build the observatory's evidence base, ATLAS assessed likely changes to malaria and diarrheal disease under localized climate change scenarios. Along with an in-depth statistical analysis, ATLAS produced a plain language policy brief and infographics in English and Portuguese. "This information will fuel our efforts to fight disease. We will continue to prioritize these kinds of initiatives because we believe we won't be able to control disease in Mozambique if we don't have comprehensive, consistent climate and health evidence."

by geography, with targeted research on malaria in Mozambique, Madagascar, Malawi, Botswana, Senegal, and Ethiopia, and broader studies of trends across Southern Africa and the continent as a whole.

At the global level, an ATLAS study explored health and heat waves, including risk management options such as heat-health action plans.

ATLAS health sector [products](#) include technical studies, infographics in English, Portuguese, and French, and tools for decision-making. One such tool is a guide for governments on climate-specific financing opportunities.

Findings from the Africa-wide [report](#) reinforce the complexity of challenges:

» With warmer days and nights, malaria is likely to increase in highland areas across Africa that were previously unsuitable – and where people's resistance to the disease is lower:

- » Some climate adaptation interventions, such as dams to store and regulate water resources, increase the risk of waterborne diseases by providing habitat for disease carriers, such as the snails that carry schistosomiasis.
- » In tropical regions, cereal crops are growing near their thermal tolerance. Increasing temperatures are likely to reduce yields of maize, wheat, rice, and sorghum, contributing to increased malnutrition.

*While not as visibly damaging as some natural disasters, **heat waves** are among the deadliest. An estimated 70,000 people died during heat waves in Europe in 2003.*



Source: ATLAS

## THE NEXUS OF CLIMATE AND CONFLICT

Work through the ATLAS program demonstrated that topics exploring complex human dynamics are the hardest to analyze for their relationship to climate. This lesson was affirmed in an ATLAS study on the impacts of USAID climate-conflict programs in the Horn of Africa. These programs engaged pastoral and agro-pastoral communities in combined peacebuilding and resilience-building activities. The analysis showed that climate change, which manifested most acutely for these communities through drought, can foster conflict by creating food and livelihood insecurity, increasing competition over water and land, forcing migration, and amplifying existing marginalization and exclusion. Acknowledging the challenge of addressing so many negative impacts, the report identified five guiding principles to integrate peacebuilding and climate resilience programming, including: fostering social dialogue and cohesion; pursuing adaptation through multi-sectoral investments; investing in institutional capacity to create peace and sustainability; making governance inclusive; and establishing cooperation across all levels of government. This study recommended that donors seeking to address climate-conflict issues: 1) invest in risk assessments that integrate locally-specific climate, conflict, and fragility data, and 2) ensure they are able to make a long-term commitment to the programming, with a focus on participation and adaptive management approaches.

» Risk of meningococcal meningitis outbreaks will increase in coming decades as up to 8 percent of Africa becomes more arid and more suitable to the bacteria that causes the disease.

Adaptation response options are explored in the reports. They include: context-specific recommendations for policy reform including: health sector regulatory strengthening and risk management; capacity building of health sector technical staff; research priorities to plug knowledge gaps; on-the-ground measures to improve health sector physical infrastructure; and adaptation communications to raise public awareness. Climate-health observatories, similar to Mozambique's, are a highly recommended option.



Source: PBS



Source: World Bank

## URBAN RESILIENCE: HELPING CITIES PREPARE FOR SHOCKS AND STRESSES

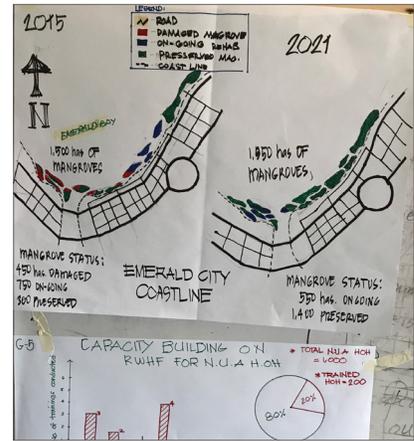
In many parts of the world, citizens are demanding solutions to the daily nuisances and more serious hazards resulting from increasingly frequent flooding, heat waves, and other climate impacts. As a result, city leaders and community groups are actively looking for ways to adapt to the changing climate. They are taking initiative to assess local climate and weather vulnerability and implement strategies to reduce risks to residents, the local economy, and the infrastructure on which both depend. Underpinning this momentum is the reality that resources and capacity for implementation may be comparatively lower in cities than at national or regional levels.

Responding to this demand for capacity and resources, ATLAS undertook a series of activities to build the evidence base around urban resilience. Along with reports, reference guides, and tools on green infrastructure, financing mechanisms, and monitoring and evaluation, the project produced specialized climate risk assessments of cities in South Africa, Bangladesh, and Madagascar.

### Greening cities

By 2050, more than 60 percent of the global population is likely to live in urban areas, with most growth taking place in cities across Africa and Asia. Investments in stormwater management, potable water, improved air quality, better housing, and green infrastructure are critical to improving a city's overall resilience. A centerpiece of ATLAS work in this sector was a report on green infrastructure that described approaches, associated costs and benefits, mechanisms to engage the private sector, and use cases from Mexico, Sweden, China, and the United States.

*In sub-Saharan Africa, population in urban areas is expected to more than triple between 2010 and 2050, inevitably increasing strain on already-scarce resources.*



City officials from Cagayan de Oro, in the Philippines, brainstorm on strategies for improving monitoring and evaluation of adaptation activities. Source: ATLAS

Recommendations for improving green infrastructure in urban and peri-urban settings included:

- » Mainstreaming green infrastructure into planning processes and regulatory documents
- » Updating codes to include green infrastructure and enforce new regulations
- » Developing incentive structures
- » Communicating and demonstrating green infrastructure benefits
- » Providing technical assistance and coordination for successful implementation.

### Evaluating adaptation impact

Cagayan de Oro, in the Philippines, expects to see its population continue to grow. Typical of many

cities, the administration is struggling to meet national adaptation planning requirements in the midst of continuous efforts to improve delivery of basic services. A key challenge is understanding which adaptation programs are or can have an impact. Working with city leaders, ATLAS adapted a reference guide the project previously produced on monitoring and evaluation of city-level climate adaptation to the specifics of the city's adaptation plan, including recommendations for an monitoring and evaluation system tailored to the plan. ATLAS used the new monitoring and evaluation plan as the foundation for a three-day training workshop for its staff and staff from other Philippine cities. The training helped to build their capacity to produce and update their own plans.

Source: ATLAS



# ATLAS COMMUNICATIONS AND CAPACITY BUILDING ACTIVITIES

One of the three ATLAS pillars was **Task 3: Building Knowledge and Capacity**. This strategic stream of work, led by a dedicated knowledge management team, ensured that best practices and lessons learned on the other two tasks, thought leadership and assessments, were leveraged into a learning platform for USAID staff, their partners, and a global audience of adaptation practitioners. Task 3 resulted in a large repository of some 231 documents and webinars that will continue to be available through USAID's Climatelinks website. This page illustrates the depth and range of product - technical reports, plain language communications products (e.g., infographics), guidance, and assessment templates.



Source for all images: ATLAS



## A CASE FOR INTEGRATION: CLIMATE AND INFRASTRUCTURE IN JAMAICA

In 2002, the Yallahs bridge in St. Thomas, Jamaica, washed away in the wake of Hurricane Lili. The bridge was rebuilt, only to be washed away again in 2003 after torrential rains. Given this experience, the Jamaican government recognized the imperative of safeguarding its investment by ensuring the new replacement bridge, which opened in 2008, was built to withstand a one-in-one hundred years' flood.

To ramp up climate-resilient investments in its Vision 2030 Transport Sector Plan, the ministry of transport asked the local USAID mission to help them assess related climate risks.

ATLAS was brought in to conduct the assessment, which considered climate risks to ports, airports, roads, bridges, and railways. Despite Jamaica's rank as the 162nd smallest country in land area, its transport system is complex, with a dense road network, three international and three domestic airports, a railway network, and 14 major seaports.

The assessment provided detail on the significant threat that higher temperatures, extreme weather including more frequent storms, heavy rainfall, and flooding, and rising sea levels pose to the island nation's infrastructure, and in turn, tourism and the larger economy.

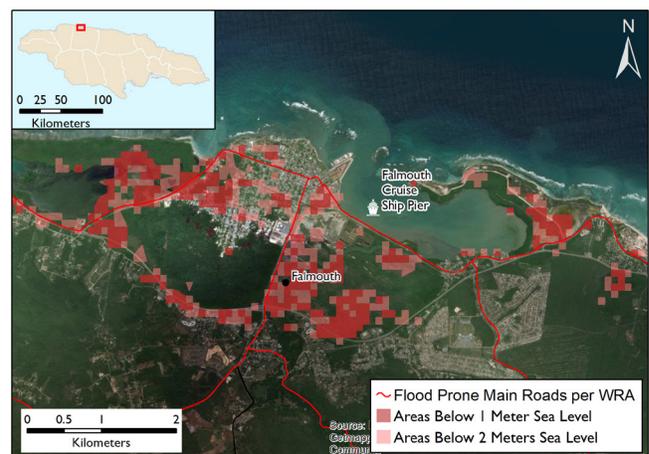
For example, the port of Falmouth, which receives 50 percent of Jamaica's cruise ship traffic annually, is just 1 to 2 meters above sea level. Rising waters and regular flooding could potentially cut the port off from roads and strand cruise passengers.



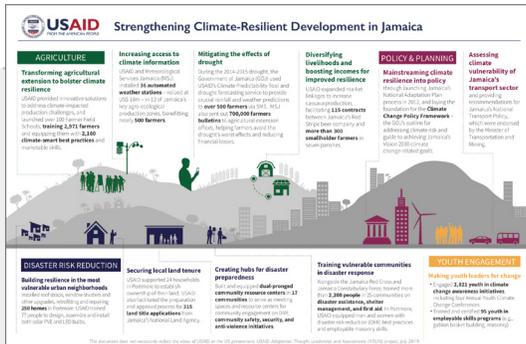
Yallah's bridge, washed away after Hurricane Lili in 2002, was rebuilt, and washed away again in 2003 following torrential flooding. Source: University of the West Indies



A new bridge reopened in August 2008. It is built to withstand a one in one hundred years' peak flow. Source: Mapio.net



This map shows the areas of the port of Falmouth susceptible to flooding. Source: ATLAS



## SUCCESSES FROM USAID'S CLIMATE CHANGE PORTFOLIO IN JAMAICA

To showcase Jamaica's and USAID's deep partnership on climate resilience from 2012-2018, ATLAS created four videos and [three infographics](#) looking at clean energy initiatives, disaster risk reduction, economic growth, and other activities.

Endorsed by the Ministry of Transport and Mining, the assessment recommended strategies for mobilizing financing for adaptation, revising national policy processes to integrate climate risk assessment, mainstreaming adaptation planning, and strengthening risk mitigation practices.

In line with ATLAS's fit-for-purpose approach, the assessment was used to inform a government-wide strategic planning process including a revision of the government's national transport strategy. It served to catalyze cooperation and coordination among ministries related to housing, environment, and disaster risk management. The assessment also provided the government with information to prioritize deeper vulnerability assessment of critical infrastructure facilities.



The port of Falmouth, which receives 50 percent of Jamaica's annual cruise ship traffic, is at risk of increased flooding due to sea level rise and more extreme rainfall. An ATLAS assessment explored the implications of climate changes for infrastructure assets in Jamaica. Source: Wikipedia

## ENOUGH DATA TO ACT

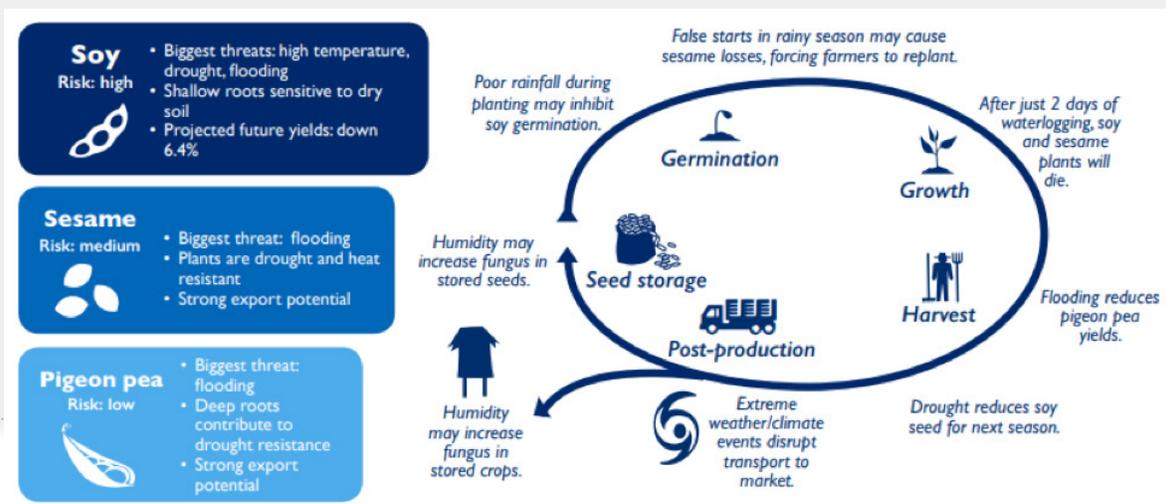
Development planning and practice is often challenged by the need to make decisions based on imperfect information. While data describing climate changes are rarely perfect and may not be detailed enough to demonstrate causal links, the available data are usually sufficient to take meaningful action. In many cases, adequate data exist to begin a basic analysis of climate risk. ATLAS's climate risk profiles, produced for 49 countries and regions, are a good example of that. These accessible, plain language profiles draw on existing secondary data and desk research to provide information on the projected climate in the given geography, impacts on locally relevant sectors, and analysis of the local policy context. Where these profiles do not provide the level of granular information required for specific sectoral programming decisions, they highlight data gaps,

helping decision-makers articulate the scope for deeper dives like the agricultural value chain analysis described below. The portfolio includes an additional eight profiles with specialized analysis relevant to food security. Of ATLAS's 231 products, climate risk profiles were consistently the top three downloads, with South Sudan, Ethiopia, and the Philippines heading the list. To date the Philippines profile has been downloaded more than 2,000 times.



## WHAT CLIMATE CHANGE MEANS FOR KEY CROPS IN MOZAMBIQUE

This graphic illustrates the impacts of anticipated climate changes on Mozambique's agricultural supply chain, looking at important local crops. The analysis combined information on projected climate changes with the substantial body of existing evidence on how weather changes affect these global commodities. It is a good example of how available data are often enough for basic analysis to begin determining actions. This [analysis](#) contributed to Feed the Future planning processes in Mozambique.





Checking for bean pests and diseases in Kawanda, Uganda. Source: Neil Palmer (CIAT).

## OVERCOMING BARRIERS TO ACTION

Every day, policymakers and managers need to make decisions in the face of uncertainty. In managing infrastructure, supply chains, social services, and disaster response, they may contend with risks, probabilities, and scenarios. Climate science, with its inherent uncertainties, adds a layer of complexity to their decisions. Dense technical language and data-heavy models might also impede the process. If a decision-maker faces such a challenge, what is the experience for a person with limited technical background who is asked to think about climate adaptation?

A component of ATLAS's work was devoted to understanding these types of barriers to action. A series of products focused on social and behavior change, an approach long championed in global health and biodiversity conservation programming.

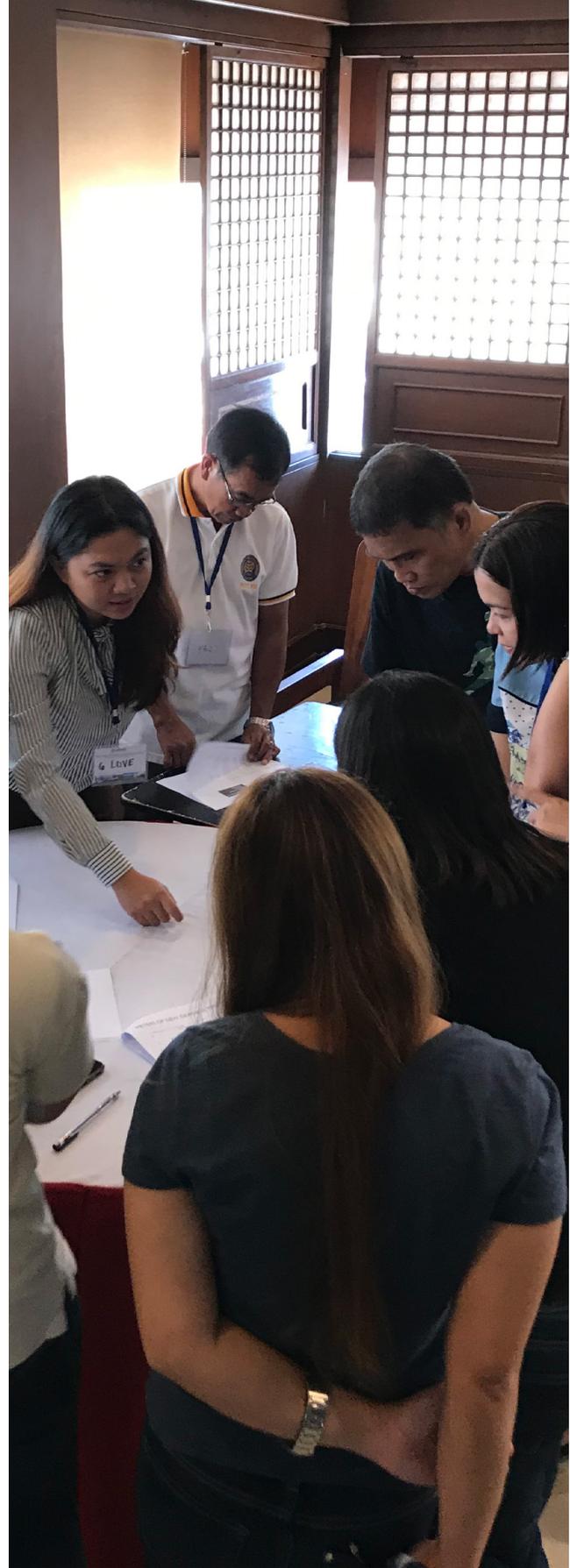
Social behavior change is not new to development, but the field has evolved significantly to reflect a more holistic understanding of human behavior:

It has great potential to strengthen and broaden action on climate. In recent years, social behavior change interventions have played an important role in USAID programs. ATLAS work in this area extends USAID's use of social behavior change to adaptation efforts, offering a new tool to fine-tune interventions and deliver more effective development outcomes.

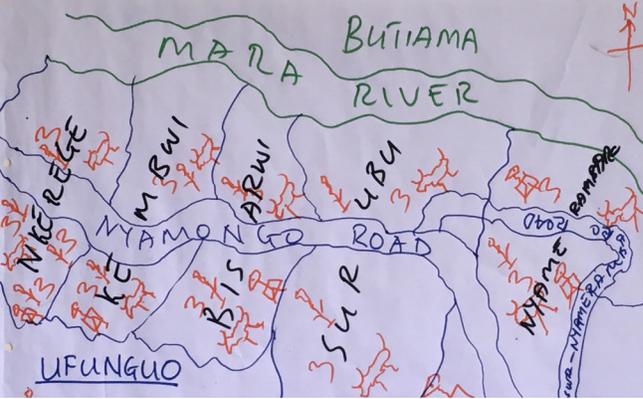
ATLAS produced a technical report, literature review, policy brief, and guide that explore socioeconomic, political, and cultural determinants of climate-specific behavior change among both decision-makers and community members. The research explores the influence of guiding principles and how people respond to negative information on climate versus aspirational messages. The resources also discuss the importance of linking climate communications to specific, achievable actions and grounding them in the present, rather than on potentially abstract forecasts of future conditions.

## BUILDING CAPACITY FOR ACTION: TOOLS AND GUIDANCE

Sometimes the biggest challenge in a new undertaking is knowing where to start. Recognizing this challenge, ATLAS created and published a range of practical tools, sample terms of reference, targeted literature reviews, and action-oriented guidance to help decision-makers bring integrity and consistency to their work. These documents, included in [Annex I](#) and available on the ATLAS page on [Climatelinks](#), cover topics such as: climate finance, behavior change, green infrastructure adaptation options, and many others. Among them are six specific terms of reference for vulnerability assessments tailored to health, transport, economic costs of climate change, biodiversity conservation, food security, and urban resilience. These cover methodology, required team qualifications, and stakeholder engagement and uptake. They were developed based on ATLAS experience and lessons learned conducting similar assessments.



Source: ATLAS



	DROUGHT (KIANG'AI)	FLOODS (MAGUIYO)	DISEASE (MAGUISWA)	LAND USE CHANGE (MAGUISWA)
UKULIMA	3	1	2	1
MIFUGO	3	2	3	2
BIASHARA	1	1	2	0
UVUUI	3	0	1	0
MAGUIYO VALENTA SHULE	2	2	2	0
MAGUIYO VALENTA SHULE	3	1	2	0
MAGUIYO VALENTA SHULE	2	3	2	0
MAGUIYO VALENTA SHULE	2	1	2	0
MAGUIYO VALENTA SHULE	1	2	1	0

Source: ATLAS

## ASSESSING CLIMATE AND WATER SECURITY AT A RIVER BASIN SCALE

Rivers are a major source of clean drinking water, and their economic and environmental value are fundamental to the health of people and ecosystems. However, river basins face interrelated challenges: population growth, industrialization, urbanization, deforestation, land degradation, and the resulting adverse impacts on changes in water quantity and quality. They are also critical for understanding water resources management from an ecological perspective, but complex from a governance perspective. Climate change acts as a threat multiplier, altering water availability and increasing water requirements as temperatures rise and rainfall patterns change. To safeguard water resources in a world with a growing population and a changing climate, governments, citizens, and the development community will need

to work together to improve water management and strengthen coping mechanisms. In 2018 and 2019, ATLAS provided support to Sustainable Water for the Mara (SWM), part of the global Sustainable Water Partnership, by assessing climate vulnerability in the Mara River Basin, which spans Kenya and Tanzania. The climate vulnerability information produced by ATLAS is being used to inform water allocation plans for the Mara's catchments. Along with an assessment of the basin, ATLAS produced case studies of two catchments within the basin and conducted training and consultation workshops that empowered community members to gather data on local water usage. ATLAS presented results to SWM and its stakeholders at consultative workshops to inform water allocation planning and related decision-making.



### EMPOWERING LOCAL ACTION

Community members, such as this tea farmer in Kenya, are key stakeholders in local water associations. These associations are usually led by people from the community who understand the needs of local users as well as the local climate and seasonal flows of area water resources. ATLAS research with SWM highlighted the opportunity for donors to build capacity and expand the resources of these associations by assisting with: planning, priority-setting, budgeting, membership building, support for association-controlled funding streams, and enforcement of water use regulations.

# CARRYING ON THE WORK

## *Thoughts on lessons and continuing priorities*

The most important lesson of the ATLAS project is that significant gaps remain, especially at local levels, in understanding the risks of climate change and adaptation options available to manage risks. The second is that there are no one-size-fits-all methods for climate risk and adaptation assessment; activities must be customized to the context across multiple sectors. Together, these efforts must continue to foster awareness and motivate action on adaptation.

In recent years, perceptions of climate change as a purely “environmental” issue have shifted: many now recognize it as a complex, cross-cutting risk that demands a broad-based, multifaceted response. Awareness is acute in the development sector, particularly, that climate change is a threat multiplier, with potential to erode gains or worsen conditions in sectors areas with underlying socio-economic or institutional fragility. As USAID continues to focus on building resilience through its Journey to Self-Reliance strategy, climate adaptation activities will be key to safeguarding these investments.

Development initiatives are designed based on a set of assumptions about current and future conditions. Climate variability and change alter some of the information underlying those assumptions, requiring consequent adjustments to the approaches used to address development challenges. If activity design decision-making

doesn't consider these shifting assumptions, development outcomes will suffer.

Based on ATLAS experience over the last five years, these priority areas should be carried forward:

» **Continue to invest actively in helping decision-makers understand climate risks and take informed action.**

- ***Decision-makers need information that is persuasive and directly relevant to the decisions they are making.*** This information must be tailored to the local situation and include incentives that motivate action. For example, economic analysis describing the cost savings of adaptation is useful. It is critical to educate both elected officials and civil servants that climate risk management saves money while also providing clear information about the short- and long-term benefits of action on adaptation.
- ***Information must be specific, practical, and actionable.*** Decision-makers need information and tools that enable them to build on the experience of others and tailor responses to their context. This is especially true in activity design and management so that planners and managers see the value added from integrating climate into the standard list of risks and assumptions.

- **Information must be accessible and understandable to nontechnical audiences.**

Plain language is a vital component of efforts to raise awareness and motivate action. Transparency about the certainty of model results and other data is also critical. Continued efforts must be made to address this persistent challenge: plain language is vital to raising awareness and motivating action. Transparency about the certainty of model results and other data is also critical.

- **Further insights about what motivates audiences to act are needed.** Building on climate-specific behavior change research, the climate change community needs to continue learning about the drivers and contextual factors that motivate leaders in other sectors. They are not the same in every sector. Climate variability and change present unique challenges to behavior change, given its complex science, perceived future impact and requirement for worldwide action. Listening to leaders in sectors with a track record of effective behavior change is a key task.

- » **Continue to support action at all levels of governance.** This includes substantial support to leaders in urban areas and communities, where there is significant momentum for action. The local level often provides the best models for action; these should be scaled up or used as a foundation for tailoring solutions at larger scales.
- » **Make knowledge-sharing a cornerstone of all programming.** Practically, this translates to investing in strategic approaches and dedicating both human and financial resources to related activities. A large part of ATLAS's impact was in the investment in learning and capacity building as one of its three pillars, with staff and a budget to manage the work.
- » **Continue to build the evidence base and fill information gaps linking climate to critical development sectors and issues.** For example:
  - **Expanding knowledge in typically under-analyzed areas, such as health, urban resilience, migration, and conflict.** This kind of research and analysis is vital to continued development

Source: G. Smith, IRI



progress in these areas. ATLAS learned that issues with complex human dynamics are the hardest to analyze. For example, conflict and human migration require longer-term, longitudinal studies to identify how people respond to climate signals in the short-, medium- and long-term.

- **Continued refinement of assessment methodologies.** As with all scientific study, there will always be opportunities to improve methodologies. Climate is no different. One example is the dearth of tested approaches to monitoring and evaluation, which are critical for understanding the effectiveness of adaptation actions.
- **More information on the most promising and effective adaptation options.** Given the scarcity of resources, decision-makers need to know which interventions deliver the best return on investment, solving both immediate challenges and improving long-term resilience. In its work, ATLAS learned that climate and health early warning systems, which can help reduce loss of life and disease, are a good option.

» **Continue to maximize impact by seeking efficiencies.**

- A lesson from ATLAS experience was the value and importance of **targeting assessments to actual decision-making demands.** Recognizing that resources for adaptation are limited, an applied science mentality must underpin all climate research – all activities must be applicable to actual decision-making

processes.

- **Keep the analysis simple and targeted.** Simple analyses with well-defined research questions, using existing data sets, often provide the most actionable insights on a cost-effective basis. Determining clear questions at the outset of an activity is critical to its outcome.
- As noted above, **stronger monitoring and evaluation strategies** will enable better tracking of impact and provide information for prioritizing limited resources.

Progress in development practice is incremental. The dynamics that govern interactions between individuals, communities and countries, and between humans and the natural environment, are complex. As research into these relationships expands and is applied to development action, practitioners learn what works and what does not – and adjustments are made to improve outcomes and make people's lives better. Climate change is upending many assumptions that form the bedrock of development approaches. As the development community moves into a new era in which climate change is understood as a threat multiplier, decision-makers and practitioners are recognizing that tackling this threat demands knowledge of climate change risks in specific sectors and geographic areas.

ATLAS has helped to shine a light on this pressing imperative, providing useful insights on long-held assumptions and recommending adjustments to development practices that safeguard economic gains, protect our quality of life, and conserve the Earth's natural resources.

# ANNEX I

## ATLAS publications

Assessments and thought leadership, with related products (by geography)	Bangladesh	<a href="#">Climate Vulnerability Assessment: Impacts on Health Outcomes in Secondary Cities of Bangladesh</a> <ul style="list-style-type: none"> <li>• <b>Infographic:</b> <a href="#">Towards a Climate-Resilient Health Sector in Bangladesh: Khulna and Chattogram</a></li> </ul>
	Botswana	Shifting Burdens: Malaria Risk under Rising Temperatures in Botswana
	Ethiopia	» <a href="#">Climate Variability and Change in Ethiopia</a> » <a href="#">Lessons Learned from the Peace Centers for Climate and Social Resilience</a>
	Indonesia	<a href="#">Indonesia Costs of Climate Change 2050 - Technical Report</a> <ul style="list-style-type: none"> <li>• <b>Spreadsheets:</b> <a href="#">Indonesia Costs of Climate Change 2050</a></li> <li>• <b>Policy brief:</b> <a href="#">Indonesia Costs of Climate Change 2050</a></li> <li>• <b>Infographic:</b> <a href="#">Indonesia snapshot: Costs of climate change in 2050</a></li> </ul>
	Jamaica	» <a href="#">Lessons Learned from USAID's Climate Change Portfolio in Jamaica: Successes, Challenges and Recommendations for Future Programming</a>  <b>Related infographics:</b> <ul style="list-style-type: none"> <li>• <a href="#">Successes from USAID's Climate Change Portfolio in Jamaica</a></li> <li>• <a href="#">Strengthening Climate-Resilient Development in Jamaica</a></li> <li>• <a href="#">Advancing Clean Energy in Jamaica</a></li> <li>• <a href="#">Toward a Resilient Jamaican Economy: Spurring Private Sector Engagement</a></li> </ul> <b>Animated infographics:</b> <ul style="list-style-type: none"> <li>• <a href="#">Results Spotlight: Successes from USAID's Climate Change Portfolio in Jamaica</a></li> <li>• <a href="#">Cultivating Partnerships: Building a Jamaica Resilient to Disasters</a></li> <li>• <a href="#">Strong Partnerships for a Climate-Smart Economy</a></li> <li>• <a href="#">Tools, New Technologies and Innovative Solutions</a></li> <li>• <a href="#">Youth Engagement to Combat Climate Change</a></li> </ul> » <a href="#">Vulnerability Assessment of Jamaica's Transport Sector</a> <ul style="list-style-type: none"> <li>• <b>Infographic:</b> <a href="#">Building a Climate Resilient Transport System in Jamaica: Risks and Opportunities</a></li> </ul>
	Madagascar	» <a href="#">Building Urban Resilience to Climate Change: A Review of Madagascar</a> (also in <a href="#">French</a> ) » <a href="#">Climate Risks in Urban and Urbanizing Geographies: Madagascar</a> (also in <a href="#">French</a> ) » <a href="#">Plague in a Changing Environment: A Literature Review for Madagascar</a> » The Influence of Climate on Malaria in Madagascar
	Malawi	Malaria and Climate in Malawi: A Retrospective Analysis
	Mali	<a href="#">Decentralized Governance and Climate Change Adaptation: A Case Study on Mali</a> (also in <a href="#">French</a> )

Mozambique	<ul style="list-style-type: none"> <li>» <a href="#">Impact of Climate Change on Select Value Chains in Mozambique</a> <ul style="list-style-type: none"> <li>• <b>Infographic:</b> <a href="#">Mozambique snapshot: Climate resilience in crop value chains</a></li> </ul> </li> <li>» <a href="#">Climate Change and Health in Mozambique: Impacts on Diarrheal Disease and Malaria</a> <ul style="list-style-type: none"> <li>• <b>Briefing note:</b> <a href="#">Climate Change and Health in Mozambique: Impacts on Diarrheal Disease and Malaria</a> (also in <a href="#">Portuguese</a>)</li> <li>• <b>Infographic:</b> <a href="#">Climate Effects on Malaria and Diarrheal Disease in Mozambique</a> (also in <a href="#">Portuguese</a>)</li> </ul> </li> </ul>
Philippines	<ul style="list-style-type: none"> <li>» <a href="#">Climate Adaptation Monitoring and Evaluation System: Cagayan de Oro City, Philippines</a></li> <li>» <a href="#">Monitoring and Evaluating Climate Adaptation Activities: A Reference Guide for City Managers</a></li> <li>» <a href="#">Climate Change Adaptation Monitoring and Evaluation Training Curriculum: Cagayan de Oro</a></li> </ul>
Senegal	<ul style="list-style-type: none"> <li>» <a href="#">Climate Change and Health Risks in Senegal</a> <ul style="list-style-type: none"> <li>• <b>Infographic:</b> <a href="#">Climate Change and Health Risks in Senegal</a> (French)</li> </ul> </li> </ul>
South Africa	<a href="#">Building Urban Resilience to Climate Change: A Review of South Africa</a>
Sudan	<a href="#">An assessment of Mellit and Umm Keddada localities in North Darfur State, Sudan</a>
Uganda	<a href="#">Climate Risks to Conservation in Uganda: An Assessment of Selected Regions</a>
East Africa	<ul style="list-style-type: none"> <li>» <a href="#">Lessons Learned from PEACE III: A Mid-Cycle Portfolio Review</a></li> <li>» <a href="#">Vulnerability and Adaptation in the Mara River Basin</a></li> <li>» <a href="#">Vulnerability Profile: Mara Wetlands of the Mara River Basin</a></li> <li>» <a href="#">Vulnerability Profile: Nyangores Subcatchment of the Mara River Basin</a></li> <li>» <a href="#">Lessons Learned from Resilience and Peacebuilding Programs in the Horn of Africa</a></li> </ul>
Southern Africa	<a href="#">Malaria Risks in a Hotter Climate: A Southern Africa Regional Analysis</a>
Africa-wide	<ul style="list-style-type: none"> <li>» <a href="#">Risk Expands, But Opportunity Awaits: Emerging Evidence on Climate Change and Health in Africa</a> (also in <a href="#">French</a> and <a href="#">Portuguese</a>) <ul style="list-style-type: none"> <li>• <b>Infographic:</b> <a href="#">Health gains threatened by climate variability and change in Sub-Saharan Africa</a> (French and Portuguese)</li> </ul> </li> <li>» <a href="#">Financing Climate Resilience in African Cities</a></li> <li>» <a href="#">Shifting Burdens: Malaria risks in a hotter Africa</a> <ul style="list-style-type: none"> <li>• <b>Infographic:</b> <a href="#">Shifting Burdens in sub-Saharan Africa: Malaria risks in a hotter Africa</a></li> <li>• <b>Policy brief:</b> <a href="#">Shifting Burdens: Malaria risks in a hotter Africa</a></li> <li>• <b>Tool:</b> <a href="#">Prioritization of Climate Variability and Change by African Governments</a></li> </ul> </li> </ul>

## Global

- » [Financing the Climate-Health Nexus: A Guide for Developing Countries to Access Funds](#)
  - **Tool:** [Financing the Climate-Health Nexus: A Tool for Accessing Funds](#)
- » [Synthesizing Good Practices in Climate Adaptation Assessments](#)
- » **Infographic:** [Climate Resilience in the Transport Sector: Challenges and Opportunities for Small Island Developing States \(SIDS\)](#)
- » [Guidance on Designing Climate Vulnerability Assessments](#)
- » [Engaging the Private Sector in Green Infrastructure Development and Financing: A Pathway Toward Building Urban Climate Resilience](#)
  - **Infographic:** [Engaging the Private Sector in Green Infrastructure Development and Financing](#)
- » [Heat Waves and Human Health: Emerging Evidence and Experience to Inform Risk Management in a Warming World](#)
- » [Improving the Use of Uncertain Climate Information in Decision-Making: A Behavioral Psychology Approach](#)
- » [Improving the Application and Use of Climate Information: Three Lessons from Behavioral Psychology](#)
- » [The Psychology of Decision-Making Under Uncertainty: A Literature Review](#)
- » [Integrating Social and Behavior Change in Climate Change Adaptation: An Introductory Guide](#)
- » [Applying Social and Behavior Change to Climate Change Adaptation: A Literature Review](#)
- » [Best Practices in Monitoring and Evaluation of Urban Climate Adaptation: A Literature Review](#)
  - **Toolkit:** [Tools for Evaluating Climate Change Adaptation Program Interventions](#)
- » Infographic series: [Heat in Cities: Impacts of Heatwaves and Measures to Mitigate Risk](#)
  - [Impacts of Extreme Heat: Deadly, On the Rise Globally and Preventable](#)
  - [Strategic Urban Planning to Decrease Heat Risks](#)
  - [Heat Risk in Cities: Understanding Urban Vulnerability to Heatwaves](#)
  - [Understudied, Overexposed: Heat Impact Research Gaps in the Most Vulnerable Regions](#)
  - [Inside the Heatwave: What Cities Should Do](#)
  - [Working Together: The City's Heat Team](#)
- » Heat in Cities: [Quick Reference Guides to Mitigate Heat and Urban Environmental Issues](#)
  - [Air Pollution](#)
  - [Water Quality](#)
  - [Solid Waste Management](#)
- » [Heat and the Private Sector: Heatwave Preparedness](#)
- » [People on the Move: Strengthening Adaptation Responses to Support Human Movement in a Changing Climate](#)
- » [Analysis of Integrated Activities Addressing Food Security, Adaptation, and Resilience](#)

<b>Topline Results of USAID Investments in Climate Change Adaptation</b>	<ul style="list-style-type: none"> <li>» <a href="#">Timeline: Progress Toward Climate Resilience in the Philippines</a></li> <li>» <a href="#">Timeline: Progress Toward Climate Resilience in Mozambique</a> (also in <a href="#">Portuguese</a>)</li> <li>» <a href="#">Timeline: Progress Toward Climate Resilience in Colombia</a> (also in <a href="#">Spanish</a>)</li> <li>» <a href="#">Timeline: Progress Toward Climate Resilience in Jamaica</a></li> <li>» <a href="#">Timeline: Progress Toward Climate Resilience in Peru</a> (also in <a href="#">Spanish</a>)</li> </ul>			
<b>Building Blocks for Climate-Resilient Development</b>	<ul style="list-style-type: none"> <li>» <a href="#">Building Blocks for Climate-Resilient Development: Overview</a></li> <li>» <a href="#">Building Climate Resilience for Water Security</a></li> <li>» <a href="#">Building Climate Resilience in Urban Systems</a></li> <li>» <a href="#">Building Climate Resilience in the Health Sector</a></li> </ul>			
<b>Climate Risk Profiles</b>	<a href="#">Afghanistan</a>	<a href="#">Honduras</a> (also in <a href="#">Spanish</a> )	<a href="#">Mongolia</a>	<a href="#">Sudan</a>
	<a href="#">Albania</a>	<a href="#">India</a>	<a href="#">Morocco</a> (also in <a href="#">French</a> )	<a href="#">Tanzania</a>
	<a href="#">Angola</a>	<a href="#">Indonesia</a>	<a href="#">Mozambique</a>	<a href="#">Timor-Leste</a>
	<a href="#">Azerbaijan</a>	<a href="#">Jordan</a>	<a href="#">Nicaragua</a> (also in <a href="#">Spanish</a> )	<a href="#">Ukraine</a>
	<a href="#">Bosnia</a>	<a href="#">Kazakhstan</a>	<a href="#">Nigeria</a>	<a href="#">Vietnam</a>
	<a href="#">Burma</a>	<a href="#">Kenya</a>	<a href="#">Pakistan</a>	<a href="#">West Africa</a>
	<a href="#">Democratic Republic of the Congo</a>	<a href="#">Kosovo</a>	<a href="#">Peru</a> (also in <a href="#">Spanish</a> )	<a href="#">West Africa Sahel</a>
	<a href="#">El Salvador</a> (also in <a href="#">Spanish</a> )	<a href="#">Lebanon</a>	<a href="#">Philippines</a>	<a href="#">Zambia</a>
	<a href="#">Ethiopia</a>	<a href="#">Liberia</a>	<a href="#">Rwanda</a>	<a href="#">Central Africa Regional Program for the Environment (CARPE) and Congo Basin</a>
	<a href="#">Georgia</a>	<a href="#">Madagascar</a> (also in <a href="#">French</a> )	<a href="#">Senegal</a>	<a href="#">East Africa</a>
	<a href="#">Ghana</a>	<a href="#">Malawi</a>	<a href="#">Sierra Leone</a>	<a href="#">Zimbabwe</a>
	<a href="#">Guatemala</a> (also in <a href="#">Spanish</a> )	<a href="#">Mali</a>	<a href="#">South Sudan</a>	
	<a href="#">Guinea</a>	<a href="#">Moldova</a>	<a href="#">Southern Africa</a>	
<b>Climate Risk in Food for Peace Geographies</b>	<a href="#">Burkina Faso</a>	<a href="#">Karamoja Region, Uganda</a>	<a href="#">Malawi</a>	<a href="#">Liberia</a>
	<a href="#">Democratic Republic of Congo</a>	<a href="#">Kenya</a>	<a href="#">Niger</a>	<a href="#">Madagascar</a>
	<a href="#">Zimbabwe</a>			

<b>Sample terms of reference</b>	<ul style="list-style-type: none"> <li>» <a href="#">Assessment of Climate Risks to Conservation Programming</a></li> <li>» <a href="#">Assessment of Climate Risks to Food for Peace (FFP) Programming</a></li> <li>» <a href="#">Assessing the impact of climate change on malaria and diarrheal disease</a></li> <li>» <a href="#">Climate Risk Assessment of the Transport Sector</a></li> <li>» <a href="#">Economic Assessment of Climate Change</a></li> <li>» <a href="#">Improving Resiliency to Climate Change in Urban Systems</a></li> </ul>
<b>General</b>	<a href="#">ATLAS Factsheet</a>
<b>Journal articles and other publications</b>	<ul style="list-style-type: none"> <li>» <a href="#">Decentralization Governance and Climate Change Adaptation: Working Locally to Address Community Resilience Priorities</a></li> <li>» <a href="#">Chapter 21: Climate Change Adaptation in Ethiopia: Developing a Method to Assess Program Options</a></li> <li>» <a href="#">Association between Precipitation and Diarrheal Disease in Mozambique</a></li> <li>» <a href="#">Shifting transmission risk for malaria in Africa with climate change: a framework for planning and intervention</a></li> <li>» <a href="#">Evaluating the relative importance and uncertainty of climate risks in Sub-Saharan Africa: A framework for Prioritization</a></li> <li>» <a href="#">Informing climate services in Africa through climate change risk perceptions</a></li> </ul>

# ANNEX 2

## ATLAS-supported Adaptation Community Meetings

<b>2019</b>	
October	USAID's Approach to Developing and Managing Shock Responsive Programming and Adaptive Mechanisms
September	Tackling the Threat Multiplier: Addressing the Role of Climate Change in Conflict Dynamics
July	Monitoring & Evaluating Climate Change Activities: Helping Cities Measure Up
June	Moving the Needle: A Discussion on Research and Strategic Programming at the Nexus of Climate and Health
May	Shifting Burdens of Malaria in a Hotter Africa: A Framework for Planning and Intervention
April	Water Security in an Uncertain Future: Enhancing Water Resources Management and Planning by Reducing Climate- and Weather- Related Risks
March	It's Getting Hot in Here: Understanding and Addressing the Risks of Heat on Human Health
February	Supporting Planning and Financing for Climate Adaptation
January	The Intersection of Global Fragility and Climate Risks
<b>2018</b>	
November	Can Climate Services Serve African Farmers' Needs, at Scale? Evidence, Good Practice, and Remaining Gaps
October	Broadening the Climate Change Adaptation Toolkit – Lessons from Social and Behavior Change
September	A Practical Pathway Forward: Removing Barriers to Designing, Financing and Building Climate Resilient Infrastructure
July	Science to Impact: SERVIR's Service Planning Toolkit
June	Managing for Climate Risk: Approaches and Perspectives from the World Bank, USAID, International Finance Corporation and Inter-American Development Bank
May	Promoting Gender-Responsive Adaptation to Climate Change
April	Ecosystem-based Adaptation for Development Results
March	Addressing Gaps in Climate Services for Agriculture: The AgMetGaps Project
February	Communities to Landscapes: Multi-scale Approach to Climate Adaptation in Nepal
January	Improving Adaptive Capacity to Climate Change Through Conflict Resolution: Lessons from Ethiopia
<b>2017</b>	
November	Preparing Water Services for Climate Risks: Experience from the Philippines
October	Addressing Climate Risks to Hydro Power: Planning for Resilient Power Systems

September	Climate Change and Health in Mozambique - Impacts and Responses
July	Scaling Up Climate Services: Lessons from East Africa
June	Valuing the Application of Earth Observations to Development: Lessons from the USAID and NASA SERVIR program
May	Strengthening Adaptation Planning in Mozambican Coastal Cities
April	Discussion on the International Chapter of the 4th National Climate Assessment
	Preparing Africa for Extreme Climate Events – the Role of the African Risk Capacity
March	ADVANCE - Adaptation for Development and Conservation: Lessons learned from the field
February	Preparing Assets for Severe Climate Weather Threats and Reducing Vulnerability – A Risk-based Process
January	The Role of Decentralized Governance in Climate Change Adaptation
<b>2016</b>	
December	Calculating the Costs of Not Adapting to Climate Change
October	Does Climate Change Need Behavior Change? A Behavioral Approach to Building Community Resilience
July	Analyzing and Evaluating Climate Change Adaptation Options: Findings and Methodology from a USAID Pilot Study in Ethiopia
June	A Typhoon Early Warning System for China
May	Enhancing Global Climate Change Adaptation Capacity in the Pacific Small Island Developing States - Efforts by NOAA, USAID and the State Department
April	Building Agency Capacity in Climate Change Adaptation at USAID
	What Next? Climate Adaptation After Paris
March	Enhancing Global Climate Change Adaptation Capacity in the Pacific Small Island Developing States - Efforts by NOAA, USAID and the State Department
February	Economic Impact of Seasonal Drought Forecast Information in Jamaica
January	Connecting Freshwater Knowledge to Climate Practice
<b>2015</b>	
November	Climate Change Adaptation in Least Developed Countries with Innovative Meteorological Early Warning Systems and Public Private Partnerships
October	Scaling Lessons from Adaptation Pilots in the Rainfed Regions of India
September	Cities are Doing it for Themselves! The Story of the Durban Adaptation Charter

# ANNEX 3

## Acknowledgments

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# ANNEX 4

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