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TECHNICAL REPORT

LESSONS LEARNED FROM THE LATIN AMERICAN AND CARIBBEAN CLIMATE LEADERSHIP ACADEMY

CLIMATE RESILIENT INFRASTRUCTURE SERVICES (CRIS) PROGRAM
SANTO DOMINGO | MARCH 26-28, 2014



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Climate Resilient Infrastructure Services (CRIS) Program
Climate Change Resilient Development (CCRD) Project
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EXECUTIVE SUMMARY

From March 26 to 28, 2014, teams from eight cities in four countries gathered in Santo Domingo, Dominican Republic for the *Regional Climate Leadership Academy: Increasing the Climate Resilience of Infrastructure Services in Cities across Latin America and the Caribbean*. The three-day workshop highlighted innovative and transferable infrastructure resilience practices from across the region through peer-to-peer learning and featured presentations.

CHALLENGES FACING LATIN AMERICAN AND CARIBBEAN CITIES

Throughout the workshop, participants articulated a number of common challenges—both non-climate- and climate-related—that must be addressed in order to increase the climate resilience of infrastructure services. These diverse challenges can be grouped into the following six categories and are described further in this report.

- Informal Settlements
- Collaboration and Coordination
- Data Issues
- Stakeholder Engagement
- Compliance and Enforcement
- Maintaining Continuity Across Turnover in Government

CURRENT EFFORTS AND PROPOSED SOLUTIONS

While participants described a wide range of challenges that impede progress on climate change adaptation, they also discussed a number of promising practices and successful approaches to overcome the existing challenges and described a number of efforts that are already underway in their cities. Participants recommended a number of specific adaptation actions. In addition, participants recommended steps, opportunities, and promising practices related to each of the following overarching strategies to develop a stronger overall approach to adaptation.

- **Integrate and mainstream efforts** into existing processes, plans, and activities.
- **Coordinate efforts**, particularly at the regional level, to avoid duplication across organizations and enhance their ability to make progress.

- **Consider the full range of adaptation actions** instead of simply selecting the immediately obvious or cheapest option.
- **Strategically pursue funding** from international donors, the private sector, and public budgets.
- **Educate and raise awareness** about climate change impacts and resilience among elected officials, staff, partners, and the public.

WORKSHOP OUTCOMES

On the last day of the workshop, each city team developed an ambitious three- to six-month action plan. The plans particularly focused on mainstreaming climate adaptation and resilience into existing plans and processes, collaboration and coordination to accelerate urban resilience, and capacity-building and education for stakeholders.

Participants also expressed a newfound sense of community; increased motivation and energy to take climate change action; and new and strengthened connections with colleagues, peers, and other important stakeholders to leverage in support of future efforts.

REMAINING NEEDS AND NEXT STEPS

The participating cities were already making significant progress on climate change resilience and the exchange of information at the workshop further advanced their capacity and motivation. Nonetheless, they still have significant needs. The workshop especially highlighted needs for:

- Technical support
- More reliable and accurate climate data
- Greater coordination among municipalities, between national governments and municipalities, and among national governments
- Information on financing mechanisms and opportunities

Through workshop discussions, participants concluded that the following next steps would be particularly beneficial:

- Broad dissemination of outcomes and outputs from the CRIS program and the Climate Leadership Academy
- Focused effort and resources from the development and adaptation communities to address the remaining needs articulated by cities (listed above)
- Continued collaboration among workshop participants and other cities
- Additional initiatives to pair peer exchange with direct technical support

INTRODUCTION

Infrastructure services—such as transportation, drinking water provision, sanitation and waste management, energy provision, communications, and shelter—are critical to the ability of countries to achieve development objectives, such as economic development, improved public health, and poverty reduction, as well as to support rapidly growing populations. Yet the pace of growth in developing countries and the added stress of climate change threaten infrastructure investments and the reliability of infrastructure services. Unless it is climate resilient, infrastructure may fail to provide intended services, jeopardizing development objectives.

From March 26 to 28, 2014, teams from eight cities in four countries gathered in Santo Domingo, Dominican Republic for the *Regional Climate Leadership Academy: Increasing the Climate Resilience of Infrastructure Services in Cities across Latin America and the Caribbean* to explore ways to address these challenges at the local level.

This event was carried out through the Climate Resilient Infrastructure Services (CRIS) program, an initiative under USAID's Climate Change Resilient Development (CCRD) Project. CRIS is working with cities in developing countries and USAID Missions to increase the climate resilience of physical infrastructure and the services it provides. CRIS is developing, testing, and disseminating innovative approaches that build resilience while supporting smart, lasting development. CCRD and CRIS are guided by USAID's Climate-Resilient Development (CRD) framework, which facilitates systematic inclusion of climate considerations into development decision making, by using a development-first approach. The Climate Leadership Academy (CLA) sought to showcase some of the most innovative and transferable infrastructure resilience practices from across the region. Specifically, the CLA aimed to:

1. Foster peer-to-peer learning and creative invention within and across city teams.
2. Create opportunities for city teams to build internal and regional relationships.
2. Increase capacity and commitment of city teams to improve the climate resilience of infrastructure services using USAID's Climate Resilient Development Framework, CCRD and CRIS approaches, and other strategies employed across the region.
3. Provide easy access to the best available climate change resilience ideas, approaches, strategies, tools, and resources.
5. Gather information and ideas to inform climate resilient development efforts in cities around the world through the CCRD project, CRIS program, USAID adaptation activities, and other development efforts.

CLA PARTICIPANTS

The eight participating city teams were selected from among approximately 40 submissions that were received in response to an open call for applications. The application process sought teams representing coastal or low-lying cities in Latin America and the Caribbean undergoing rapid population growth and development, as well as those anticipating significant repair or expansion of vulnerable infrastructure. Teams consisted of up to four individuals each, including representatives from multiple city agencies and service sectors, and included individuals with the decision-making authority to transform knowledge and information from the workshop into tangible actions back home.

The eight participating cities were:

- Buenaventura, Colombia
- Campeche, Mexico (sponsored by IDB)
- Piura, Peru (CRIS Pilot City)
- Riohacha, Colombia
- Santo Domingo's National District, Dominican Republic (CRIS Pilot City)
- Trujillo, Peru (CRIS Pilot City)
- Tuxtla Gutiérrez, Mexico
- Verón-Bávaro, Dominican Republic

In addition, a resource team of professionals provided perspectives on how donors, research organizations, and national and local governments are addressing climate change risk in Chile, Mexico, Colombia, and Ecuador. Workshop participants included representatives from the USAID missions in Peru and the Dominican Republic; a representative of USAID's Global Climate Change Office; the Mayor of the National District, Santo Domingo; a representative of the Inter-American Development Bank (IDB); and the Vice President of the National Council for Climate Change and Clean Development Mechanism, Dominican Republic. The event was organized and facilitated by the CCRD/CRIS team, led by ICF International, and the Institute for Sustainable Communities (ISC).

RESPONDING TO CITY NEEDS

The workshop was designed based on ISC's Climate Leadership Academy model, which emphasizes close collaboration with participating cities in shaping the focus and process of peer learning events. As part of the CLA model, selected city teams participated in Needs/Wants Inquiry (NWI) calls, to determine the challenges, risks, successes, best practices, needs, and wants related to climate resilient infrastructure services, as articulated by city teams themselves. The CLA team then used the information gathered during the NWI conversations, supplemented by the experience of CRIS and USAID resources from the CCRD project (including the Climate-Resilient Development Framework), to shape the CLA agenda (see Appendix) and assemble a tailored Resource Guide.

The resulting program featured presentations from participating cities on their efforts to address climate risks; an introduction to USAID's Climate Resilient Development framework; and technical sessions that addressed different approaches to vulnerability assessments, methods of mainstreaming climate resilience in municipal processes, strategies for engaging stakeholders, different types of adaptation measures, and strategies to finance infrastructure resilience. Throughout the workshop, participants described their efforts, shared ideas and resources, and strengthened relationships with their own colleagues and with their counterparts from other cities.

The Resource Guide distributed at the workshop showcases promising practices and provides efficient access to some of the very best information and resources available. It includes:

- **An introduction** that characterizes the background and context faced by LAC city leaders as they work to build climate resilience into municipal infrastructure services
- **Case studies** that discuss how various local government practitioners across the world have made progress on adapting city infrastructure and systems to climate change and are surmounting associated social, political, financial, and environmental challenges
- **Resource lists** that direct practitioners to topic-specific sources of information—studies, reports, articles, and websites—intended to help to improve, expand, and accelerate adaptation and resilience efforts

This report summarizes the key take-aways from the three-day peer learning event, including key challenges and solutions articulated by participants. It then summarizes key outcomes and next steps.

CHALLENGES FACING LAC CITIES

Over the course of the three-day event, participants and presenters articulated a number of common challenges—both non-climate- and climate-related—that must be addressed in order to increase the climate resilience of infrastructure services.

Climate stressors that impact infrastructure services in these cities include flooding, sea level rise, storm surge, coastal erosion, changing precipitation and storm patterns, droughts, heat waves, desertification, increased temperatures, large waves, and El Niño events.

Cities must respond to these climate stressors in the context of a range of other challenges that interact with and exacerbate climate-related stressors. The non-climate stressors highlighted by the cities include:

- **Rapid population growth**, resulting from accelerated and fragmented urbanization, significant internal migration, and migration between countries
- **Old, outdated, and inadequate infrastructure** that fails to provide intended services, with many populations lacking basic infrastructure services such as water and sewage provision
- **Extreme poverty** and a large gap between rich and poor
- **Competing development priorities** that vie for funding and can directly conflict with each other—for example, one city described the dilemma of weighing the pros and cons of locating a school within walking distance of a high-needs community when that entire community is at high risk for flooding
- **Limited funding**, especially for expensive infrastructure projects
- **Lack of land use planning** and disordered growth, particularly in booming tourist areas
- **Extensive informal settlements** in vulnerable areas, with particularly weak infrastructure
- **Lack of conservation measures** for natural areas
- **Solid waste and debris obstruction of drains** that exacerbates flooding and public health concerns
- **Low-lying neighborhoods** prone to flooding, including parts of the city below sea level
- **Dispersed populations** that make service provision expensive and difficult

Throughout the workshop, participating city teams highlighted a number of challenges they face in increasing the resilience of infrastructure services. These diverse challenges can be grouped into six categories, as described below.

INFORMAL SETTLEMENTS

As noted above, informal settlements pose a challenge to resilience as they are often located in vulnerable areas and composed of sensitive, weak infrastructure. However, participants cited a number of more nuanced challenges related to informal settlements. First, many cities face pressure, and sometimes an obligation, to provide services such as water and electricity to informal settlements, but providing these services can incentivize development in at-risk areas. Second, participants noted that some people intentionally move to vulnerable areas to get compensated when disasters happen. In fact, efforts to provide more resilient housing to people living in informal settlements have sometimes backfired; in some places, people have opted to rent out the government-provided housing to which

they have been relocated, and return to the informal settlement where they have access to their existing social and economic networks. Finally, people have come to accept and “live with” certain vulnerabilities and have incorporated them into their traditions and beliefs, resulting in a lack of motivation to address vulnerabilities.

COLLABORATION AND COORDINATION

A need for better coordination and collaboration was a theme throughout all three days of the event. Participants cited a lack of coordinated efforts among different levels of government (e.g., municipal, state, national, regional, international), among different municipalities, among countries (e.g., due to political conflict or tension), and among isolated institutions. For example, one participant noted that he had worked for the national government for 12 years without ever meeting with a mayor. Participants recognized a need to pool knowledge, information, and resources to more effectively increase climate change resilience.

Another key challenge is the lack of interaction between government entities and infrastructure developers. Policies can be developed at the national, regional or local level, but if there is no communication with the developers, the policies may fail. Participants cited the importance of engaging private sector builders and businesses as part of resilience efforts.

DATA ISSUES

Participants cited a number of different challenges in acquiring and using climate data, including several challenges related to working with organizations that provide meteorological services. First, municipalities face issues acquiring data, either due to political reasons or because payment is required. Second, data is often unreliable or has come to be untrusted. In some cases, unreliable data stems from gaps in data collection due to an inadequate number of weather stations or stations that are no longer in service. Third, data are often outdated or redundant across agencies. Finally, municipalities often lack the training and software (e.g., GIS) needed to access, interpret, and use the data.

In addition to issues related to climate data, some participants indicated that there is a lack of data related to municipal infrastructure services (e.g., trash generation and collection, transportation, real estate) to inform planning.

STAKEHOLDER ENGAGEMENT

Participants explained that numerous key stakeholders—including elected officials, politicians, municipal staff, vulnerable populations, and the general public—lack knowledge and awareness about climate change impacts, leading to a lack of motivation to act. Since the general public has a central role to play in advancing progress related to climate change adaptation—and conversely can exacerbate issues and stand in the way of progress—lack of education and engagement is a key challenge. One participant noted that the fact that climate and weather are typically described using the same word in Spanish can lead to confusion and miscommunication related to climate change. Another participant explained a need for greater public participation in decision making.

COMPLIANCE AND ENFORCEMENT

While many municipalities lack the laws and policies needed to boost resilience, in other places, the problem is not a lack of regulations, but poor enforcement of these laws. For example, participants from the Verón-Bávaro team reported that while there is now officially a 60 meter no-build zone along the coast in Punta Cana-Bávaro-Verón-Macao, the vast majority of hotels are still built within that zone.

Developers have strong incentives to meet tourist demands for direct beach access. This creates tension between the short-term interests of resorts and the need to reduce vulnerability.

MAINTAINING CONTINUITY ACROSS TURNOVER IN GOVERNMENT

Changes in elected leadership and technical personnel pose a significant challenge in planning and implementing medium- to long-term plans. Sustaining and continuing efforts across changes in administrations is difficult. In many cases, the prospect of future turnover in leadership makes it difficult for municipality staff to even consider strategies and plans that may take longer than two to four years to implement, and even more difficult to address what are considered long-term issues such as future climate change.

CURRENT EFFORTS AND PROPOSED SOLUTIONS

While participants presented a wide range of challenges that impede progress on climate change adaptation, they also discussed a number of promising practices and successful approaches to overcome the existing challenges and described a number of adaptation efforts that are already underway in their cities.

INTEGRATE AND MAINSTREAM EFFORTS

The workshop training and discussions emphasized the value of mainstreaming climate change considerations into existing processes, plans, and activities. Participants highlighted a number of specific opportunities where integration can occur, including:

- **Mitigation and adaptation efforts**—Over the course of the workshop, participants came to better understand the differences between mitigation and adaptation. While recognizing the difference between these two critical aspects of climate change action, participants highlighted the value in integrating them. One presenter emphasized that mitigation and adaptation are two sides of the same coin and should be pursued together, while another encouraged actions that advance both adaptation and mitigation goals (e.g., mangrove restoration).
- **Climate change resilience and other resilience efforts**—For example, climate change resilience can be integrated into disaster risk management systems that also cover non-climate risks.
- **Economic development and urban master plans**—Climate considerations can be integrated into key planning documents. This has recently been done by Piura in incorporating climate risk criteria in the municipality’s Urban Development Plan. In addition, Quito has developed a Climate Change Strategy and a Climate Action Plan that integrate inter-institutional collaboration, knowledge management, identification of strategic sectors to focus on, and citizenship involvement.
- **National development strategies**—Climate considerations can also be integrated into national plans, as illustrated by the 2012 National Development Strategy in the Dominican Republic.
- **Vulnerability assessment and environmental permitting systems**—Climate can be incorporated as a specific factor in environmental reviews. For example, one participant mentioned a USAID project in the Dominican Republic that improved the national environmental permitting system to require a climate change vulnerability assessment as a key part of obtaining an environmental permit.

COORDINATE EFFORTS

While coordination and collaboration was a significant challenge cited by a number of participants, participants also highlighted various promising practices to avoid duplication across organizations and enhance their ability to make progress. In particular, participants described three successful regional coordination efforts that provide useful examples of effective collaboration.

COLOMBIA—NATIONAL COORDINATION

After devastating 2010-2011 floods, Colombia formed a national socioeconomic subcommittee to help entities within the country cooperate to address climate change issues. The new group aimed to strengthen relevant organizations, including NGOs, research institutes, and environmental departments. The effort created eight regional “nodes” within Colombia, with leaders from each node meeting together to discuss regional coordination. This work has generated a number of positive results:

- Improved climate data generation and management
- Information flow from the bottom-up
- Stronger regional coordination
- Organization among communities to make risk reduction plans
- Greater interest in climate change among mayors

CRHPSE—INTERNATIONAL COORDINATION

The Comisión Regional Hidrográfica del Pacífico Sudeste (CRHPSE) has coordinated efforts among Chile, Colombia, Ecuador, and Peru related to integrated coastal zone management. The collaboration includes a multi-nation steering committee, as well as coordination at local, regional, and national levels. CRHPSE has made an action plan for the Southeast Pacific and has attracted significant funding from international donors.

CAMPECHE—MULTI-STATE COORDINATION

The state of Campeche in Mexico cooperates with two other states in Mexico on issues related to reforestation, disaster risk reduction, and tourism, among other things. The regional coordination activities include capacity building and inter-city alliances.

In addition to these examples of regional coordination, participants identified other best practices to promote collaboration and coordination:

- Help key sectors and stakeholders to **understand their role** in advancing resilience.
- **Share and exchange pertinent information** among key stakeholders.
- Generate **joint climate change adaptation goals**.
- Use **indicators** that are of interest to key stakeholders.
- Pursue **inter-institutional efforts**.
- Involve **NGOs**.
- Include **a broad variety of stakeholders** to foster innovation.
- **Coordinate among municipalities**. As one example, a participant noted that there was an opportunity to codify how municipalities in the Dominican Republic would coordinate on climate change as part of a pact associated with the National Development Strategy.

CONSIDER THE FULL RANGE OF ADAPTATION OPTIONS

Participants and presenters also emphasized that all adaptation options should be considered through careful analysis, specifically cautioning against selecting the immediately obvious options. For example, people often think first of hard infrastructure options when other, soft options are preferable.

Participants recommended the following steps to facilitate consideration of the full range of adaptation options.

- **Screen options** to identify a manageable “short list” of options by eliminating those with critical flaws.
- **Assign weights or points** to different criteria to evaluate the short list.
- **Use group discussions** to get consensus on priorities.
- **Consider complementary adaptation options**, remembering that measures aren’t taken in isolation.
- **Consider all risks**, but **prioritize urgent risks**.
- **Look at return periods** on investments and initiatives in the short-, mid-, and long-term.

In technical break-out sessions, participants discussed a number of specific adaptation actions or steps that they recommended to others, having successfully implemented them or recognizing their potential. These recommendations included:

- **Strategically use natural infrastructure.** For example, conserve and regenerate mangroves to address sea level rise, erosion, and storm surge; preserve wetlands within city limits to address flooding; and plant resilient, local tree species to increase vegetative cover and reduce the likelihood of trees falling over during storms.
- **Learn from adaptation measures already used in local communities** such as practices to build homes with removable roofs and additional side panels to raise homes over time.
- **Work with the civil protection department** as they influence construction permit approvals.
- **Update design standards** such as standards for road retention structures.
- **Relocate** infrastructure to lower-risk locations.
- **Harden or protect** infrastructure through changes in design and engineering. One participant described a practice to build buildings (e.g., schools) over a hydraulic platform that rises and lowers whenever water levels rise or fall.
- **Declare at-risk areas ecological zones** to avoid development in high-risk areas.
- **Decentralize water treatment.** For example, Santo Domingo has chosen to decentralize water treatment around the city to improve the sewage system and water treatment efficiency.
- **Develop laws to restrict the location of commercial signs** to prevent damage from blown-over signs during storms.
- **Outsource technical studies** (or partner with technical experts) to obtain critical information and expand the capacity that the municipalities need to address future climate change impacts.
- **Develop national climate change adaptation plans** to set national-level approaches to incorporating climate considerations.
- **Use scenario planning** to overcome data uncertainty by considering a range of potential future conditions.

STRATEGICALLY PURSUE FUNDING

Participants made several suggestions related to pursuing and acquiring funding and financing for climate change adaptation, including from international funders, the private sector, and public budgets.

Recommendations included:

- Find a way to **make the case to decision-makers**. Participants discussed the challenge involved in getting buy-in from key stakeholders for adaptation plans, and the importance of crafting strategies to articulate the benefits and utility of adaptation measures.

- **Identify co-benefits**, including benefits across sectors, to help make the case for funding.
- **Design projects flexibly** so that adaptations can be incorporated later as more information is gathered or as funding becomes available.
- **Be prepared to effectively use funding that may come after an emergency.** Because emergencies can be catalysts for funding, developing plans for how such funding could be used can help cities be positioned to use this influx of money in the most effective, resilient way possible.
- **Break up and integrate resilience efforts and costs.** While emergencies may be catalysts for funding, it is usually cheaper to build resilience over time than to deal with damages from a disaster. Mainstreaming climate change considerations into every infrastructure decision as part of routine processes helps to distribute adaptation costs across ongoing infrastructure investments and asset management. Leveraging existing maintenance and repair budgets to increase resilience may not preclude the need for additional capital investments, but it can help reduce the extent of damage that is incurred from catastrophic events or incremental climate impacts.
- **Tax water consumption** to both encourage efficient water use and raise money for adaptation efforts.

EDUCATE AND RAISE AWARENESS

Finally, participants suggested several promising approaches to educate and raise awareness about climate change impacts and resilience.

- **Use volunteers and existing civic groups** to engage the public on climate change adaptation and train others in the community. In Santo Domingo, volunteer groups (“*junta de vecinos*”) are already well organized around the solid waste and civil defense needs of neighborhoods.
- **Close coastal streets, “malecons,” to create temporary pedestrian areas** in certain towns on holidays or Sundays so that people can enjoy the space and develop an appreciation for it, increasing support for actions to preserve natural coastal areas.
- **Build on the visibility of major infrastructure projects** to raise awareness about climate change impacts, build capacity to adapt, and motivate policy change to increase resilience.
- **Partner with key cultural and social actors** such as those engaged in art and music to keep issues front-of-mind for community members.
- **Engage youth and children** to empower them to take action on climate change and to spur grassroots action.

OUTCOMES AND NEXT STEPS

ACTION PLANS

On the last day of the workshop, each participant team put together an ambitious three- to six-month plan that outlined two or three specific actions that they would take upon returning home, building on their prior work and the workshop discussions. Three key themes characterized the eight action plans, discussed below:

I. MAINSTREAMING CLIMATE ADAPTATION & RESILIENCE INTO EXISTING PLANS AND PROCESSES

Several teams chose to focus on incorporating climate resilience into existing municipal plans, processes, and systems, recognizing a wide range of opportunities to mainstream resilience principles into the day-

to-day business of the city. Mainstreaming resilience was the prevalent theme across all of the city action plans. Examples of mainstreaming in the action plans include:

- **Buenaventura** and **Santo Domingo** committed to modifying their master planning tools to include climate change considerations in urban development plans.
- **Piura** will include climate change projections in the risk analysis phase for infrastructure projects.
- **Tuxtla-Gutiérrez** will review the rules and regulations governing construction to identify the most effective points at which to embed resilience principles into operations and maintenance of infrastructure services.
- **Campeche** plans to encourage the incorporation of climate risk, vulnerability, and resilience principles into Mexico's Green Fund, a financial mechanism currently used for financing climate change emissions reduction activities.

2. COLLABORATION AND COORDINATION TO ACCELERATE URBAN RESILIENCE

Teams shared a strong willingness to work with a wider variety of partners, both to implement their own climate resilience actions and to promote similar activities by key stakeholders locally, regionally, and at the national scale. Planned collaboration ranged from sharing information about climate impacts, innovative approaches, and promising practices discussed at the workshop to engaging in coordinated and collaborative activities. Examples include:

- **Piura** and **Buenaventura** both cited the importance of establishing a local working group of technical leaders capable of advising the municipality on climate change.
- Team leaders from **Riohacha** and **Santo Domingo** committed to disseminating the information learned at the workshop through existing networks (e.g., the regional climate change nodes in Colombia, the regional *mancomunidades* in the Dominican Republic).

3. CAPACITY-BUILDING AND EDUCATION FOR STAKEHOLDERS

Each city team engaged in the workshop recognized the importance of increasing the technical capacity of key actors tasked with building the resilience of their city's infrastructure services while also educating and engaging citizens so they better understand the meaning of climate resilience in their day-to-day lives. These needs were reflected in their action planning in a variety of ways. Examples include:

- **Campeche** plans to engage in climate change action planning with individual sectors, increasing the capacity and knowledge of climate impacts using terms that different actors understand.
- The **Verón-Bávaro** team will engage local youth to empower them to take action on climate change and to spur grassroots action that supports the municipality's leadership.
- The **Santo Domingo** team plans to conduct workshops to share relevant information about climate change adaptation with decision makers

OTHER OUTCOMES

Based on staff observations and anecdotal participant feedback, the CLA resulted in a number of other positive outcomes:

- There were several signs that the workshop gave rise to a **fledgling community of practice**. For example, participants expressed a **newfound sense of community** after hearing other cities

in the region describe the same challenges and experiences as the ones they face. There was **enthusiasm to continue the collaboration** and build upon the network after the workshop. In addition, participants **actively engaged** with representatives from other cities both formally and informally, readily making connections and forming new relationships. In some cases, cities were able to strengthen and build on relationships formed previously.

- Hearing others cite the same challenges and solutions, participants became **increasingly convinced and motivated to take climate change action**. For example, the representative of the water utility in Santo Domingo indicated that he would propose the creation of an internal team dedicated to addressing climate change issues, feeling that he now had a more compelling argument to make to his management.
- By interacting with a roomful of local government representatives, state-level representatives **identified prior misunderstandings and more effective ways of collaborating** with other levels of government. Prior to the workshop, including on the NWI calls, participants often confused the concepts of mitigation and adaptation—in most cities, the majority of activities related to climate change are focused on mitigation, while adaptation is a more nascent concept. Over the course of the workshop, participants came to **better understand the difference between these two critical aspects of climate change action**—and their importance.

In addition, pre- and post-workshop surveys were designed to gauge the usefulness and value of the CLA workshop and to compare participants' level of knowledge before and after the workshop related to climate adaptation and resilient infrastructure, team cohesion, and collaboration. Questions also explored participants' likeliness to engage in activities to promote resilient infrastructure in their cities.

Survey results support the main themes that stemmed from participant action plans. The following results are notable:

MAINSTREAMING CLIMATE ADAPTATION AND RESILIENCE INTO EXISTING PLANS AND PROCESSES

Of the 19 individuals who responded to both the pre- and post-tests:

- **56%** of respondents said on the pre-test that they “currently use weather forecasts or climate projections to inform decision making and planning in [their] work;” while **89%** said on the post-test that they planned to do so in the future.
- **79%** of respondents on the pre-test said they used their “knowledge of potential climate change impacts on [their] city’s infrastructure services” to “inform decision making and planning;” while **100%** of post-test respondents said they would use this information to “inform [their] decision making and planning” in the future.

COLLABORATION & COORDINATION TO ACCELERATE URBAN RESILIENCE

Of the 26 individuals who responded to the post-test:

- **100%** of respondents said they believe “collaboration within [their] team on climate change adaptation initiatives has increased after this workshop.”
- **100%** of respondents said they believe that “collaboration with other city teams and experts in the field (e.g., resource team members) has increased after this workshop.”

OTHER NOTABLE SURVEY RESULTS

Of the 26 individuals who responded to the post-test:

- **96%** of respondents said they feel either “very able” (35%) or “able” (62%) after the workshop to “identify additional actions or practices that [their] organization or [their] city could take to reduce potentially negative impacts and/or to take advantage of opportunities that these climate change effects may have on [their] infrastructure.”
- **100%** of respondents reported that they feel more knowledgeable after this workshop about “available ideas, approaches, strategies, tools, and resources for increasing the resilience of [their] city’s infrastructure services to climate change.”

REMAINING NEEDS

The participating cities are making significant progress on climate change resilience and the exchange of information at the workshop further advanced their capacity and motivation. Nonetheless, they still have significant needs. The challenges shared by participants (as listed above) are ongoing and necessitate new strategies. The workshop especially highlighted needs for:

- **Technical support** for climate change adaptation efforts
- **More reliable and accurate climate data**, and the skills and knowledge to apply such data to inform adaptation efforts
- **Greater coordination** among municipalities, between national governments and municipalities, and among national governments—for example, one participant suggested that national governments in the LAC region could come to the 2014 Conference of Parties with a unified platform and position for the entire region
- **Information on financing** mechanisms and opportunities, and capacity building to secure funding through such mechanisms for infrastructure projects

NEXT STEPS

A number of key takeaways and next steps were highlighted by the workshop.

Outcomes and outputs from the direct technical assistance granted to CRIS pilot cities should be widely disseminated. City teams not currently engaged in either the CRIS pilot program or the IDB Emerging and Sustainable Cities Initiative are eager to adopt the methodologies and approaches developed by these efforts. Many have expressed an interest in receiving support from the technical staff assigned to these initiatives and, in the absence of opportunities for direct engagement, are eager to receive materials and tools they can adopt and apply to their own climate resilience efforts.

Workshop participants identified a number of remaining needs for technical and institutional support. These needs are articulated above and include more reliable and accurate climate data, greater coordination, and information on financing. Additional effort and resources from the development and adaptation communities are needed to fill these needs.

Workshop attendees expressed a strong desire to remain in close contact with one another, with CRIS and ISC staff, and with resource team experts. During the workshop, participants—both city team and resource team members—reported a strong sense of rapport and trust with other attendees, and an eagerness to keep alive the spirit of peer-exchange central to the workshop design. Many expressed interest in engaging in continued, virtual collaboration to share their own experiences with an audience of peers and to continue learning from one another.

The model for this event—marrying peer-exchange workshops with direct technical support—could be used to further promote global climate change adaptation. As described above, city teams made notable progress in advancing their community resilience efforts as a result of their

involvement in the CLA and exposure to CCRD/CRIS and other resources. The results demonstrate the unique strengths of the CLA model—accelerating local solutions to climate change through peer-learning, efficient access to the best resources and information, and networking—in combination with the direct technical assistance offered through the CRIS program.

To follow-up on these takeaways, workshop participants suggested that the CRIS program: (i) disseminate the tools and resources developed by the CRIS program to the participant cities as well as other cities in LAC and worldwide, and (ii) support ongoing communication and resource sharing among cities.

APPENDICES

- Agenda
- Learning Objectives
- Participant List

Additional materials related to the workshop, including workshop presentations, are available at:
<https://drive.google.com/a/ccrdproject.com/#folders/0B0IfQN2NXCQcNXhjaXp5UmZoLXc>.



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AGENDA

Regional Climate Leadership Academy: Increasing the Climate Resilience of Infrastructure Services in Cities in Latin America and the Caribbean

Santo Domingo, Dominican Republic | March 26-28, 2014

DAY I: FRAME THE CHALLENGES & OPPORTUNITIES

WEDNESDAY, MARCH 26TH, 2014

8:00 – 8:30 AM **Registration & Networking**

8:30 – 9:15 **Workshop Orientation**

CRIS Workshop Staff:

- Scott Muller, Master of Ceremonies, *Senior Manager, International Climate Programs*, Institute for Sustainable Communities (ISC)
- Nathaly Agosto Filión, Mistress of Ceremonies, *Program Officer, U.S. Climate Adaptation Program*, ISC
- Joanne Potter, *CRIS Program Manager*, ICF International (ICF)

USAID Host Representative:

- Nora Ferm, *Climate Change Adaptation Specialist*, U.S. Agency for International Development (USAID)

9:15 – 9:30 **Networking Break**

9:30 – 10:30 **Welcoming Remarks**

Speakers:

- Alexandria Panehal, *Mission Director*, USAID/Dominican Republic
- Honorable Roberto Salcedo, *Mayor*, National District, Santo Domingo, Dominican Republic

Keynote Address:

- Omar Ramírez Tejada, *Vice President*, National Council for Climate Change and Clean Development Mechanism

10:30 – 11:45

Approaches to Climate Resilient Development: The Challenges & Opportunities

How can local leaders incorporate climate resilience into city infrastructure services in the face of so many competing development challenges? During this opening plenary session, Nora Ferm will introduce USAID's Climate Resilient Development (CRD) Framework and invite members of the Resource Team to explain how their own experiences with climate change adaptation align with the organizing principals of this five-step framework.

Moderator/Presenter: Nora Ferm, *Climate Change Adaptation Specialist*, USAID

Panelists:

- Sandra Garavito, *Advisor*, Program on Enhancing Capacity for Low Emissions Development Strategies (ECLiEDS), USAID/Colombia
- Alvaro Palacios Klagges, *Secretary of Planning*, City of Valdivia, Chile
- Paula Sierra-Correa, *Research Program Coordinator for Marine and Coastal Management*, Institute for Marine and Coastal Research (INVEMAR)
- Carolina Zambrano, *National Representative*, Ecuador, Fundación Avina

11:45 – 12:30 PM 3x3 Introductions to Participating City Teams



Following brief opening remarks by Paula Sierra-Correa on the “Scope” stage of the CRD Framework, a representative from each participating city will have 3 minutes to introduce themselves using 3 slides on their city's development priorities and the climate and non-climate stressors they face.

Moderator/Presenter: Paula Sierra-Correa, *Research Program Coordinator for Marine and Coastal Management*, INVEMAR

City Teams:

- Tuxtla Gutiérrez, México
- Campeche, México
- Santo Domingo, República Dominicana
- Verón-Bávaro, República Dominicana
- Riohacha, Colombia
- Buenaventura, Colombia
- Piura, Perú
- Trujillo, Perú

12:30 – 1:45

Lunch By Country

- Colombia
- México
- Perú
- República Dominicana

1:45 – 3:00

Concurrent Sessions, Round 1: *Approaches to Vulnerability Assessment*



During the first round of Concurrent Sessions, participants will explore the “Assess” stage of the CRD Framework, learning about two vulnerability assessment methodologies and innovative ways to overcome challenges associated with collecting and analyzing climate data.

Session Topics:

1. **CARIBE ROOM A: Working with the Climate Resilient Infrastructure Services (CRIS) Program Screening Approach** with Cynthia Castro, *Technical Administrative Assistant, Environment, Population, and Health Department, Provincial Municipality of Piura, Peru* and Joanne Potter, *CRIS Program Manager, ICF*.
2. **CARIBE ROOM B: Experiences with the Inter-American Development Bank (IDB) Emerging & Sustainable Cities Initiative (ESCI) Screening Approach** with Alvaro Palacios Klagges, *Secretary of Planning, City of Valdivia, Chile* and Angélica Lara Pérez Ríos, *Director of Environmental Policy, Secretariat for Environment and Sustainable Use, State of Campeche, Mexico*.
3. **ESMERALDA ROOM: Managing Uncertainty & Incomplete Climate Data** with Paula Sierra-Correa, *Research Program Coordinator for Marine and Coastal Management, INVEMAR*.

3:00 – 3:15

Networking Break

3:15 – 3:30

Introduction to Team Huddles

3:30 – 4:45

Team Huddle I: Getting to Work

Meet privately with your team to discuss the status of your urban climate change adaptation efforts, identify accomplishments to date and existing challenges, and set goals for this Climate Leadership Academy (CLA) workshop and beyond.

4:45 – 5:00

Closing Session

7:00 – 8:00

Group Dinner

DAY 2: EXPLORE & INSPIRE

THURSDAY, MARCH 27TH, 2014

8:30 – 9:00 AM **Sticky Note Brainstorm**

9:00 – 10:15 **Panel Discussion: Mainstreaming Climate Resilience**

During this plenary panel, participants will explore the cross-cutting and interconnected nature of climate vulnerabilities and development goals across sectors, and discuss the importance of mainstreaming climate change adaptation activities into infrastructure development decisions, processes, and systems, from planning and policy development to project design and implementation.

Moderator/Presenter: Carolina Zambrano, *National Representative, Ecuador*, Fundación Avina

Panelists:

- Luis Báez, *Head of Engineering Department, Project Implementation Unit*, Corporation for Water and Sewage of Santo Domingo, Dominican Republic
- Eduardo Martín Merino Chunga, *Manager, Planning and Development*, Provincial Municipality of Piura, Peru
- María Antonieta Vásquez, *Secretary of Ecology*, Municipality of Tuxtla-Gutiérrez, Mexico

10:15 – 10:30 **Networking Break**

10:30 – 11:45 **Concurrent Sessions, Round 2:
Stakeholder Engagement, Coordination, and Collaboration**

During the second round of concurrent sessions, participants will explore various approaches to multi-stakeholder collaboration used across multiple stages of climate change adaptation efforts. Work with peers to identify, share, and brainstorm strategies to strengthen cooperative ventures with key players in your municipality.

Session Topics:

1. **CARIBE ROOM A: Inter-departmental Coordination and Alignment** with Javier Eliecer Riascos Yurgaky, *Director, Office of Risk Management*, Municipality of Buenaventura, Colombia.
2. **CARIBE ROOM B: Regional Coordination for Climate Action** with José Miguel Martínez Guridy, *Secretary, Environmental and Risk Management*, Municipality of the National District, Santo Domingo, Dominican Republic and Eliumat Maza, *Official & Climate Change Node Coordinator for the Caribbean and Island Region*, Independent Regional Corporation of La Guajira, Colombia.

3. **ESMERALDA ROOM: Engaging Non-Government Stakeholders in Municipal Climate Resilience Efforts** with Alvaro Palacios Klagges, *Secretary of Planning*, City of Valdivia, Chile and Evaydee Pérez, *Project Coordinator, Climate Change Vulnerability Evaluation*, Dominican Institute for Comprehensive Development.

11:45 – 12:30 PM Approaches to Selecting & Prioritizing Adaptation Options



Explore the breadth of adaptation options available, and consider how to best prioritize between strategies as you move towards implementation of actions for building climate resilient infrastructure services.

Presenter: Nora Ferm, *Climate Change Adaptation Specialist*, USAID

12:30 – 1:45

Lunch By Role

- Design, Engineering & Planning
- Implementation & Management
- Policy & Regulations
- Research, Mapping & Assessments

1:45 – 3:00

Concurrent Sessions, Round 3: Adaptation Issues & Options by Sector



In the final round of Concurrent Sessions, participants will gather by infrastructure sector to elevate promising practices in climate change adaptation, explore common challenges, and consider opportunities to apply lessons learned across the Latin America and the Caribbean region.

Session Topics:

1. **CARIBE ROOM A: Water & Wastewater** with Manuel Llempén Coronel, *Chairman of the Board*, Potable Water and Sewerage Services Corporation of La Libertad (Trujillo, Peru).
2. **CARIBE ROOM B: Sanitation & Solid Waste** with Odalis Carla Salas, *Administrative President*, Municipality of Verón, Punta Cana, Dominican Republic.
3. **ESMERALDA ROOM A: Transportation & Ports** with Mike Savonis, *CRIS DR Team Lead and Transportation Adaptation Specialist*, ICF International.
4. **ESMERALDA ROOM B: Housing & Land Use** with Paula Sierra-Correa, *Research Program Coordinator for Marine and Coastal Management*, INVEMAR and Deider Valdés González, *Director of Environment*, Mayor's Office, Municipality of Riohacha, Colombia.

3:00 – 3:15

Networking Break

3:15 – 4:30

Panel Discussion: Financing Infrastructure Resilience



In this plenary panel, participants will learn about innovative approaches to funding climate resilience efforts from a diverse panel of presenters with a variety of experience creatively securing funding for infrastructure adaptation projects in Latin America and the Caribbean.

Moderator/Presenter: Sandra Garavito, *Advisor*, ECLEDS, USAID/Colombia

Panelists:

- Alvaro Palacios Klagges, *Secretary of Planning*, City of Valdivia, Chile
- Gmelina Juliana Ramírez, *Climate Change Specialist*, Inter-American Development Bank
- Mario Colberth Reyna Rodríguez, *Sustainable Trujillo Project Coordinator & Advisor*, Mayor's Office, Provincial Municipality of Trujillo, Peru

Respondent: Mike Savonis, *CRIS DR Team Lead*, ICF

4:30 – 5:30

Team Huddle 2: Setting Priorities

Meet with your city team to share key take-aways and lessons learned from workshop presentations and peer networking, think about applications and relevance to your municipality, and strategize about ways to apply newfound learning through specific actions when you return home.

6:00; 7:00; 8:00

Dinner on your Own

Use this as an opportunity to self-organize additional networking opportunities with members of the Resource Team and fellow workshop participants.

DAY 3: STRATEGIZE & COMMIT

FRIDAY, MARCH 28TH, 2014

8:30 – 8:45 AM Overview of Field Visit Logistics

Presenter: José Miguel Martínez Guridy, *Secretary, Environmental and Risk Management, Municipality of the National District, Santo Domingo, Dominican Republic*

8:45 – 12:00 PM Field Visit



During this field visit participants will start putting into action the “Scope” and “Analyze” steps in order to identify development needs and analyze the potential climate change impacts for three specific sites in the National District of Santo Domingo.

12:00 – 1:15 Networking Lunch

1:15 – 2:30 Team Huddle 3: Making a Plan

Meet privately with your team to discuss insights that you have acquired at the CLA and how new knowledge, skills, and connections will advance your work increasing the climate resilience of your city’s infrastructure services. Work within your city team to develop a “mini-action plan” for implementing 2-3 priority initiatives for when you return home.

2:30 – 4:00 Closing Plenary: Putting it all Together

During this closing plenary session, team leaders will share which promising practices gained through the CLA will be most applicable in their own climate change adaptation activities and strategies. They will discuss their commitment to 2-3 priority initiatives they will pursue in the near future to develop infrastructure solutions that are resilient in the face of climate change. Participants that have attended all three days of the workshop will receive certificates recognizing their participation.



LEARNING OBJECTIVES

Regional Climate Leadership Academy: Increasing the Climate Resilience of Infrastructure Services in Cities across Latin America and the Caribbean

1. **Foster peer-to-peer learning and creative invention within and across city teams**, so that all participants benefit from the range of experiences and lessons learned across the region, and spur each other to develop new ideas and approaches well-suited to the realities of each participating workshop team.
2. **Create opportunities for city teams to build internal and regional relationships**, cultivate a shared understanding of the opportunities and challenges related to increasing the climate resilience of infrastructure services, and identify partnerships that they can build on after the workshop ends.
3. **Increase capacity and commitment of city teams to improve the climate resilience of infrastructure services** using USAID's Climate Resilient Development Framework, CCRD and CRIS approaches, and other strategies employed across the region. Teams should leave the workshop with specific steps they can take back home to catalyze and facilitate climate resilient infrastructure services as an integral part of their city's development.
4. **Provide easy access to the best available climate change resilience ideas, approaches, strategies, tools, and resources** for meeting the myriad challenges cities face in better assessing, prioritizing, and managing local climate change risks to infrastructure services.
6. **Gather information and ideas to inform climate resilient development efforts** in cities around the world through the CCRD project, CRIS program, USAID adaptation activities, and other development efforts.

PARTICIPANT LIST

City Teams		
First Name	Last Name	City
Andrés Mauricio	Carmona Tobar	Buenaventura, Colombia
Julio César	Díaz Cuero	Buenaventura, Colombia
Javier Eliecer	Riascos Yurgarky	Buenaventura, Colombia
Lucía	Ayuso Aguilar	Campeche, Mexico
Angélica Lara	Pérez Ríos	Campeche, Mexico
Cynthia Catherine	Castro Cango	Piura, Peru
Verónica	Cumpa Alayza	Piura, Peru
Eduardo Martín	Merino Chunga	Piura, Peru
Félix Gerardo	Rosillo Castillo	Piura, Peru
Hernando	Hernández Rodríguez	Riohacha, Colombia
Eliumat	Maza	Riohacha, Colombia
Luis	Medina Toro	Riohacha, Colombia
Deider Elías	Valdés González	Riohacha, Colombia
Angélica Francisca	Álvarez Correa	Santo Domingo, DR
Luis	Báez Rámirez	Santo Domingo, DR
Fanny	Carrasco	Santo Domingo, DR
Carmen Carolina	Cordero Caraballo	Santo Domingo, DR
Ángela M.	Díaz	Santo Domingo, DR
Erick	Dorrejo	Santo Domingo, DR
Solángel	Gonzáles	Santo Domingo, DR
José Miguel	Martínez Guridy	Santo Domingo, DR
Evaydée	Pérez Sarraff	Santo Domingo, DR
Juana	Sillé	Santo Domingo, DR
César	Flórez Corbera	Trujillo, Peru
Manuel	Llempén Coronel	Trujillo, Peru
Mario Colberth	Reyna Rodríguez	Trujillo, Peru
María Antonieta	Vásquez	Tuxtla Gutiérrez, Mexico
Odalís	Carela Salas	Verón-Bávaro, DR
Mario Eligio	Echavarría Padua	Verón-Bávaro, DR
Nancy	Reyes Cedeño	Verón-Bávaro, DR
José Miguel	Rivera Naranjo	Verón-Bávaro, DR

Resource Team and Staff		
First Name	Last Name	Affiliation
Carolina	Zambrano	Avina Foundation, Ecuador
Sandra	Garavito	ECLEDS, Colombia
Schuyler	Olsson	Engility
Wendy	Jaglom	ICF International
Joanne	Potter	ICF International
Natalia	Sanint	ICF International
Mike	Savonis	ICF International
Nelly	Cuello	Independent Consultant
Andrea	Vogel	Independent Consultant
Nathaly	Agosto Filión	ISC
Anna	Casey	ISC
Scott	Muller	ISC
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Paula	Sierra-Correa	INVEMAR, Colombia
Nora	Ferm	USAID
Monica	Bansal	USAID\DR
Odalís	Pérez	USAID\DR
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