

Linking Climate Change Adaptation and Mitigation: Implications for Central America

INTRODUCTION

THE ISSUE

In its Summary, the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) stresses that changes in weather patterns are unequivocal, as is the human influence on them (IPCC, 2013). These changes are reflected in the warming of the atmosphere and the oceans, lower levels of ice and snow, increased sea level, and a greater concentration of greenhouse gases (GHG). In Central America, climate change poses enormous challenges for development. Far from being a future scenario, Central American territories are already facing severe problems from climate change vulnerability and impacts, which are intensifying and exacerbating exclusion and degradation. The costs to the region's societies from the many hazards and impacts of climate change continue to climb steeply. According to Germanwatch, the CA-4 countries rank among the highest in the Global Climate Risk Index.

Table: Global Climate Risk Index Ranking for CA-4 Countries

Country	2005	2006	2007	2008	2009	2010	2011
El Salvador	34	123	112	91	1	36	4
Guatemala	1	102	52	34	53	2	9
Honduras	7	44	33	20	65	5	11
Nicaragua	21	120	3	24	57	35	14

Thus, the need is urgent to build climate-compatible development paths that can build resilience and reduce vulnerability, and this requires a new generation of public policies that can reverse ecosystem degradation and strengthen people's livelihoods.

EL SALVADOR: A ROLE MODEL UNDER CONSTRUCTION

Strongly marked by recurring impact, loss, and damage resulting from events associated with vulnerability and climate change, El Salvador put in place a set of public policy measures aimed at shifting to a model linking adaptation and mitigation objectives, along with promoting inter-agency coordination in the central government, with local governments, and with different local-level stakeholders. The Adaptation-based Mitigation (AbM) approach, the National Environment Policy, and the national Program for Ecosystem and Landscape Restoration (PREP is its acronym in Spanish), among other initiatives that El Salvador is promoting, offer new opportunities to strategically connect historical development objectives with meeting the challenges of climate change.

IMPLICATIONS FOR CENTRAL AMERICA

Widespread environmental degradation, high vulnerability, and the new scenario coming from climate change negotiations has created a context that poses new imperatives for the countries in the Central American Integration System (SICA). While risk management and climate change adaptation are priorities on the agenda for the revival of regional integration, the process El Salvador has begun could serve as a role model to contribute critically to interventions such as those being promoted in the Central American Dry Corridor (CADC). The region also needs to advance toward building a solid foundation for forging new agreements and political consensus, based on a shared climate change agenda.

Box
**Progress in Climate Negotiations to
Link Mitigation and Adaptation**

Recent progress in climate negotiations is demonstrating the growing interest in adaptation and in seeking out synergies between adaptation and mitigation. This, together with the increasingly greater demand by developing countries for support, might lead to mapping out a new scenario that could strengthen responses to climate change challenges, or on the contrary, it could weaken the existing complex institutional framework.

The COP-16 in Cancún (2010), among other things, agreed to establish the Green Climate Fund (GCF), the Technology Mechanism, and the Work Program on Loss and Damage. The GCF is destined to become the main UNFCCC climate funding mechanism, while the Technology Mechanism represents an opportunity to fund technological support to strengthen adaptation and mitigation initiatives. The COP-17 (2011) in Durban opened new opportunities to link adaptation and mitigation strategies by noting that *“non-market-based approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests...could be developed”* (paragraph 67, Decision 2/CP.17). Likewise, the COP-18 (Doha, 2012) urged intensification of adaptation and mitigation measures, reiterating that the agreement to be adopted in 2015 will be legally binding on all Parties to the Convention, and identified capacity building, transparency of the measures, and provision of support as key elements in the new global climate negotiations context. With regard to the GCF, it proposed that climate funding be primarily funneled through this body, with a balance between adaptation and mitigation actions (CMNUCC, 2013).

Regarding the Work Program on Loss and Damage, the COP-19, held recently in Warsaw (2013), adopted the “Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts,” which is based on the recognition that loss and damage are beyond countries’ adaptation efforts and therefore require special support to address them, particularly in developing countries. The adoption of the Mechanism was not without controversy and conflicting positions among the Convention’s member countries. While a group of developing countries (G-77 and China) proposed that it should be considered another pillar of the Convention, on a par with adaptation and mitigation, others—among them, the United States, Canada, and Australia—opposed this position. Following intense debate, the Mechanism was placed under the Cancun Adaptation Framework, although this measure could be revisited when the COP-22 evaluates how well it is working in 2016 (Stabinsky & Hoffmaister, 2013). Meanwhile, it is expected that this mechanism can, among other things, i) improve understanding of the different approaches for addressing loss and damage; ii) strengthen dialogue, coordination, and linkages among different initiatives, actors, and processes; and iii) influence other Convention bodies (e.g., Green Climate Fund), thus facilitating the mobilization of financing, technology, and capacity building (Third World Network, 2013d; MARN, 2014).

Finally, the COP in Warsaw identified National Adaptation Plans (NAPs) as the most appropriate tool to facilitate synergies among adaptation and mitigation strategies. Likewise, agriculture, water resources, forestry, and coastal zones were noted as important sectors, to be prioritized as part of short-term adaptation actions (Third World Network, 2013b). Among these, agriculture and forestry are already moving forward with actions geared toward adaptation along with mitigation outcomes.

The Salvadoran case demonstrates how a set of policy measures have been molded over time to promote the strategic and simultaneous coordination between mitigation and adaptation efforts, responding to the country's internationally-recognized high vulnerability.¹ The scale of extreme events and ensuing heavy loss and damage have resulted in the climate change agenda being taken up at highest political levels. The government views the environmental and risk reduction policy as a social and economic imperative, due to the constraints that environmental degradation place on economic development, and also recognizes that extreme events have high human costs and decapitalize the country (Gobierno de El Salvador, 2010). Following these guiding principles, the Ministry of Environment and Natural Resources (MARN) developed the 2012 National Environment Policy and its different instruments,² which guide government actions aimed at reversing degradation and reducing vulnerability to climate change.

THE ADAPTATION-BASED MITIGATION APPROACH

This environmental policy framework involves rethinking the way in which the government has been understanding mitigation and adaptation. Until 2009, the government took a traditional mitigation approach, giving priority to protected areas and forestry areas. Reforestation and control of forest degradation were used to apply for funding from the Clean Development Mechanism (CDM) and to explore the possibility of carbon markets. That year, a change in perspective became evident, with MARN leading the development of the Adaptation-based Mitigation (AbM) approach, which consists of taking advantage of the mitigation co-benefits that can be derived from priority and strategic adaptation actions. According to this approach, interventions aimed at reducing environmental degradation and vulnerability have a direct impact on the capture and storage of carbon by vegetation and in the soil (MARN, 2013a).

AbM involves a large-scale transformation of the rural landscape, as well as the restoration and inclusive conservation of ecosystems. Thus, its scope and social and political efforts are much more expansive than the previous approach. Likewise, the co-benefits expand (biodiversity conservation, increased agro-diversity, erosion control, soil formation, retention of soil moisture, and hydrological regulation, among others), which has a direct impact on strengthening productive capacity, food security, and livelihoods in general.

The AbM approach enables integrating adaptation and mitigation agendas, building on the 2007 IPCC recommendations and acting within the guidelines and safeguards for REDD+ programs determined at the COP-16 in Cancún in 2010. Thus, El Salvador is the first country in the world to have a National REDD+ Strategy that explicitly takes an AbM approach, focusing on ecosystem restoration to reduce risks caused by climate change as the country's adaptation priority, with co-benefits for climate change mitigation (MARN, 2013a; PRISMA, 2013).

¹ Several international agencies have categorized El Salvador as one of most vulnerable countries, including the World Bank (2005), IEG-World Bank (2006), and Germanwatch (2010).

² In May 2012, the Council of Ministers of the Government of El Salvador, following broad public consultation, adopted a new National Environment Policy, which had not been updated since 2000. In 2013, its instruments were developed: the National Environment Strategy, which includes the National Climate Change Strategy and the National Biodiversity Strategy; and national strategies for water resources and sanitation.

ECOSYSTEM AND LANDSCAPE RESTORATION

The AbM approach is being integrated into the development of El Salvador's national Program for Ecosystem and Landscape Restoration (PREP) as one of its linchpins, and into the National Environment Policy, to address severe degradation in the country's ecosystems. Development of the PREP is a response to the pressing need to immediately recover ecosystem resilience to the growing climate threat,³ and is aimed at reducing territorial and sectoral vulnerabilities that could produce irreversible harm or magnify the impact of extreme events (MARN, 2013b). The PREP's actions will have an impact at the landscape level,⁴ which is crucial both because of the existing degradation countrywide and because of its recognition of the interactions that exist between productive practices and the use of resources by multiple interests. Given this, the PREP requires strong and consistent coordination with local and territorial actors to address the dynamics of degradation. This involves a process of inter-ministerial work, given the relationship with productive transformation and more resilient infrastructure, and also requires innovative funding strategies to be devised.

Prioritization of sites for launching the PREP has relied on criteria based on AbM objectives. The territories selected embody the challenges of adaptation, in the sense of the urgency to take action there, to reduce vulnerability to the impact of climate variability. At the same time, these actions aimed at landscape restoration, promoting the transformation of farming practices, have the conditions to carry out AbM actions, which increase carbon capture based on soil conservation and increasing vegetation cover through agroforestry.⁵ However, several challenges face both implementation of this Program and, in general, the policy focused on integrating mitigation and adaptation approaches, because they are also attempting to change institutional thinking towards planning and promote coordination of actions among governmental agencies and between these agencies and the territories. There is also a need for a financial base that can promote the transformations sought without compromising development objectives.

THE CHALLENGE OF COORDINATION WITH TERRITORIAL ACTORS

The AbM approach has broad implications for the agenda of rural territories, since it is aimed at developing strategies for the active participation of the actors who directly influence the dynamics of degradation at the landscape level. Thus, if sustainable results are desired over the long term, implementation of AbM cannot occur without the exercise of local and territorial governance. The major challenge to making a strategy like this work is to gain commitments, both from individuals and groups and at different scales, along with mechanisms to incentivize a transformation in practices.

La Montaña Commonwealth

For ensuring that the PREP's actions are sustainable, it has been necessary to make arrangements for coordination among the central government, municipal governments, and other bodies representative of the local fabric. The Montaña Commonwealth,⁶ for example, has the advantage of having well-established institutional capacity with experience in the planning

³ The National REDD+ Strategy is part of the PREP. The main components of the PREP are: a) Development of climate-resilient and biodiversity-friendly agriculture; b) Synergistic development of physical infrastructure and natural infrastructure; and c) Restoration and conservation of critical ecosystems (Gobierno de El Salvador, 2013; MARN, 2012a).

⁴ A landscape-focused approach involves going beyond what happens on the farm and considers the mosaic of land cover and use, and how their interactions influence ecosystem services (Odum & Sarmiento, 1998), (Sherr & Jeffrey A., 2006), (Sayer, Buck, & Sherr, 2008) and (MARN, 2012a).

⁵ Three sites were chosen in the Lempa River basin, the country's largest and the most important for provision and regulation of water and for power generation; it is at high risk of spillovers, flooding, and disasters: a) Lower Lempa in the municipalities of Zacatecoluca, Tecoluca, and Jiquilisco; b) The municipalities of Cinquera, Suchitoto, and Jutiapa in the middle reaches of the basin; and c) La Montaña Commonwealth in the upper reaches of the basin (MARN, 2012a).

⁶ La Montaña Commonwealth is located in the department of Chalatenango and is made up of seven municipalities: Chalatenango, Las Vueltas, Ojos de Agua, El Carrizal, La Laguna, Comalapa, and Concepción Quezaltepeque. In 1999, these municipal governments formed an inter-community association, taking the name that the locals give to the mountain located in the heart of the territory. The commonwealth covers 335 km² and has a population of 49,718 people. The Commonwealth has oriented its efforts to responding to common problems, such as connectivity among the municipalities, fire prevention and conservation of the mountain's forests, drinking water management, and the promotion of sustainable farming practices in the framework of the PREP.

of territorial development actions. This has facilitated coordination between MARN and the Commonwealth's Technical Unit, to promote the widespread transformation of agricultural practices. Additionally, local groups have had experience with natural resource conservation, in particular, the protection of forests and water resources. Likewise, groups of small farmers exist that have a high degree of awareness and are using sustainable farming practices. These actions respond to the needs of local actors; however, these efforts are scattered and are not linked to environmental policies or to national productive development. With the implementation of the PREP, there is an opportunity to produce coordinated actions aimed at landscape restoration that contribute to adaptation efforts. The Commonwealth, in coordination with MARN and aided by NGOs, is fostering actions to change farming practices by establishing pilot programs to introduce agroforestry systems, pasture grasses that do not require burning, protection of water sources, prevention of forest fires, and forest management. Coordination between the Commonwealth and MARN in the framework of the PREP is enabling access to funding from the central government—both government and bilateral and multilateral cooperation funds—for implementation of AbM actions by La Montaña Commonwealth and non-governmental technical support organizations, which enables closer monitoring of adaptation actions in the territory.

Lower Lempa

The situation in El Salvador's coastal area is more complex; despite its high vulnerability to climate and other hazards, the territory's resources have led the government to turn it into the stage for its main development strategy, which seeks to boost economic growth in the country by attracting investment.⁷

For those who have been living in the Lower Lempa region, dealing with climate vulnerability has been a major part of their recent history. Municipal governments and local organizations, organized in territorial platforms, have been engaged in actions to counter this vulnerability, with funding that is occasional and limited. In response to the magnitude of the loss and damage from Hurricane Mitch in 1998, the government began to get involved in vulnerability reduction. In recent years, reconstruction has taken an adaptation approach, involving the redirection of public funds and creating interinstitutional coordination mechanism in which local actors play a major role in rehabilitation and reconstruction projects in the affected areas.⁸

Another critical factor has been the organization of the area's economic activities. The Lower Lempa is part of the coastal area that is considered vital to preventing environmental vulnerability and growing degradation. In this region, this means transforming practices for sugarcane cultivation,⁹ which has expanded haphazardly, using practices and technology that are highly harmful to health, land, and the environment (MARN, 2013c). This expansion has sparked organized protests by the locals in response to the effects that the burning and crop dusting of sugarcane fields has on family health and farming. MARN, in line with the National Environment Policy, is leading efforts to gradually change these trends. MARN and the Ministry of Agriculture and Livestock (MAG) have established a program for harvesting sugarcane while the fields are green (Programa Zafra Verde), in which six sugar refineries have pledged to harvest a certain percentage of the crop in their crop control area without burning the fields beforehand.¹⁰ Since

⁷ To this end, the Government of El Salvador has developed a Strategy for Integrated and Sustainable Coastal Development 2012-2014, (Gobierno de El Salvador, 2013b).

⁸ For the reconstruction effort following Tropical Storm 12-E, MARN formed the Lower Lempa Technical Works Roundtable. It included the ministries of Agriculture and Livestock (MAG) and Public Works (MOP), the Lempa River Hydroelectric Executive Commission (CEL), and the Technical Secretariat of the Presidency, in addition to municipal governments and local organizations (MARN, 2013b).

⁹ According to the National Environment Policy, organization of the sugarcane crop and improvement in the environmental performance of the sugar industry is key to "reversing environmental degradation and reducing climate change vulnerability" (MARN, 2012).

¹⁰ The first "green" harvest (2011-2012) included 2,500 manzanas of cane cut without burning; for the 2013-2014 harvest, 12,000 manzanas will be included (1 manzana = 0.7 hectare).

THE CHALLENGE OF INTER INSTITUTIONAL COORDINATION

the program began in 2011, it has made steady and significant progress. In November 2013, the sugar industry put its commitment to the plan in writing, in the Action Plan for the National Environment Strategy. The commitments that are being negotiated with the industry address the expansion and location of sugarcane into fragile areas; the practice of burning cane fields; the use of agrochemicals; water use; wastewater management; waste management; modifications in drainage; and greenhouse gas emissions.¹¹

Responding to the challenges of climate change involves the development of new ways of working among government agencies, the establishment of more effective coordination mechanisms among central government agencies and between these and local agencies, as well as fostering opportunities for dialogue between civil society and government. While improvements are just starting to be seen, El Salvador's experience could shed light on the implications for the institutional reorganization needed to tackle climate change in highly-vulnerable developing countries.

In El Salvador's experience, the institutional arrangements instituted from 2010 to 2014 have involved greater coordination among central government agencies and between the central government and local government and organizations, both for responding to specific situations involving extreme events, and for coordinating the agenda for vulnerability reduction and for developing strategies to gain access to climate finance (MARN, 2013b). The Inter-ministerial Committee on Climate Change, a high-ranking nationwide body, has been created to strengthen inter-ministerial coordination for the implementation of actions to reduce vulnerability, especially in agriculture, public works, and finance.¹² Moreover, experiences with the PREP in the Lower Lempa and the Montaña Commonwealth have shown that local governance systems with broad participation and social cooperation do exist, which are essential for the identification and management of adaptation and mitigation projects.

El Salvador has made rapid progress in linking mitigation and adaptation strategies, driven by the economic and social repercussions of extreme events and coupled with resolute political will, adopting a more active role in international negotiations as part of the Central American Integration System (SICA). The AbM approach enables, on the one hand, overcoming the polarized approach that has traditionally existed between adaptation and mitigation in international negotiations, where most of the available funding is allocated to mitigation efforts. However, above all, the AbM approach responds to the most urgent needs related to the nation's critical vulnerability. In fact, the emphasis is currently being directed to developing mechanisms for addressing loss and damage, a key component of the National Climate Change Plan,¹³ because the institutionalization of a mechanism of this nature will enable obtaining resources to systematically respond to vulnerability associated with the adverse effects of climate change, caused by extreme and gradual phenomena, to which El Salvador, along with all of Central America, will be exposed, even if significant efforts are made to adapt.

¹¹ http://www.mam.gob.sv/index.php?option=com_content&view=article&id=1954%20mam-se-reune-con-agroindustria-azucarera-para-definir-compromisos-ambientales&catid=1%20noticias-ciudadano&Itemid=77.

¹² A more in-depth discussion of public policy around climate change and the institutional transformation in El Salvador can be found in Cuéllar, Luna and Kandel, 2012.

¹³ The lines of action in the Mechanism for Loss and Damage include management of critical investments, risk retention and transfer, and effective participation in international negotiations. Taken from http://www.mam.gob.sv/index.php?option=com_content&view=article&id=1817&Itemid=385 el 6 de febrero de 2014.

High vulnerability to climate change is a palpable reality for the region's governments. In 2008, the presidents of the SICA countries established a political commitment in San Pedro Sula, which states that *"aware that climate change is one of most serious problems facing humanity, and that its impact threatens economic and social development, and furthermore increases the vulnerability of our populations and their livelihoods, we have decided to initiate a process with broad participation by all sectors of society to develop a common strategy to cope with the impacts of climate change"* (Declaration of San Pedro Sula, 2008). Following the devastating impact of Tropical Depression 12-E, in a special meeting, the SICA presidents unanimously agreed "to spotlight the challenges posed by climate change" (Declaration of Comalapa, 25 October 2011). Recently, the Central American governments took a joint proposal to the COP-19 (Warsaw, 2013), in which they support the development and implementation of a new Mechanism for Loss and Damage.

Climate change is one of the strategic areas in the revival of the Central American integration process (integrated risk management and climate change adaptation). Along these lines, the "Inter-secretarial Workshop on Mainstreaming Climate Change in SICA Secretariat Work Plans" was held in January 2014 in San Salvador. The first meeting of its kind, it provided an opportunity to discuss the new context for international climate negotiations and to agree on guidelines for SICA's activities.

In particular, the guidelines stressed the importance of the new global climate agreement as well as the redefinition of the system for international relations, which will have many implications, including the following: i) new standards, controls, and certifications (e.g. "low carbon" products, efficient energy generation and use, initial actions taken for air and maritime transport); ii) amendments to international trade rules and treaties; iii) reframing of intellectual property rights (technology transfer); iv) new development cooperation terms; v) reform of the international humanitarian aid system; and vi) greater importance of large-scale and regional responses. Regarding the latter, they emphasized that the SICA General Secretariat needs to address and take the lead on the climate change issue, to insure its mainstreaming across the entire integration system. This will increase the links between this issue and the other development efforts being made by the SICA secretariats, instead of being relegated to a single agency, the Central American Commission for Environment and Development (CCAD), which is what has happened so far.

Moreover, SICA is already home to promising inter-institutional efforts for addressing climate change.¹⁴ One of the most important is related to the Central American Strategy for Rural Territorial Development (ECADERT), and its attempts to influence management of the Central American Dry Corridor, a series of territories that are home to the majority of Central America's population. In the CADC, the impacts of climate variability and change converge particularly dramatically, endangering food security and the region's different productive systems. Given these characteristics, the Council of Ministers of Agriculture of the SICA member countries has launched a joint effort to improve the understanding of high vulnerability and responses to it (see Box).

¹⁴ A number of initiatives have been taken: a) Regional Program for Food Security and Resilience in the Central American Dry Corridor, in coordination with CAC and CEPREDENAC, with support from WFP, CABEL, and FAO; b) application for financing from CABEL to conduct national feasibility studies on debt financing; c) Action Plan on Tourism and Climate Change in Central America, produced by SITCA in coordination with CCAD; d) policy dialogue and work plan to support actions in two countries on Climate Change and Land Use Planning in Central America, headed by CCVAH-SISCA, in coordination with CCAD; e) Work Plan on Safe Water and Sanitation, Risk Management, and Climate Change, under the leadership of FOCARD, and in coordination with CEPREDENAC and CCAD; and f) Roadmap for an Action Plan on Gender, Risk Management, and Climate Change, headed by COMMCA, in coordination with CEPREDENAC and CCAD; among others.

The Council's concern about losses in agriculture and food insecurity led the ministers of agriculture to pay much greater attention to climate change as an important issue. The ministers must think about how to integrate the mitigation issue, given that all the CADC countries will have binding commitments to reduce emissions, coupled with an urgent need for adaptation.¹⁵

Although separate mitigation and adaptation approaches are more common, there is an opportunity to acknowledge the role that agriculture can play and its potential to contribute to mitigation while farmers undertake adaptation actions. Along these lines, it is possible to address the two issues from the perspective of mitigation co-benefits based on adaptation actions. Even so, this does not erase the risk that countries will continue to experience crises, with their associated loss and damage, related to weather events. A co-benefits approach highlights the connection between adaptation and mitigation with potential linkages for gaining access to eventual climate financing from the new Warsaw International Mechanism for Loss and Damage.

Although SICA countries belong to different alliances with widely divergent positions,¹⁶ the emerging agenda on loss and damage is opening the door to the development of common and shared positions, without prejudice to the particular interests, characteristics, and priorities of each of the countries.

¹⁵ GHG emissions in Central America come from three main sources: deforestation, agriculture, and transportation. Projections for the future anticipate some reductions in deforestation, although with an increase in emissions from agriculture and transportation (Lennox, J., 2014).

¹⁶ Belize and the Dominican Republic belong to the Alliance of Small Island States (AOSIS); Nicaragua belongs to the Bolivarian Alliance (ALBA) bloc; Costa Rica, Guatemala, and Panama belong to the Independent Alliance of Latin America and the Caribbean (AILAC) bloc; Costa Rica, Guatemala, Panama, and the Dominican Republic are Cartagena Dialogue members; while El Salvador and Nicaragua are members of the Like-Minded Developing Countries (LMDC).