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Institutional Framework and Governance

Central American Dry Corridor

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Contenido

Acronyms

ACH	Acción Contra el Hambre
ACCIES	Asociación Coordinadora de Comunidades Indígenas de El Salvador
AECID	Agencia Española de Cooperación Internacional
ANDA	Asociación Nacional de Acuicultores
ASORECH	Asociación para el Desarrollo de la Región Ch´orti´
CAC	Consejo Agropecuario Centroamericano
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza
CCAD	Comisión Centroamericana de Ambiente y Desarrollo
CCCND	Coordinadora Central Campesina Chorti Nuevo Día
CCNIS	Consejo Coordinador Nacional Indígena Salvadoreño
CECON	Centro de Estudios Conservacionistas
CEPREDENAC	Coordinación para la Prevención de los Desastres Naturales en América Central
CODDEFFAGOLF	Comité para la Defensa y Desarrollo de la Flora y la Fauna del Golfo de Fonseca
CODEM	Comité de Desarrollo Municipal
COHEP	Consejo Hondureño de la Empresa Privada
CONAIS	Consejo Nacional Indio Salvadoreño
CONAP	Consejo Nacional de Áreas Protegidas
CONPAH	Confederación de Pueblos Autóctonas de Honduras
COPAL	Corporación Algodonera Salvadoreña
CRD	Consejo Regional de Desarrollo
CRRH	Consejo Regional de Recursos Hídricos
CSCA	Corredor Seco Centroamericano
ECADERT	Estrategia Centroamericana de Desarrollo Rural Territorial
FAO	Organización de las Naciones Unidas para la Alimentación y la Agricultura
IEC	Impuesto Específico de Consumo
INETER	Instituto Nicaragüense de Estudios Territoriales
MARENA	Ministerio del Ambiente y los Recursos Naturales Nicaragua
MERGERCA	Marco Estratégico Regional para la Gestión de Riesgos Climáticos en el Sector Agrícola
MARN	Ministerio de Ambiente y Recursos Naturales
ONILH	Organización Nacional Indígena Lenca
PCN	Primera Comunicación Nacional
PESA	Programa Especial de Seguridad Alimentaria
RAAN	Región Autónoma del Atlántico Norte
RAAS	Región Autónoma del Atlántico Sur

SEPLAN	Secretaría Técnica de Planificación y Cooperación Externa
SICA	Sistema de la Integración Centroamericana
TNC	TheNatureConservancy
UICN	Unión Internacional para la Conservación de la Naturaleza
UNICEF	Fondo de Naciones Unidas para la Infancia
URCOOCAM	Unión Regional de Cooperativas Camaroneras
URCOOP	Unión Regional de Cooperativas Productivas
ZEDE	Zonas de Desarrollo y Empleo

Introduction

The Central American Dry Corridor (CADC) is a geographical region that, in the past few years, has been garnering notice due to three clearly-defined situations. First, extreme weather events, such as prolonged droughts, hurricanes, and tropical storms (among which Hurricane Mitch in 1998 stands out), have brought to the fore the region's profound social, economic, environmental, and political vulnerability, which has led to considerable loss of human life, the deterioration of livelihoods, and extensive damage to national economies, and for which countries do not have sufficient resources for prevention nor reconstruction. Second, most of the population living in this region is severely disadvantaged, due to the precarious nature of their livelihoods, occupations, and incomes, manifested in chronic malnutrition and hunger, which forces them to intensify their use of increasingly scarce resources or migrate in search of better opportunities. Third, there is a rising and unorganized boom in state and private investments to take advantage of the area's resources and potential, in mining, industrial crops, shrimping, tourist resorts, roads, energy, ports, free trade zones, protected areas, forest activities, and activities that utilize the area's natural resources. All of this translates into new territorial dynamics that are reconfiguring the landscape, transforming the lives of the people, and triggering increasingly critical social conflicts.

The CADC is conceptualized as a complex system for all of the ecological, economic, social, and political elements that surround it. This territory is affected by dynamic climate phenomena over time, making it necessary to redraw its borders, in order to understand how to politically and geographically manage it (PRISMA, 2013).

Along these lines, the Central American region has made undeniable efforts at integration and at jointly addressing development challenges. Notable among these efforts are those seeking to improve nutritional and food security, promote rural development, manage climate risk, and protect increasingly scarce natural spaces, although these challenges still seem to exceed the capacities of those confronting them. Also notable is the effort to create a regional institutional framework based in the Central American Integration System (SICA), which has created venues to address practically everything afflicting the region.

However, these efforts appear to still fall short to reduce vulnerability and ensure better living conditions for the population. This is undoubtedly related to the fact that development priorities have historically been concentrated in determined places and sectors, with meager territorial coherence. They have almost always have looked outward, especially to seek foreign exchange, first from agricultural exports and now from remittances and international tourism. Local economies have been relegated to a subsistence function and receive little support despite their enormous contribution to national economies overall.

Thus, in the face of challenges from the intensification of the impacts of climate change, an opportunity has emerged to reconsider development from a territorial, integrated, inclusive, and participatory approach. This calls for the implementation of new mechanisms for dialogue, coordination among actors, inter-sectoral alliances, political frameworks, and in general, new rules of the game. In short, a new institutional framework for addressing development

challenges in the face of the new context created by climate change.

The location of this new opportunity is the Central American Dry Corridor (CADC), a place with common characteristics and internal specifics in each of the countries that comprise it: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama, although actions focused on its technical and political management have focused on the first four countries. The CADC has interconnections and interdependence with other spaces, particularly because it is the source of pressure on the agricultural frontier that threatens the wooded areas of the humid tropics on the Atlantic Coast.

This paper contains an analysis framework for understanding the significance of the CADC, with emphasis on some of its emblematic territories. It discusses the mechanisms of management and the institutional framework needed to facilitate coordination among actors, with their capacities, powers, interests, and proposals. Finally, it proposes a roadmap to make the CADC an initiative for addressing, jointly and coherently, the adaptation and mitigation challenges demanded by climate change.

The Central American Dry Corridor: Overview

The Biogeography of the Dry Corridor

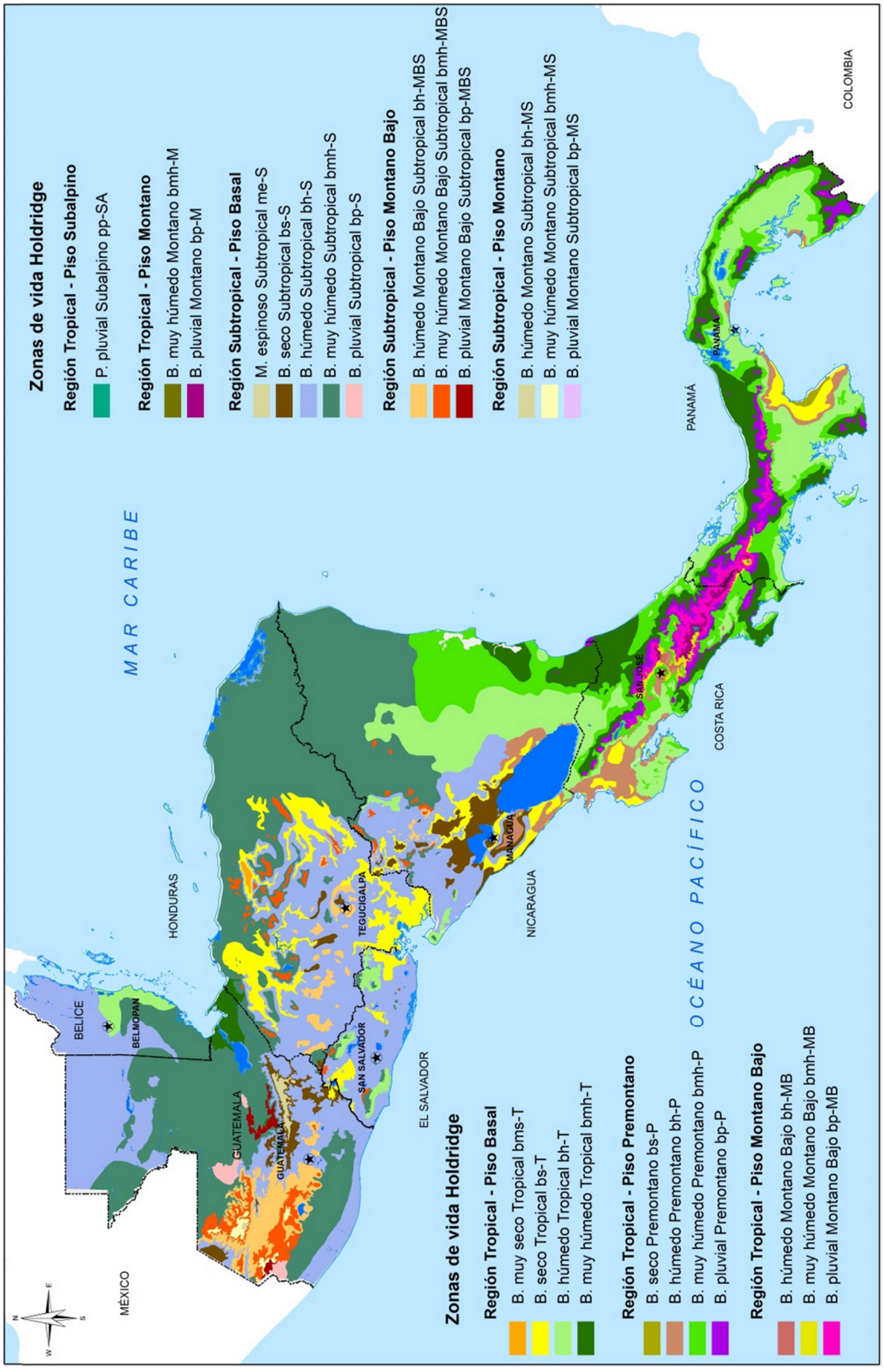
The Central American Dry Corridor constitutes a geographical unit that has become a common topic in discussions on climate change in the region. In general, it is assumed to be a natural space that has, as its principal characteristic, a plant ecology determined by its warm, dry climate. The dry areas in the region have a low annual rate of rainfall and well-established periods of drought, in addition to hot temperatures, especially at low elevations. To understand the nature of these dry areas, we use the biogeographical zone classification system, known as "Life Zones," a global ecological classification system, developed in 1947 by the U.S. botanist and climatologist Leslie Holdridge (1907-1999), which define vegetation associations that have a similar physiognomy in any part of the world. The classification uses five dimensions: latitude, altitude (both for their relationship with biotemperature), evaporation, precipitation, and humidity provinces. Some authors include these four life zones in the category of semiarid zones (Castañeda, 2000) or srid zones (UNESCO, 2010).

According to Holdridge's Life Zone System, there are four life zones in Central America in the Dry Corridor: Thorny Mountain (tm-S), Very Dry Forest Tropical (vdf-T), Dry Forest Subtropical (df-S), and Dry Forest Tropical (df-T).

Thorny Mountain Subtropical (tm-S) is the most extreme manifestation of the CADC. Located exclusively in the Motagua River valley in Guatemala, it covers approximately 1,000 km^2 (386.1 mi^2) and its principal indicative species are cactuses. Of the Very Dry Forest Tropical (vdf-T) there are small portions in Olanchito, Honduras, eastern El Salvador, and around the large lakes of Nicaragua. Dry Forest Subtropical (df-S) is located in Guatemala bordering the thorny mountain and the extreme east of Huehuetenango (Nentón), Jutiapa, Chiquimula, and Baja Verapaz; in Honduras, in three valleys in the center of the country; and in Nicaragua, in the area around Lakes Managua and Nicaragua and around the cities of Rivas, Estelí, and Ocotal. Moreover, Dry Forest Tropical (df-T) has portions in eastern Guatemala (Chiquimula and Jutiapa Provinces); in Honduras, in the provinces of Santa Ana (Metapán, near Lake Güija), San Vicente, and La Unión (near Santa Rosa de Lima); in Honduras, in San Pedro Sula, Santa Bárbara, and El Progreso, Juticalpa, and around the Gulf of Fonseca; and in Nicaragua, on the Pacific Coast to the east of Lake Nicaragua. The majority of the forest cover of the CADC is oak pine forest.

Based on the life zones system, several different maps have been drawn outlining the CADC. The most well-known map is the one drawn by Action Against Hunger (ACF) and FAO (2012).

Map 1. Areas of life in Central America.

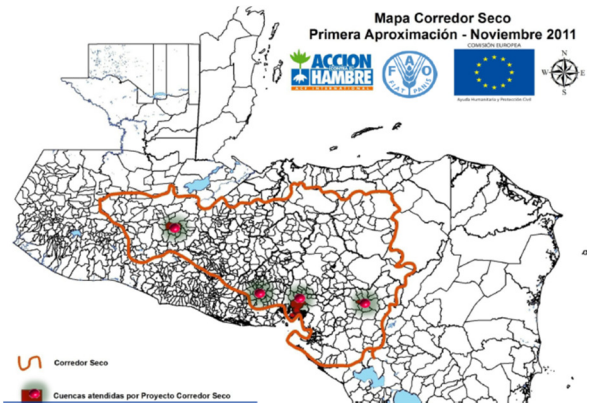


Source: Taken from: http://www.lasnubes.org/wordpress/wp-content/uploads/2010/01/ZonasVidaCentroamerica.jpg

According to the map, the CADC includes the entire plateau and Pacific coastal strip of Guatemala; central, eastern, and southern Honduras; all of El Salvador; and the North and Central Pacific regions of Nicaragua. Using this definition of the CADC, practically 90% of the population of these four countries is located within it, since the principal population centers are located here, including the capitals and most important urban centers. The map of the new FAO proposal shows a far more reduced CADC.

Map 2. Location of the CADC

Map 3. FAO Proposed Intervention Area



Source: FAO, 2012

Historical and Social Development of the Dry Corridor

Beyond its natural conditions, the CADC presents a typical landscape showing traces of human intervention throughout its history. Influenced by climate, demographic pressures, and activities, the dry corridor evidences serious ecological deterioration, seen in the loss of forest cover and biodiversity, the reduction in its productive capacity to sustain livelihoods, the alteration of its hydrological cycles, and ultimately, the increase in its vulnerability in the face of climate change. Deforestation, soil erosion, and loss of biodiversity are phenomena that have been occurring for a long time, due to the reality that this is where the greater part of economic interests have been concentrated. This explains, in part, the fact that the CADC is not only a natural manifestation, but rather is principally a social construction.

Historically, the majority of the current CADC is situated in an area of cultural confluence between Mesoamerica and the peoples on its southern border, a regionally fragmented and culturally complex area (Hasemann and Lara, 1993). It includes the highlands and southeast of Guatemala, all of El Salvador, the west and south of Honduras, the Pacific of Nicaragua, and the Nicoya peninsula in Costa Rica, where pre-Hispanic societies grew, prospered, and were conquered until they were supplanted by successive intrusions from the north and south. At the time of the Spanish conquest, this region was occupied by Mayas, Chorotegas, Lencas, Pipiles, and Xincas, among other peoples. During the colonial period, Spanish rule concentrated its military, political, administrative, and economic efforts on securing the appropriation and control of different areas related to its interests. The CADC is where the Spanish installed their first settlements and where they

initiated expansion of their productive activities.

Livestock was, without a doubt, the principal activity that molded the landscape of the CADC, with features that are still present today. This implied, firstly, a process of appropriation of vast expanses of land at the expense of indigenous people and its rapid conversion into haciendas with an emphasis on livestock production. The areas that were habituated for this end quickly began to show the landscape characteristics of extensive livestock production: natural grazing pastures, isolated trees, and forest remnants.

Some historians have documented that livestock produced more hunger and extermination among the indigenous population than any other colonial institution (Saucedo, 1984). Despite restrictions on installing haciendas and livestock sites near indigenous villages, hacienda owners used all sorts of mechanisms to take over land and they used livestock as the spearhead of their expansion. Free-range cattle destroyed the crops of the indigenous population, forcing them off their fields to seek refuge in the mountains. According to historians, this was one of the principal reasons behind the rapid decline of the indigenous population in what are now the dry areas of Central America.

Livestock was one of the most profitable activities during colonial times. Demand for meat by the rapidly growing population, as well as for leather for export and local use (used to package indigo), led to flourishing livestock markets in the region. Large herds were known to be driven from paddocks in Honduras and Nicaragua to livestock markets in El Salvador (San Miguel) and Guatemala (Cerro Redondo).

Valleys and coastal lands in the dry areas, which were very fertile and flat, and had easy access to water, were also appropriated for commercial crops, such as sugarcane. Later, lands in the dry areas were used to raise cochineal and grow indigo, two activities that also configured the landscape in the dry corridor.

Starting in the 1950s, dry corridor lands, especially the valleys of the Pacific Coast, produced cotton, another agricultural export icon in the region, of which El Salvador, Nicaragua, and Guatemala were the main producers. For El Salvador, cotton was the second main export product; with an area of cultivation of 100,000 hectares in the 1970s (Goita, n.d.). The decline of cotton, due to problems with pests and with labor conflicts, coincided with the most intense era of social conflict in the region. Currently, due to the demand of the Salvadoran Cotton Corporation (COPAL), the crop is rebounding, though not without ups and downs. Nicaragua went from exporting 2,376 kg (5,238 lbs) in 2008 to exporting 73,967 kg (163,069 lbs) in 2011.[1] Honduras has cotton fields in Olancho and Nacaome. In 2005-2006, El Salvador harvested 5,000 hectares, but only 315 hectares in 2011-2012, mostly in the provinces of Usulután and San Miguel.[2]

In the past 20 years, the fertile soils of the CADC's valleys have been home to new export products. In Guatemala, the Zacapa Valley is the principal melon growing area (with Israeli and Italian capital, among others), benefitting from irrigation infrastructure that the State built in the 1960s for the production of basic grains. In Honduras, the lands and coasts immediately surrounding the Gulf of Fonseca are being used en masse for the production of melon and shrimp. In El Salvador, the melon crop covers more than 12,000 hectares, with a harvest of around 200,000 metric tons, destined for

[1] http://www.laprensa.com.ni/2012/03/06/activos/93013

[2] http://www.mag.gob.sv/index.php?option=com_phocadownload&view=category&id=16&Itemid=244

North American and European markets.[3] Honduras and Nicaragua lead in the export of shrimp, which are primarily produced in Gulf of Fonseca estuaries.

In the past 10 years, the CADC also has been the site of investment by extractive industries and logistical infrastructure. The Cerro Blanco mining project, by the transnational company Goldcorp, in Asunción Mita, Jutiapa, is located precisely in a dry area shared by Guatemala and El Salvador around Lake Güija. Furthermore, there is a strong regional interest in developing infrastructure projects for highways, ports, interoceanic canals, and interconnected electrical grids. Guatemala, Honduras, and Nicaragua have their own aspirations to construct interoceanic canals as alternatives to the Panama Canal.

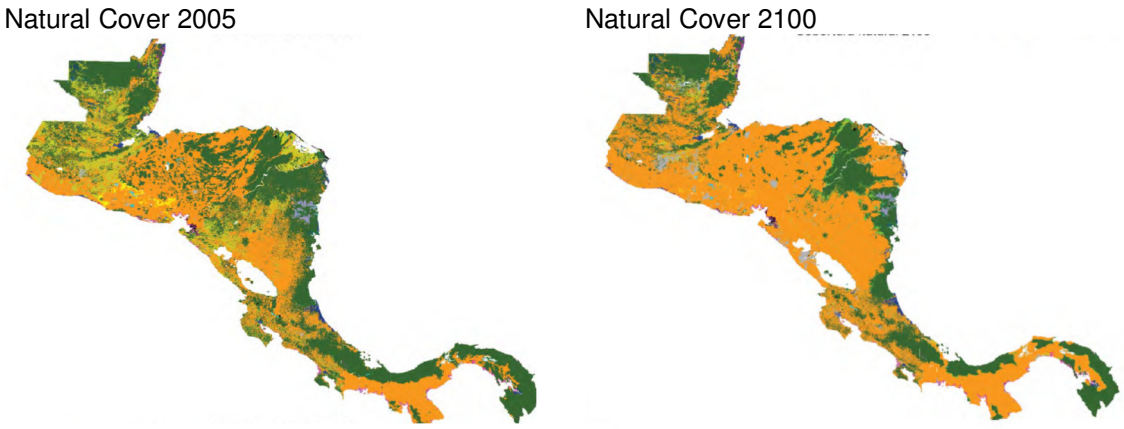
Every one of the countries is making efforts to capture as much as possible in foreign investments for agriculture, mining, electricity, infrastructure, and tourism, which are generating territorial dynamics never before seen in the region and particularly in the CADC, an aspect being analyzed in another study conducted by PRISMA (Davis and Díaz, 2014).

To encourage these investments, governments and private companies see the necessity of providing communications and services infrastructure adequate for such purposes. One notable initiative is the Central American Logistical Corridor, planned in 1999 as an opportunity to make a qualitative leap in the reconstruction and restoration of infrastructure damaged by Hurricane Mitch in 1998. It includes primary highways, railroads, ports, and airports, to facilitate trade among the countries and with the rest of the world. The initiative launched by the presidents of Central America included the following projects: 1,700 km (1,056 mi) of highway along the Pacific coastal plain, from the city of Tecún Umán on the Guatemalan-Mexican border to Panama; 1,400 km (870 mi) of Alternative Pan-American Corridor roadway to link the capitals of Central America; the Atlantic or Alternative I and II Roadway Corridors; and various secondary roadways to link major cities.

Without a doubt, the economic dynamics that have occurred throughout the history of the region as a whole and particularly in the CADC have been determinants of the formation of the landscape and will continue to be determinants as long as the same structural and institutional conditions persist. This can be seen in the map of projected changes in land use by ECLAC (2011), which shows a substantial reduction in forests as a consequence of the expansion of agriculture, livestock, and urbanization.

[3] http://www.minec.gob.sv/cajadeherramientasue/images/stories/fichas/honduras/hn-melon.pdf

Map 4. Central America: Projected Change in Land Use



Source: CEPAL 2011.

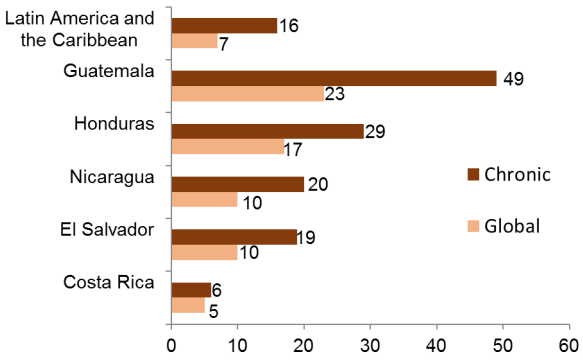
Corridor of Poverty and Malnutrition

The CADC has gained notice not only for its typically hot and dry climate, but principally for its vulnerability to the impacts of climate change, most notably in terms of food security. The malnutrition that affects a good part of the population, especially rural and periurban, has been the main argument for the implementation of governmental and non-governmental interventions in the area. Malnutrition and food insecurity have affected the region's countries for many years. According to the 2005 UNICEF report on the State of the World's Children, the percentage of children under five years of age that suffers from malnutrition is 20% in Nicaragua and El Salvador, 30% in Honduras, and 50% in Guatemala. In turn, the FAO report on food insecurity in the world indicated that, while malnutrition in the world decreased in the decade from 1992 to 2002 from 20% to 17%, in Central America the complete opposite occurred, where the incidence of malnutrition rose from 17% to 21%.

The region's countries have developed several instruments to address the food issue, taking advantage of the institutional capacity created by the Central American Integration System (SICA). Efforts have been oriented to two areas: promoting actions to help the most vulnerable families in terms of food security and improving climate risk management to reduce its economic and social impacts.

In this framework, the Special Program for Food Security (PESA) was designed, which FAO has been sponsoring since 2000 with financial support from the Spanish Agency for International Development Cooperation (AECID) and technical support from the international foundation Action Against Hunger

Figure 1. Central America: Percentage of under 5 years old suffering malnutrition global and chronic



Source: UNICEF – The State of the World's Children. http://www.unicef.org/publications/files/SOWC_2005_(English).pdf

(ACF), in coordination with the Ministries and Secretaries of Agriculture of Guatemala, El Salvador, Honduras, and Nicaragua. PESA seeks to build family and local capacity in the most vulnerable population in terms of food and nutritional security.

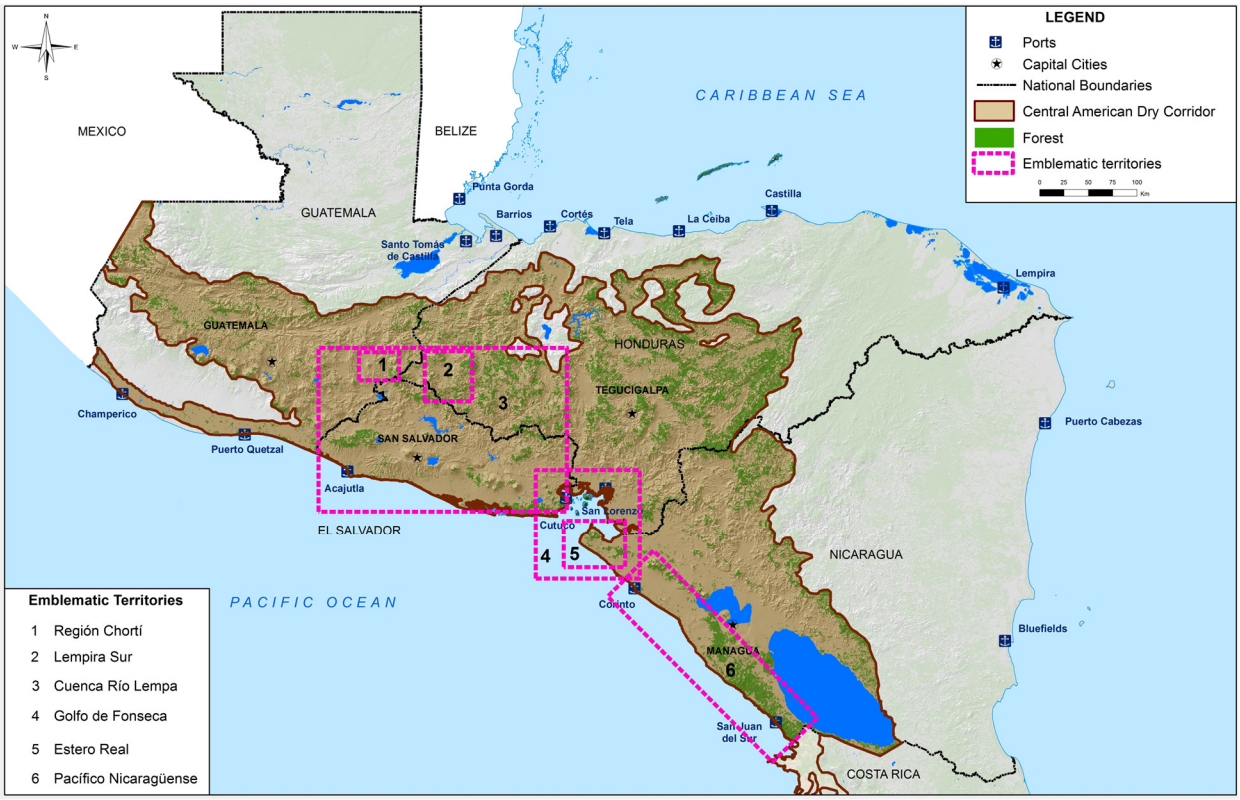
In 2013, the Central American Commission for Environment and Development (CCAD) and the Agricultural Council of Central America (CAC), with support from the Regional Committee on Water Resources (CRRH) and the Coordination Center for the Prevention of Natural Disasters in Central America (CEPREDENAC), agreed on implementation of a Regional Strategic Framework for the Management of Climate Risks in the Agricultural Sector of the Central American Dry Corridor (MERGERCA).

The Emblematic Territories of the Central American Dry Corridor

In addition to its common features, the CADC also displays certain idiosyncrasies resulting from its social and economic history. In the region, several "emblematic territories" are identifiable that have concentrated their concerns and considerable activity toward addressing pressing issues they face. These range from the impact of disasters, challenges in water management, or overlaying economic interests. For illustrative purposes, this report includes five of these emblematic territories, which were selected to demonstrate the complexity of situations that occur in the CADC: Gulf of Fonseca, the Nicaraguan Pacific, the Lempa River Basin, Southern Lempira, and the Chortí Region in eastern Guatemala.

The idea of the emblematic territories is that they can be used as an attempt to understand the characteristics that determine how certain territories within the CADC function, and to encourage the study and design of territorial planning units as homogenous areas, something similar to what ECADERT considers "kindred territories" (PRISMA, 2013).

Map 5: The emblematic territories of the Central American Dry Corridor



Source: Produced by SIG PRISMA

Gulf of Fonseca

Located at southern end of Mesoamerica, the Gulf of Fonseca has been an area of cultural confluence and geopolitical interest because of its strategic position, both as a natural port and for the potential of its water and biological resources. Since the pre-Hispanic era, it was occupied by the Lenca and Chorotega peoples,[4] who continued to claim their territorial rights in the face of colonial rule. When the Central American states emerged as independent countries in the mid-19th century, El Salvador, Honduras, and Nicaragua disputed control over the region, while the powers of the United States and Great Britain simultaneously sought hegemony to construct an interoceanic canal from the Gulf to the Atlantic, crossing Honduras.

In 1992, a decision by the International Court of Justice (in The Hague) determined that Honduras, Nicaragua, and El Salvador share the Gulf and distributed rights over the various islands and islets. Despite this, at present, the three countries maintain their respective claims, which is the main obstacle to a joint Gulf development strategy. Currently, every country is, with its own money, designing its respective development plan. These focus primarily on three areas: attracting large private investments in agriculture, aquaculture (shrimp), logistical development, fishing, and tourism; social development to address the high poverty rates affecting the population; and contributing to the protection of natural areas.

Honduras, for example, has launched its "Model Region" Plan for the Gulf of Fonseca Region, which includes Choluteca and Valle provinces, and it has declared a Ramsar site for the conservation of wetlands and mangroves. Similarly, Nicaragua is implementing its Strategy for the Conservation of Estero Real.

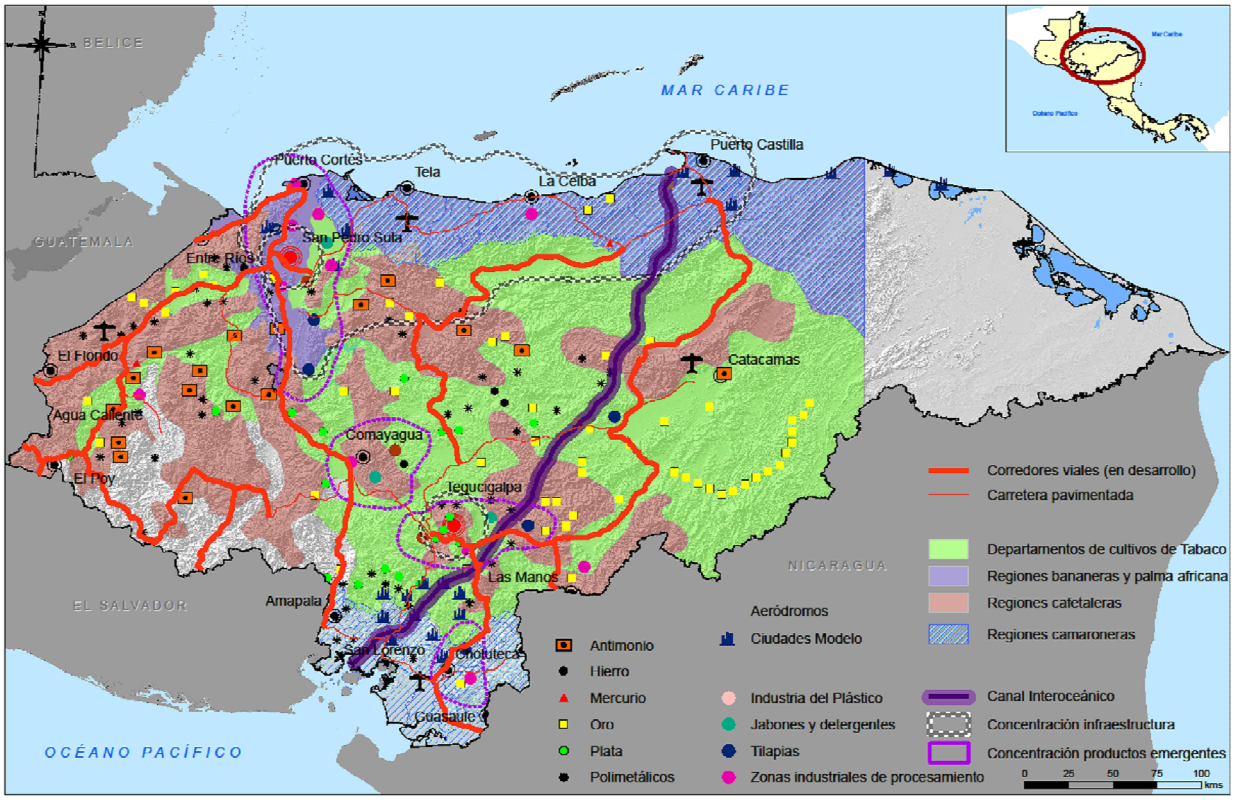
Southern Honduras is the area of the country that is the most vulnerable to climate change, according to the First National Communication, of 2000. The reduction in rainfall and increase in temperature, in addition to the El Niño and La Niña oscillations in the Pacific (ENSO), are so significant they may trigger disasters, affecting human life and productive sectors. These links between climate change trends and the dynamics in the Dry Corridor are key to influencing more comprehensive policies.

The most important area of Honduras in the CADC is the area around the Gulf of Fonseca. The map of the territorial dynamics of Honduras (PRISMA, 2013) shows that this area is strongly influenced by the increase in investments related to shrimp and sugarcane farming, the "Model Cities" proposal,[5] the Interoceanic Canal proposal, and mining activities, all of which compete with rural agriculture and wetland and mangrove protection efforts.

[4] Garnica, F. La identidad cultural en el oriente de El Salvador. Frances Paola Garnica. http://www.academia.edu/4078301/La_Identidad_Cultural_de_Oriente_de_El_Salvador

[5] This is a proposal to create Development and Employment Zones (ZEDE in Spanish) that consist of independent territories with an administration autonomous from the Honduran Government, with their own tax and legal systems. On February 5, 2014, the government announced the first model city will be constructed in Choluteca. http://www.laprensa.hn/honduras/tegucigalpa/447202-98/primera-ciudad-modelo-de-honduras-sera-en-choluteca

Map 6: The Territorial Dynamics of Honduras



Source: PRISMA, 2013.

With Decree No. 286-2009 of January 11, 2010, the Government of Honduras adopted the Law for the Establishment of a Country Vision and the Adoption of a Nation Plan, creating six regions; these include the Southern Region, which is the Fourth Region, and the Gulf of Fonseca Sub-Region.

Planning is overseen by the Regional Development Council (CRD in Spanish), as the regional agency for dialogue and collaboration between the Central Government and civil society actors. The CRD is made up of 10 representatives of the citizens of the region, from different municipalities and villages; five representatives of non-governmental organizations working in the region; one representative from each local government of the municipalities in the region; five representatives of the international institutions with programs and projects in the region as observers; one representative from each trade union related to the topic being addressed; and the Regional Commissioner, representing the Council of the Nation Plan.

On November 8, 2011, in the Council of Ministers, the President determined that the Southern Zone would be the Model Region for implementation of the Nation Plan. To that effect, the Technical Secretariat of Planning and External Cooperation (SEPLAN in Spanish) set forth its vision to redeem the vulnerable regions of the country by redeveloping their productive capacities through different public and private actors in the region. By Decree No. 216-2011 of November 17, 2011, the government created the Commission for the Integrated and Sustainable Development of the Southern Zone, which is

responsible for implementation of the permanent economic reactivation and reconstruction plan.

By Executive Decree 002-2012, the President defined the Gulf of Fonseca Sub-Region (Part of the Fourth Region) as a "Model Region," to institute the methodological model in the Country Vision and Nation Plan, which after two years will be replicated in the remaining regions. The idea is that all government institutions and dependencies that have interventions or programs in the region must initiate and promote the necessary actions to functionally and effectively decentralize in the region. All dependencies must align their operational plans to the model region.

In Honduras, many institutions operate in the Gulf of Fonseca region. Civil society is part of the Municipal Emergency Committees (CODEMS). Additionally, the 45 municipalities of the region have organized themselves into 10 associations, each of which has an intermunicipal technical unit charged with the administration and management of initiatives, and with creating synergies among the different actors.

The principal economic activity in the Gulf is, without a doubt, shrimp farming. Honduras began commercial shrimp farming in 1984 and, since then, the industry has grown steadily, to the point where it is now one of the principal shrimp exporters in the world. Shrimp farming, which exists only in the Gulf of Fonseca, brings in 10% of the country's foreign exchange. Honduras is the primary exporter of shrimp to the United States, with about 10,000 metric tons annually.

Shrimp is the country's third largest export product, behind only coffee and bananas. Total exports in 2012 were 57 million pounds, and the members of the National Association of Aquaculturists of Honduras (ANDAH) believe that there are major opportunities for expanding the market, especially in processed shrimp, which up to now has represented 42% of exports.

The production of both melon and shrimp are being driven by the government and private companies through the National Competitiveness Program (Honduras Competes, *Honduras Compite*); the "Honduras Exports" initiative (*"Honduras Sí Exporta"*), which advises companies and walks them through the export process with commercial information; the Industry and Commerce Secretariat; the Honduran Council of Private Enterprise (COHEP); and the Chamber of Commerce and Industry in Tegucigalpa, among others.

According to Redmanglar, the growth of industrial shrimp farming is directly responsible for the loss of 50% of mangrove ecosystems, thus reducing livelihood opportunities for local communities. It has said that the shrimp industry has an environmental and social debt to the peoples that inhabit the mangroves, which is why its oppose the certification of industrial shrimp farming.[6] The Committee for Defense and Development of the Flora and Fauna of the Gulf of Fonseca (CODDEFFAGOL) has undertaken actions for the protection of the mangroves and is strongly opposed to expansion of the shrimping industry.

[6] http://redmanglar.org/sitio/index.php?option=com_content&view=category&layout=blog&id=37&Itemid=104

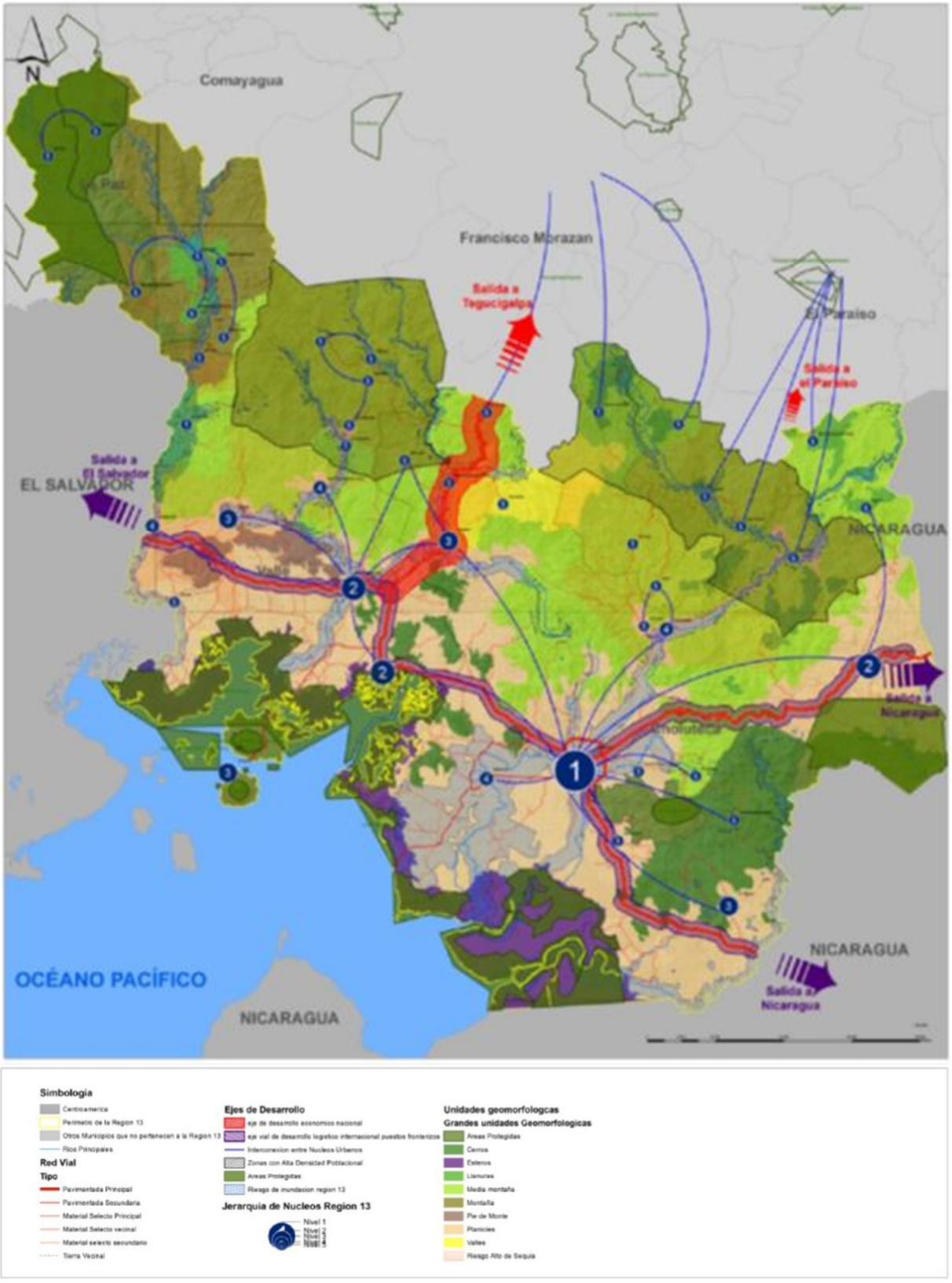
Experts have recommended that Honduras should give priority to the management of its water resources in its process of adaptation to climate change. They suggest strengthening the Pacific coastal area to withstand the El Niño and La Niña oscillations (ENSO), minimizing the productive vulnerability of agricultural valleys, and regulating the development of coastal areas.[7] However, conditions in the region reveal a conflict in the way that development should be oriented, given that while extractive activities are being promoted in the region, there is evidence of the territory's high sensitivity to climate change. This is a good point to reflect on the importance of new political frameworks that consider the situation of the vulnerability of these territories to degradation worsened by climate variability.

In El Salvador, the government is promoting the Strategy for the Development of the Marine-Coastal Area, which has prioritized granting concessions for the International Port of Cutuco, taking advantage of its geographic location, despite the fact that it faces serious problems due to the silting of its access canals, due to erosion produced by unsustainable agricultural practices.[8] The government estimates that it would cost US$30 million to remove the sediment every three years. This points to the importance of the recommendations of the Ministry of Environment and Natural Resources (MARN) that decisions on investments should take into account natural and climate phenomena, to ensure they are sustainable over time (Gobierno de El Salvador, 2012). MARN proposes the mass restoration of landscapes and ecosystems as an alternative to undertaking expensive engineering projects (MARN, 2012).

[7] Girot, P. and A. Jiménez. 2002. "Marco Regional de Adaptación al Cambio Climático para los Recursos Hídricos en Centroamérica." Central American Dialogue on Water and Climate, November 26-28. San José, Costa Rica.

[8] An annual rate of erosion of 52 tons per hectare per year has been calculated (MARN, 2012).

Map 7. Territorial region model of Honduras 13.



Estero Real and shrimp farming

Estero Real is a natural reserve area located in the southeastern-most portion of the Gulf of Fonseca, in the North Pacific of Nicaragua, in the province of Chinandega, with five municipalities: Chinandega, El Viejo, Villa Nueva, Puerto Morazán, and Somotillo, and 24 communities; in 2000, 21,540 lived there. Ecologically, it is a tropical savanna, whose principal characteristic is a long dry period from November to April, during which there is also a high rate of evapotranspiration. It contains approximately 55,000 hectares, of which 18,500 (33%) are mangroves, wetlands, and salt marshes, with many aquatic, coastal, and terrestrial ecosystems, which contribute to high biological diversity of species of flora and fauna. This biological richness, however, is threatened by the social pressure exerted by productive activities in agriculture, livestock, and fishing. In 2008, it was calculated that the mangroves were being deforested at a rate of approximately 385 hectares per year.

Map 8. Gulf of Fonseca: Effects of Salt and Shrimp Industries

Source: Google Earth, January 2014.

In 1983, Estero Real was declared a protected area in the Natural Reserve category. In 1991, through IRENA (now MARENA), and with support from UICN and DANIDA, the government implemented the Mangroves Project. The Strategy for the Development and Conservation of Estero Real was prepared in 2000 by the Government of Nicaragua through the old Rural Development Institute (IDR) and launched with support from DANIDA and CATIE to regulate sustainable development in this region through the appropriate use of its natural resources and in a collaborative process among local actors and the government. A zoning system was proposed that includes the following zones: wetland, agrosilvopastoral management, agricultural development for agricultural export, conservation of woodland habitat and forests, and agrosilvopastoral farm management.[9]

The main threat to Estero Real is the development of shrimp farming, an activity that was strongly driven by the government to generate economic growth and reduce poverty. It has attracted large investments, and has grown at a pace of 10% in the last ten years, but with hard-to-quantify environmental costs from pesticide and nutrient use. Nearly all of the main shrimping concessions granted to private companies by the government are located in Estero Real (the other area is the Padre Ramos Estuary, one-tenth the size of Estero Real). In 2000, it was calculated that production was divided as follows: artisanal or extensive systems (17%), semi-extensive systems (31%), and semi-intensive or high-profit systems (51%).[10] However, in 2007, it was determined that 63.4% of production now uses semi-intensive systems, which demonstrates a trend toward large-scale commercial production to the detriment of artisanal production.[11]

Currently, there are about 10,330 hectares in production, of which 60% is by companies using semi-intensive systems and 40% by cooperatives, using primarily extensive systems. This area has generated 12 million pounds of shrimp for export, valued at $28,633,000. Of this, 53% is exported to the United States, and 45% is exported to the European Union.[12]

Shrimp farming creates around 24,000 jobs annually and contributes 4% of the country's total exports. In 1998, the industry was greatly affected by Hurricane Mitch. It has always been exposed to natural events, especially delays in the start of the rainy season (vital for seeding), as well as floods caused by intense rains and storms, and alterations in the equilibrium between sea and estuarine waters. In addition, shrimp is very sensitive to brusque increases or decreases in temperature, which make it susceptible to infectious diseases.

In terms of incentives, shrimp producers are exempt from import taxes on inputs and machinery, granted access to foreign exchange generated in the process, provided a tax refund of 1.5% on exports of the Free on Board (FOB) value, and refunded the Specific Consumption Tax for fuel equivalent to $0.03 per kilogram exported ($0.0136 per pound exported).

In turn, industrial fishing does not exist or is insignificant in the Estero Real area, where the principal form of fishing is artisanal. However, there are shellfish processing plants in the region, among them the Regional Union of Fish-

[9]CATIE, IRD. 2000. Estrategia para el Desarrollo y la Conservación del Estero Real, Nicaragua. Turrialba. Costa Rica.

[10]Op. cit.

[11]Nicaragua, 2010. Conglomerado Pecuario y Acuícola. Camaronicultura. Millennium Challenge Account.

[12]http://www.fao.org/fishery/countrysector/naso_nicaragua/es#tcN70064

ing Cooperatives, which processes 1,800 metric tons of fish and shellfish a year.

Furthermore, agricultural and forest resource extraction (firewood) activities are principally for self-consumption and small-scale trade. The principal crops are corn and sesame, primarily for subsistence.

The civil society organizations present in the Estero Real primarily deal with shrimp farming. Notable among them are the Regional Union of Shrimping Cooperatives (URCOOCAM); the Regional Union of Productive Cooperatives (URCOOP); the National Association of Aquaculturists (ANDA), which represents private investors; firewood producers cooperatives and associations; and agricultural cooperatives.

The primary socioeconomic problem in Estero Real is poverty, which affects more than 60% of the population. Lack of jobs and the low value of marketable products keep incomes below the minimum necessary to meet the needs of this region's inhabitants.

In contrast, in El Salvador, shrimp farming is still a young industry. The government has been working to boost annual production from 1 million to 3 million pounds. To that end, it has been training producers and providing them with facilities to improve their productive processes. However, there is no significant production in the Gulf of Fonseca; rather, it is primarily concentrated in the Lower Lempa and in Jiquilisco Bay and Jaltepeque Estuary along the central coast of the country.

The case of shrimp farming is, without a doubt, one of the most paradigmatic, given that while efforts are underway to conserve mangrove areas, the government is, at the same time and in the same areas, very actively pushing shrimp farming through the Shrimp Farming Project's Action Program, which seeks to increase production through technical improvements and the strengthening of partnerships between the large companies and the cooperatives (Cuenta Reto del Milenio, 2010).

The Nicaraguan Pacific

This region runs along the entire Pacific coast, in the Nicaraguan depression or trough. It was the seat of what some historians have termed the "Kingdom of Nicoya," comprised of the collection of native villages that extended from the Gulf of Nicoya to the Gulf of Fonseca. It covers 18,555 km^2 or 7,164 mi^2 (not counting the large lakes), divided into seven provinces and 61 municipalities. These are grouped into three planning regions: Region I or the North Pacific Region (Chinandega and León Provinces); Region II or the Central Pacific Region (Managua, Masaya, Granada, and Carazo Provinces); and Region III or the South Pacific Region (Rivas Province).

This region is traversed by a chain of volcanoes and in the north has extensive plains. It has a tropical savanna climate (according to the Köppen classification), with a pronounced dry season from December to April and a rainy season from May to November; temperatures average 27°C (81°F) and annual precipitation is 1,600 mm (63 inches).

It is also the region where 87% of the population lives (UNDP, 2005) and is home to the largest cities, including Managua, the capital, and Chinandega, León, Granada, Rivas, and Masaya, among others. This region is also home to the bulk of the country's activities in agriculture, industry, commerce, tourism, education, general services, and the provision of infrastructure.

The soils of this region are of volcanic origin and, in the majority of cases, have a flat grade that makes them very well-suited for agricul-

ture. Historically, intensive agricultural use of the land has been favored, benefitting from its great natural fertility and the availability of underground sources of water for irrigation. The area is home to the principal areas of annual crop production, with such crops as sugar, cotton (when it was important), livestock, corn, rice, and beans. In fact, it has been the country's most productive agricultural region and the site of the government's greatest efforts for increasing productivity, for which it was known for a long time as "Central America's breadbasket." On the other hand, forests are very scarce and degraded. Despite social pressure, the aforementioned mangroves of Chinandega are the forests that have been the best conserved.

In economic terms, the region generates approximately 70% of the GDP of the country. Nearly all of the agricultural export production in the country is from this region.

However, it is the region most exposed to the impacts of climate change, in terms of increased temperatures, prolonged droughts, and erratic rainfall patterns. The latest climate bulletin from the Nicaraguan Institute of Territorial Studies (INETER) says that, in 2013, out-of-season rainfall and wind temperature exceeded the historical norm in the Pacific Region.[13]

The dairy region of the interior, the nation's largest, around Lake Nicaragua, has easy access to Managua's urban market and the primary dairy processing centers. Nearly 80% of the land in this region is covered by cultivated or natural pastures.

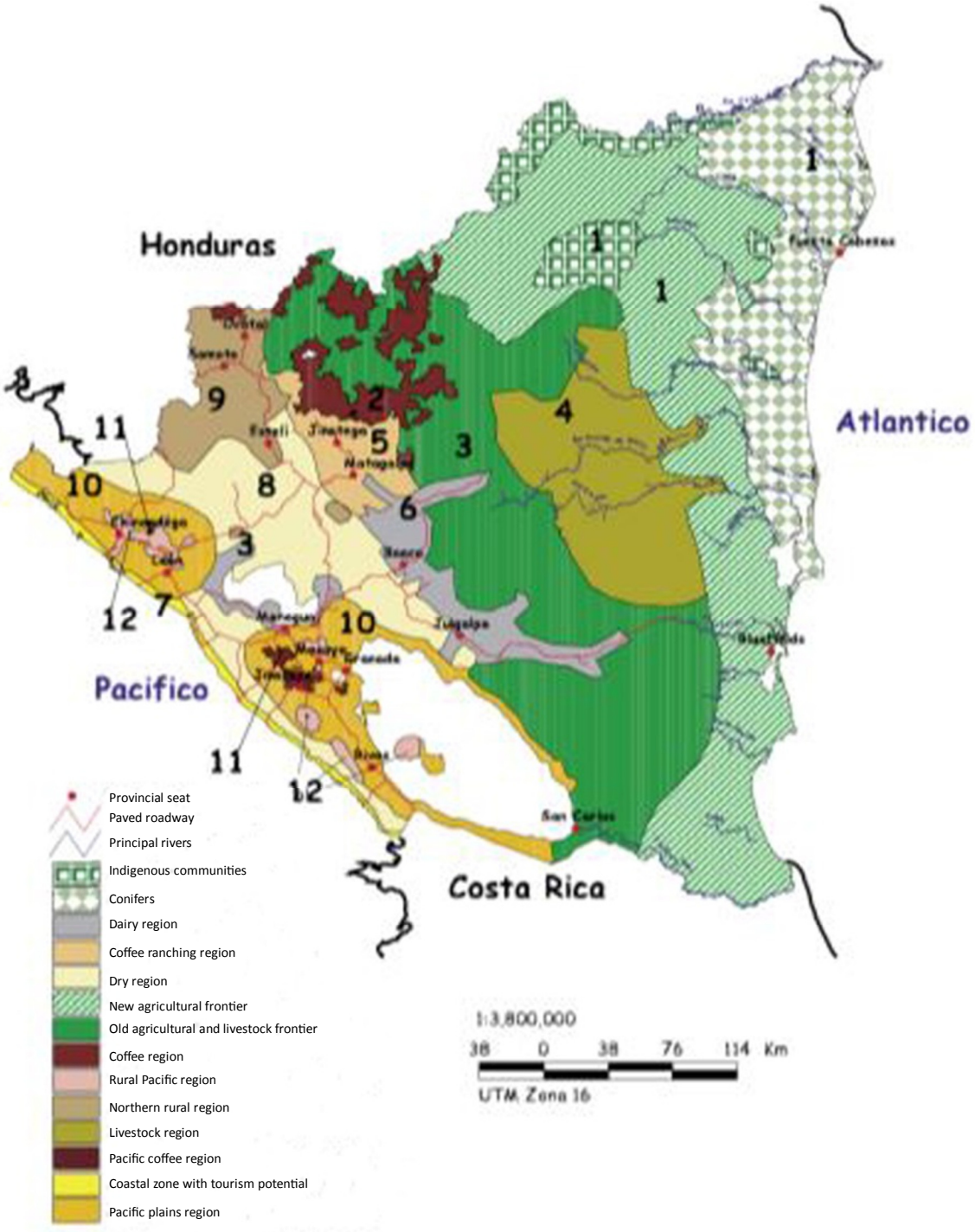
Major investments in tourism are pouring into the far southern part of the country, especially in the vicinity of San Juan del Sur, Ometepe Island, and the San Juan River.

This region evidences a frank contradiction between the efforts to address vulnerability to climate change and the economic development policies driven by the government and the private sector. On the one hand, there are initiatives aimed at the improvement of the environment and rural production, such as the Gulf of Fonseca Biological Corridor Project, launched with support from CCAD and USAID (PROARCA/COSTAS, 2001); the National Dry Forest Program of the National Alliance for the Conservation of Dry Forest in Nicaragua; the National Action Program to Combat Desertification and Drought; and the various projects supporting rural family agriculture to improve the production of livestock, coffee, and basic grains, with the involvement of various local entities and international cooperation organizations.

On the other hand, there is also a strong push for large-scale economic investment, such as the expansion of sugarcane, tourism projects, and most recently, the interoceanic canal project.

[13] http://webserver2.ineter.gob.ni/Direcciones/meteo rolo-gia/Boletines/Boletin%20Climatico/boletines%20 climaticos% 202013/NOVIEMBRE%20-%202013/ Bolclim% 20nov2013.pdf

Map 9: Agrarian Zones of Nicaragua



Source: Ruiz, A. and Marin, Y. 2005.

Lempa River Basin

Most studies include all of El Salvador as being located within the Central American Dry Corridor, but in reality, the driest areas are scattered. In the west, Metapán stands out, along with Cara Sucia and Tacuba in Ahuachapán, whereas in the east the most affected areas are La Unión and Usulután. A FAO study found that 25 municipalities are at risk of severe drought, which another 193 municipalities (68% of the country) could suffer high drought, in both cases with more than six months of dry weather with temperatures above normal. In the present document, we have selected the Lempa River basin and its areas of influence, given that this river constitutes a vital part of the country not only in terms of its contribution of water for agriculture, human consumption, and the generation of electricity, but also in terms of relationships and alliances with Guatemala and Honduras, which are home to the river's main tributaries. For these reasons, the Lempa River basin is a priority for El Salvador's climate change mitigation and adaptation efforts, for the fact that any climate impact in this basin (floods, landslides, intense rainfall, or prolonged drought) constitutes a grave threat to the entire country.

The trinational Lempa River basin spans approximately 18,240 km2 (7,042.5 mi2), of which 56% are in El Salvador, 14% in Guatemala, and 30% in Honduras. The upper reaches of the basin are home to the most significant areas of forest and shrub cover, primarily in the Trifinio Region and Lake Güija. In the middle reaches, 35% of the Salvadoran population lives, and in the lower reaches, the river combines with the Pacific coast estuary system.

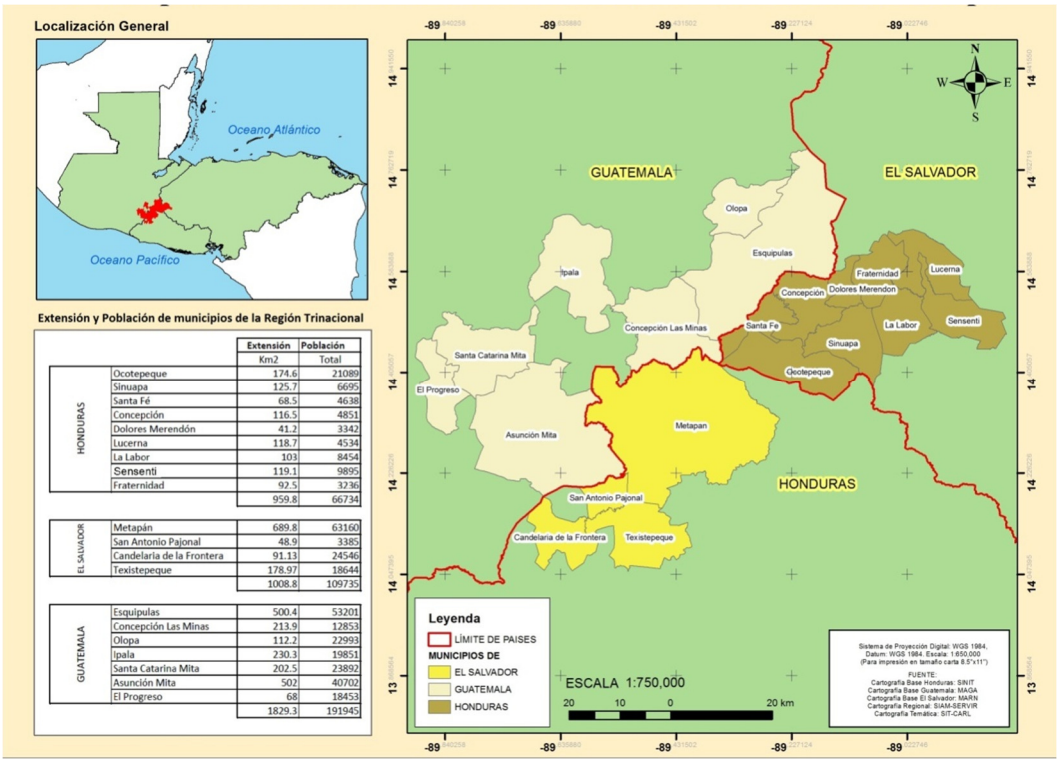
Four of the largest hydroelectric power plants in El Salvador span the river (Guajoyo, Cerrón Grande, 5 de Noviembre, and 15 de Septiembre), contributing a total of 400 MW to the country's electrical grid.

Among the important actors are the Executive Hydroelectric Commission of the Lempa River (CEL), an autonomous entity created in 1945 for the development of electrical power and projects related to integrated management of the basin. Its directorate is comprised of representatives named by the Ministries of Governance, Economy, Finance, Public Works, Foreign Affairs, and Agriculture, and the Central Reserve Bank.

The upper basin is home to alliances such as the Trinational Border Association of the Lempa River, a grouping of 21 municipalities in Guatemala, Honduras, and El Salvador, interested in unifying development efforts in the cross-border space of the Lempa River. The Association has been recognized in the juridical framework of the respective countries (Guatemala – 2007, Honduras – 2009, and El Salvador – 2011). In Honduras participating municipalities are: Ocotepeque, Sinuapa, Concepción, Santa Fé, Dolores Merendón, Fraternidad, La Labor, Lucerna, and Sensenti; in Guatemala: Concepción Las Minas, Esquipulas, Olopa, Ipala, Asunción Mita, El Progreso, and Santa Catarina Mita; and in El Salvador: San Antonio Pajonal, Candelaria de La Frontera, Cítala, San Fernando, and Dulce Nombre de María. In the area covered by the Association, there are about 200,000 inhabitants, the majority of whom are dedicated to small-scale economic activities, since there have been no large agricultural or extractive industry investments, except for the Cerro Blanco Mine, in Asunción Mita, Guatemala, which recently ceased operations.

The objectives of the basin's Territorial Strategic Plan are to promote territorial interconnectivity to facilitate socioeconomic development; promote the generation of clean, sustainable energy; promote the development of tourism and

Map 10. Municipalities of the Trinational Border Association of the Lempa River



Extensión y Población de municipios de la Región Trinacional

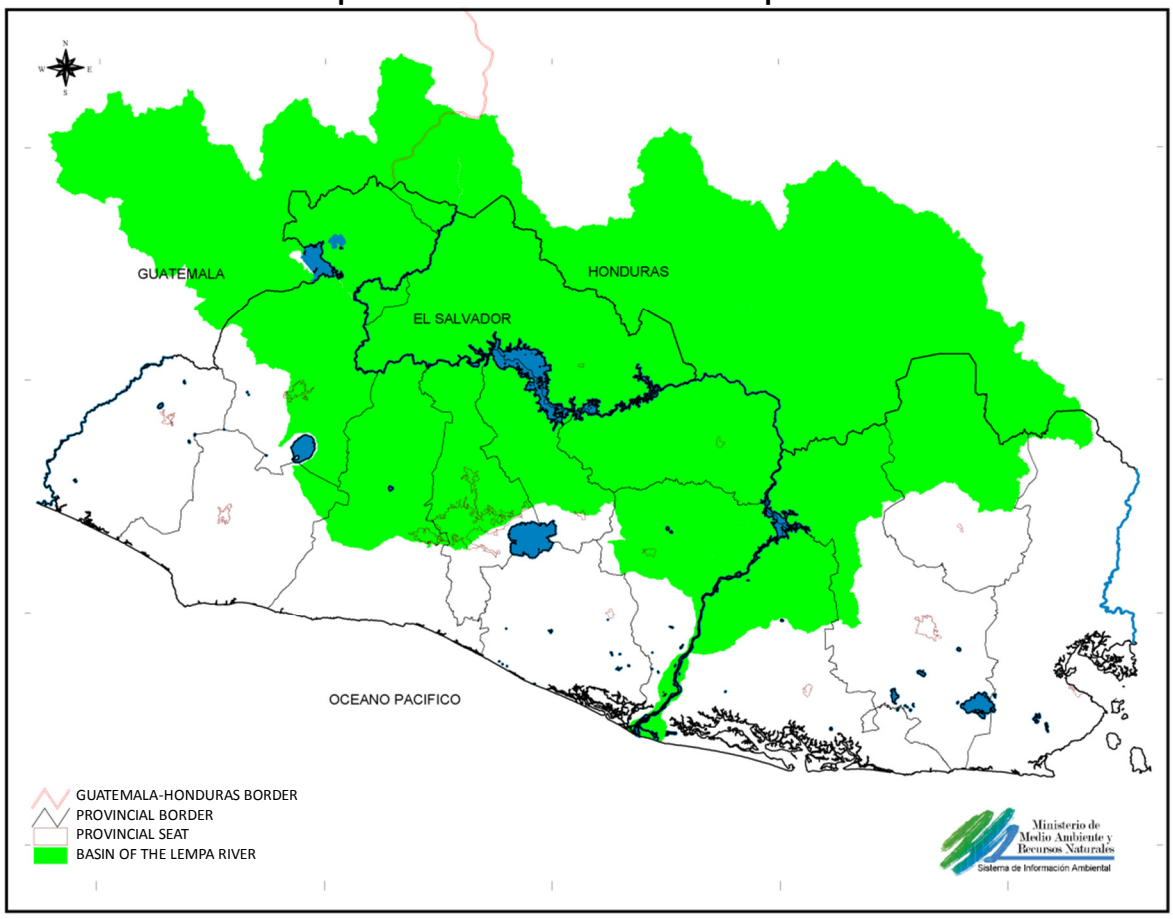
		Extensión Km2	Población Total
HONDURAS	Ocotepeque	174.6	21089
	Sinuapa	125.7	6695
	Santa Fé	68.5	4638
	Concepción	116.5	4851
	Dolores Merendón	41.2	3342
	Lucerna	118.7	4534
	La Labor	103	8454
	Sensenti	119.1	9895
	Fraternidad	92.5	3236
		959.8	66734
EL SALVADOR	Metapán	689.8	63160
	San Antonio Pajonal	48.9	3385
	Candelaria de la Frontera	91.13	24546
	Texistepeque	178.97	18644
		1008.8	109735
GUATEMALA	Esquipulas	500.4	53201
	Concepción Las Minas	213.9	12853
	Olopa	112.2	22993
	Ipala	230.3	19851
	Santa Catarina Mita	202.5	23892
	Asunción Mita	502	40702
	El Progreso	68	18453
		1829.3	191945

handicraft production; and agricultural and business development. The primary projects currently underway are: Regional Territorial Integration and Social Cohesion, with support from the URBAL III Program and the European Union; Sustainable agriculture and pesticide regulation, with support from CATIE; Clean City, with support from Oxfam and the European Union; and Zero Hunger, with support from the European Union.[14]

The Trinational Association of the Lempa River has strategic alliances with other associations, such as: in Guatemala: the Lake Güija Association, the Northeast Association, the Copán Ch'orti' Association, and the Southeast Association; in El Salvador: the Association of the Municipalities of Cayaguanca and the Association of the Municipalities of the Trifinio; and in Honduras: the Association of the Municipalities of the Secacapa Valley and the Guisayote Association.

[14] http://www.trinacionalriolempa.org/index.php/es/proyectos.html

Map 11. Trinational Basin of the Lempa River



The Trifinio Plan Trinational Commission: This is the oldest initiative, established in 1988, for promoting Central American integration through collaborative action in the border region of El Trifinio, an area of 7,541 km² (2,912 mi²) shared by Guatemala (44.7%), Honduras (40%), and El Salvador (15.3%). Its objectives are to improve the socioeconomic conditions of the population, increase economic competitiveness, improve physical infrastructure, and institutional development.

The Trifinio Region comprises 45 border municipalities— 8 in El Salvador, 15 in Guatemala, and 22 in Honduras— located around the cloud forest of the Montecristo massif. Its peak is the point known as El Trifinio, the place where the borders of the three Central American countries meet.[15] The region has a population of approximately 670,000 inhabitants, who share the border space for their productive, commercial, and cultural activities. It has a high potential for tourism with such attractions as the Copan Archeological Park, the Esquipulas Basilica of the Black Christ, and Montecristo National Park.

Through their Ministries of Agriculture and Natural Resources, the governments of the three countries sought European Union aid, and since 1988, have been implementing the

[15] http://www.sica.int/trifinio/trifinio/breve_trifinio.aspx?IdEnt=140

Pilot Project for the Development of the Trifinio Region, which has been continually updated and constitutes the guiding framework for their actions.

The priority pillars of the Trifinio Plan are: cross-border basins, management of the trinational protected area Fraternidad Biosphere Reserve, and cross-border cooperation. To that end, the primary projects have had environmental, agricultural, and local economic development orientations. According to its website, the current projects are: Regulation and Development of Sustainable Tourism Program, Management of Basins, Sustainable Development of the Upper Basin of the Lempa River, Value Chains for Special Vegetables, and Sustainable Coffee.

Over the course of its 25 years, the Trifinio Plan has received support for its projects from many donor partners, notable among them: European Union, KFW, UICN, CATIE, and ICP.

A study by Girot and Meléndez (2000) said that the true danger of the midsummer drought for agriculture is not exactly the decrease in rainfall, but rather the presence of more or less lengthy dry periods that exhaust the soil's water reserves and affect crops when their demand for water is highest. In fact, land area used for basic grains has decreased 10% in the last decade, and is very prone to prolonged droughts. Meanwhile, losses in productivity in sugarcane and livestock (around 150,000 hectares along the coast) have been as much as 60% due to floods.

Among it institution-building initiatives, El Salvador is implementing the Presidential Program "Territories of Progress," which is taking a holistic, coordinated approach, to comprehensively address the problems of depressed rural areas, through territorial pacts between the government and local actors. Some of the Territories of Progress include several municipalities, as is the northeast (Morazán, San Miguel, and La Unión), which includes 31 municipalities in one of the country's driest areas. The governing boards of the Territories of Progress include representatives from the Communal Development Associations, productive sectors, women, youth, municipal councils, and provincial management cabinet.

The Ch'orti' Region in the Dry East of Guatemala

The Ch'orti' Region is an ancestral indigenous territory located in the provinces of Chiquimula and Zacapa in Guatemala and Copán, Ocotepeque, Cortés, and Santa Bárbara in Honduras. Without a doubt, the delineation of the border between Guatemala and Honduras caused a formal isolation between the Ch'orti' of each country and, consequently, a different political course in the relationship of each group with its respective State. While in Honduras they formed the National Council of Indigenous Ch'ortis (CONICHH) in 1994, integrated into the National Confederation of Native Peoples of Honduras (CONPAH), in Guatemala no representation exists that brings together this people. However, no representation exists for all the indigenous peoples in the country. In both countries, the Ch'ortis have suffered the dispossession of their lands and territories and greatly lag behind socially, to the point where their communities are the poorest in the country.

In Guatemala, there are approximately 50,000 Ch'orti' and their territory, as a product of dispossession caused by local landowners, has been reduced considerably to an area comprised of mountains, dry hillsides, and small irrigated areas, insufficient to satisfy basic needs, especially food production. For that reason, the Ch'orti' have repeatedly suffered, and more noticeably following Hurricane Mitch in

1998, from famine and chronic malnutrition, causing the death of many people. However, some studies have demonstrated that the problems of poverty and hunger in the Ch'orti' Region are not only due to climate considerations, such as drought, but also fundamentally to the lengthy process of discrimination and dispossession of lands and territories (Dary, Elías, and Reyna, 1997).

For several years, efforts have been implemented to confront the issue of poverty and hunger in this region. One of them was a project by the Ministry of Agriculture, with support from IFAD, called Project Zacapa Chiquimula (PROZACHI), implemented from 1994 to 2002. In addition to supporting improvements in agricultural systems, natural resource management, and productive infrastructure, it was dedicated, in its final years, to strengthening the mechanisms of social organization, which are very weak in the region. There was also the Jupilingo – Las Cebollas Community Forest Project, financed by Dutch Cooperation; the Communal Lands Demarcation Project, supported by Austrian Cooperation; and in part, the Trifinio Project.

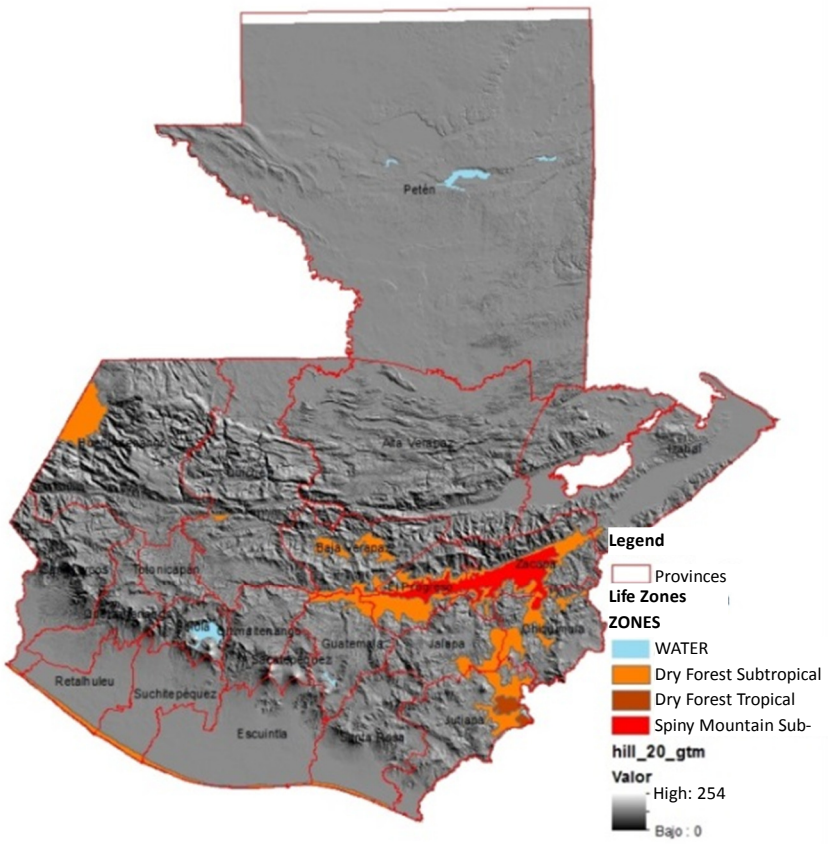
In the last few years, the indigenous Ch'orti' peoples' organizations have been making efforts to achieve the recognition of their collective rights to their ancestral lands within the framework of the cadastral survey currently underway in the country. In fact, it is common to still find communal lands in Ch'orti communities that, although small in size, have been part of their strategies for survival (Elías, 2008).

The pressures that confront the Ch'ortis stem primarily from local landowners interested in expanding livestock ranching and the cultivation of coffee, tomato, and tobacco, among other crops. Currently, pressures stem from companies interested in hydroelectric power generation. For some time, there have been several projects in the pipeline for taking advantage of the power generation potential of the Jupilingo River, a tributary of the Rio Grande de Zacapa, which in turn empties into the Motagua River.

In Ch'orti' territory, Montaña de la Unión has been established as a protected area, in Zacapa Province. The indigenous communities have been excluded from decisions regarding its management, administration, and access, despite the fact that they are the ones who have historically fought for its conservation.

The local actors have several representative bodies. One of them is the Association for the Development of the Ch'orti' Region (ASORECH), which is currently the most important institutional entity for local rural and indigenous actors in the municipalities of Jocotán, Camotán, Quetzaltepeque, and San Juan Ermita.

Map 12. Guatemala. Dry Forest Life Zones



Source: MAGA ESPREDE 2003

Southern Lempira

Southern Lempira, in the province of Lempira, Honduras, is another of the CADC's emblematic territories. It has been a focus of attention because it is the intervention area of the Lempira Sur Project that FAO has been running since 1988. Lempira is one of the poorest provinces in Honduras and is highly vulnerable to climate change, exacerbated by recurring droughts. The territory, adjacent to El Salvador, is comprised of 20 municipalities with 136 communities, and 135,000 inhabitants, covering approximately 2,610 km2 (1,008 mi2), dominated by hillside farming of corn and beans and livestock. It forms part of Agrarian Region V, known as "Rural hillsides and mountains of the South." Its position on the border facilitates formal and informal employment and commerce links between Honduras and El Salvador

The territory is characterized by its social backwardness, geographic isolation, and low levels of production. Studies have shown it to be a very depressed area in terms of poverty and environmental deterioration, due to traditional production based on slash and burn agriculture and extensive livestock herding (Zelaya and Reardon, 2001).

In 1988, FAO initiated the Lempira Sur Project to respond to the threat from droughts, which

were endangering the area's food security. The first actions were focused on supporting efforts to improve food production, regulate livestock production, restore ecosystems through a focus on integrated river basin management, and increasing value chains for rural production. Later, it stimulated the creation of non-agricultural jobs and development of micro-business and microfinance (cooperatives, communal banks, and rural credit unions). What could be considered non-agricultural economic activity (services, metal workshops, stores, etc.) is not significant and, in general, depends on agricultural activities.

In addition to FAO, the territory has had other actors (CARE, UNICEF, CIAT, AFE-COHDEFOR, JICA, etc.) interested in supporting local economic processes. Lempira Sur has been a laboratory for innovative approaches to rural development. Since it is an indigenous area, the National Lenca Indigenous Organization (ONILH) has been very visible, working especially with the indigenous population on cultural revaluation and Lenca identity. A recent PRISMA study (Cartagena and Gómez 2014) explains the role of collective action in transforming the agricultural landscape there, involving widespread adoption of certain agricultural practices. The main one is the Quesungual agroforestry system (named for the village where it was developed), where basic grains are grown in fields together with trees that provide organic matter, which together with stubble, helps to maintain soil humidity and nutrients. In just a few years, crop yields improved, along with resilience to prolonged periods of rain or drought, such as the drought of 1997 and Hurricane Mitch in 1998. The latter passed practically unnoticed in the municipalities that were already practicing Quesungual (Fernández, 2005).

Despite all the institutional efforts to create favorable conditions for rural territorial development, it has not been possible to overcome the structural causes that condition poverty in the region. Inequality continues in access to productive resources, especially lands and financial capital, which results in fragmentation of the land, due to demographic growth, migration, and informal border trade.

A study of these issues (Falk, n.d.) found that the lack of a territorial policy does not enable the growth of the territories, because technological innovations and advances have an excessive bias toward the agricultural sector and have not, therefore, been able to significantly transform the conditions of poverty, migration, and environmental deterioration. For that reason, it has not been possible to put into practice truly integrated concepts of rural territories and economies. The study asserts that one of the great weaknesses of the institutional framework for supporting integrated rural development that includes both agricultural and non-agricultural components is that the institutional mindset is geared to the agricultural sector, with a bias and identity that does not permit appropriate promotion of non-agricultural actions in line with local needs.

Analysis of current management mechanisms

The current institutional framework of the region and of each one of the countries involved in the CADC would appear, at first glance, to be sufficient for addressing the challenges from climate change, to reduce its impact in the region, above all in the most vulnerable territories in social, economic, and environmental terms. SICA has bodies, secretariats (Environment: CCAD, Social Integration: SISCA, Tourism: CCT, Economic Integration: SIECA, Education: CECC, Agriculture: CAC, Health: COMISCA, Women: COMMCA, Finance: COSEFIN), and specialized agencies (antidrug: CCP, microenterprises: CENPROMYPE, risk management: CEPREDENAC, universities: CSUCA, water: CRRH, etc.). At the national level, every country has an institutional structure that, despite the effects of structural adjustment programs, continues to be very strong and important.

However, reality demonstrates that the aforementioned institutional framework is structured in a very sectoral manner and is therefore dispersed, often resulting in shortsighted, contradictory policies, and most notably there is little territorial coordination among local, regional, and national levels. Traditionally, with every change of government, countries replace their functionaries, impeding continuity.

This reality is also reflected in the conformation of civil society actors, which generally form few alliances and have contradictory agendas, unequal shares of power, and short-term approaches. As will be noted later, one of the principal challenges is the rethinking of the regional and national institutional framework to confront the challenges in the CADC.

Initiatives, Actors, and Interests in the CADC

Taken as a whole, a series of interests and initiatives combine in the CADC, which can be grouped into three broad, interrelated dimensions: The first is the concern that each country has for countering the impacts of climate change, especially droughts and floods, which when they reach the level of disaster, notably affect national budgets and economies. The second dimension revolves around the social and political weight of social disparities, poverty, and exclusion, which affects the majority of the population living in the emblematic territories of the dry corridor, and whose situation is not due to geographic determinism but rather to historical processes that have characterized productive processes. The third synthesizes the territorial dynamics generated by a political economy based on the control and exploitation of the dry corridor's potential for all manner of large investments.

Along these lines, the CADC constitutes an imagined geographical space, where actors with interests and proposals coexist, some of them contradictory and others complementary. They still face many challenges to achieving consensus to make this space into a meeting ground for negotiation, which is necessary, because even the most optimistic scenarios show that, in any event, the dry corridor will face ever greater threats as a consequence of global climate change.

Figure 2: General Structure of the Map of Actors in the Dry Corridor

Source: Authors.

In accordance with the general and territorial history of the CADC presented in the previous chapters of this document, it is evident that a diversity of actors exist there. These can be grouped in accordance with the methodology of civil society actors put forth by GIZ (2011),[16] according to which, the concept of actors may be applied to all public and private collective groups in a society, united by common needs or values, that act as organized groups. The map of actors is organized in an onion model, which allows for distinguishing among *Key Actors* (which can significantly influence a project or program due to their capacities, knowledge, and position of power), *Primary Actors* (which are directly affected by the project or program, whether as beneficiaries, as actors that seek to increase their power and privilege, or as actors who could be harmed or have their power reduced), and *Secondary Actors* (which only participate indirectly or temporarily).

[16]GIZ. 2011. Capacity – Works. The sustainable development management model.

The General Composition of the Map of Actors

Civil Society: Among the key actors that can influence with their proposal capacity, knowledge, and power share in the CADC are the peasant organizations, the indigenous organizations, and NGOs (e.g., Action Against Hunger) with well-defined territorial interventions, which have led the debate about the implications of climate change, about food security, and about the risks of disasters. These actors have ties at the national and regional level that allow them to channel their demands and proposals to the governments and international cooperation agencies to define the potential future orientation of the CADC. The demands of the peasant organizations revolve around access to land, rural economies, food security, and better market access conditions. Meanwhile, the indigenous organizations focus on claiming the collective right to their ancestral territories, respect for their cultures, and their right to manage territory in accordance with their cultural values and livelihoods. The interest of the NGOs is the implementation of projects of various types (rural development, environment, local economies, etc.) to contribute to the improvement of the conditions of the population, especially the most vulnerable.

Private Sector: The agricultural, industrial, tourism, and service companies located in the CADC have, without a doubt, the greatest capacity to influence national and regional decisions, especially on topics related to regulations on land tenure, access to water, road infrastructure, and new investments. As mentioned, the largest concentration of old-style private companies (agricultural industry, sugarcane, livestock, transportation), as well as new investments (tourism, melon production, shrimping, energy, etc.), is located precisely in the CADC. The companies are organized in larger structures (unions, chambers, federations, associations), from which they increase their influence in decision-making processes.

The State: The municipal governments, as the local expression of the political administrative system of the State, are the most relevant actors for the dry corridor. Responsibility to attend to the needs of the population falls upon the municipalities. These have been integrating elements relating to climate change mitigation and adaptation into their management processes, especially on water management, territorial regulation, basic infrastructure, and risk management. A large portion of the municipalities in the CADC have joined together in associations, some of them cross-border, such as the case of El Trifinio and the Upper Lempa River Basin, for the purpose of managing to unify efforts around common interests. On the other hand, other key actors include the ministries and secretariats of the government (agriculture, environment, forest, protected areas, economy, infrastructure), as well as agendas expressly created for the purpose of attending to aspects of interest within the framework of the dry corridor, such as those for climate, risk management, and food security.

This sphere also includes the regional organizations formed in the framework of Central American integration, such as CCDA and SICA (and all of its units), as well as the structures charged with implementation of the international conventions to which the countries of the region are parties.

Key Actors in the CADC

Indigenous peoples

Considerable numbers of indigenous people still live in the CADC. According to information from the sociolinguistic atlas of the indigenous peoples of Latin America (Fun-

Table 1: Indigenous Population in the CADC 2009

Guatemala		El Salvador		Honduras		Nicaragua	
People	Population	People	Population	People	Population	People	Population
Achi	105,992	Cacaopera	4,165	Lenca	279,507	Cacaopera	15,240
Awacateko	11068	Lenca	2,012	Pech	3,848	Chorotega	46,002
Ch'orti	46,833	Pipil	3,539	Ch'orti	34,453	Na-hoaNicarao	11,113
Jakalteco	47,024	Total	9,716	Total	317,808	Xiu-Sutiaba	19,949
K'iche'	1,270,953					Total	92,304
Kaqchikel	832,968						
Mam	617,171						
Poqomam	42,009						
Sakapulteco	9,763						
Sipakapense	10,652						
Tz'utujil	78,498						
Tektiteko	2,077						
Xinka	16,214						
Total	3,091,222						

Source: Prepared by authors with information from: FunPROEIB Andes 2009.

PROEIB Andes, 2009),[17] compiled from official data, one can infer that in the CADC there are around 3.5 million indigenous inhabitants distributed among 20 indigenous peoples, some of whom have a presence in two countries, such as the Ch'orti, Lenca, and Cacaopera.[18] However, official data have always been challenged because of the continual invisibilization of the indigenous population. The Xincas of Guatemala constitute a concrete example: the official figures of the 2002 population census reported 16,214, while the Xincas' own organizations say there are 164,613 people.[19] In the same vein, according to official data from Nicaragua, the indigenous people of the North Central Pacific amount to 92, while the indigenous organizations report 333,000.[20]

Various studies have highlighted the fact that the development of indigenous peoples in each of these countries greatly lags behind the national average, as a product of structural discrimination, social exclusion, the negation of their rights, and the continued dispossession of their lands and territories. Poverty, malnutrition, illiteracy, and restricted access to healthcare unequally affect indigenous peoples.[21]

[17] FunPROEIB – Andes. 2009. Atlas sociolingüístico de pueblos indígenas en América Latina. DVD. Cochabamba, Bolivia.

[18] Indigenous peoples in the Atlantic Coast have not been included, because it is not part of the CADC.

[19] Reports by the Xinca Parliament of Guatemala. 2011.

[20] UNOHCHR. 2011. Diagnóstico sobre la situación de los derechos humanos de los pueblos indígenas de América Central. Volume II. Managua, Nicaragua.

[21] UNOHCHR. 2011. Diagnóstico sobre la situación de los derechos humanos de los pueblos indígenas de América Central. Volume I. Managua, Nicaragua.

Indigenous peoples' organizations in the CADC

For the past 20 years, encouraged by the adoption of International Labor Organization (ILO) Convention 169 and the termination of armed conflicts in the region, indigenous peoples' organizations in Central America have been growing in strength to defend their collective rights.

In Nicaragua, there is a notable difference between the indigenous peoples of the Autonomous Regions of the North and South Atlantic Coast (RAAN and RAAS) and those of the North Central Pacific region (PCN), as the first have a Statute of Autonomy (Law 28 of 1987) and the second have not yet been able to get the National Assembly to approve their respective law.

Map 13. Mining Contracts in indigenous territories of Nicaragua. 2008

Source: Socio-Environmental Information Center (CISA) at URACCAN University, based on data from INIMINE, 2008.
Taken from: OACNUDH. 2011, Volume II

In the PCN, most of the indigenous peoples have territorial organizational structures for managing their communal lands, some of which have royal titles that date back to the colonial era. Every community has its respective authorities (Council of Elders, chiefs, and Governing Council) and they have been gradually moving toward forming broader structures: Territory of the Chorotegas in the Central, North, and East zones; Pacific Chorotega Territory; Territory of the Cacaopera; Territory of the Xiú-sutiabas; and Territory of the Nahoa. There are currently four coordinating committees: the Chorotega Coordinating Committee of the North (CPICH); the Diriangen Coordinating Committee; the Adiact-Agateyte Coordinating Committee; and the Nicarao Coordinating Committee. In 2005, the Network of Indigenous Peoples of the Pacific, Center, and North of Nicaragua was formed to coordinate and unify their common demands and claims, especially around gaining titles to their ancestral lands. The Network has been lobbying the National Assembly to pass the draft Law of Autonomy of the indigenous peoples of the North Central Pacific.

The territories of the indigenous peoples are threatened by concessions for mining and other extractive activities granted by the government. In 2009, there were 281 mining contracts in indigenous territories in the North Central Pacific.[22]

[22] Op. Cit.

El Salvador is the most paradoxical country with respect to indigenous peoples. For a long time, but especially after the massacre of 1932, it was assumed that there were no longer indigenous people in the country. The 1930 population census indicated that there had been 79,573 indigenous people (5.6% of the total population), and the 2007 census discovered a population of 11,488 indigenous people (0.2% of the total population). However, indigenous organizations have questioned these data and consider the indigenous population to be between 10% and 12% of the country's population.

In their fight to achieve greater visibility in Salvadoran society and greater recognition for their collective rights, the indigenous people are in a process of rebuilding their own organizational structure (*alcaldías, cofradías, consejos* and *hermandades*), but they face the problem of having been stripped of their territorial connection. The indigenous communities lost control over their communal lands and larger territories after a series of law, policies, and massacres against them. During the government of Rafael Zaldívar, the government promulgated the law of extinction of the dominion of the indigenous peoples' communal lands (1882), which eliminated the institution of communal lands to benefit coffee-growing landowners. The indigenous peoples' protests against this dispossession culminated in the sadly infamous massacre of 1932, in which thousands of indigenous people were shot for defending their lands (Browning, 1975).

The Salvadoran constitution does not recognize the existence of indigenous peoples, nor by consequence, their collective rights, and in addition, the government has not ratified ILO Convention 169. In 2010, through the Social Inclusion Secretariat, the First National Indigenous Congress occurred and indigenous affairs were transferred to the National Department of Spaces for Cultural Development. This body has been making some efforts to achieve visibility and recognition of the rights of indigenous peoples.

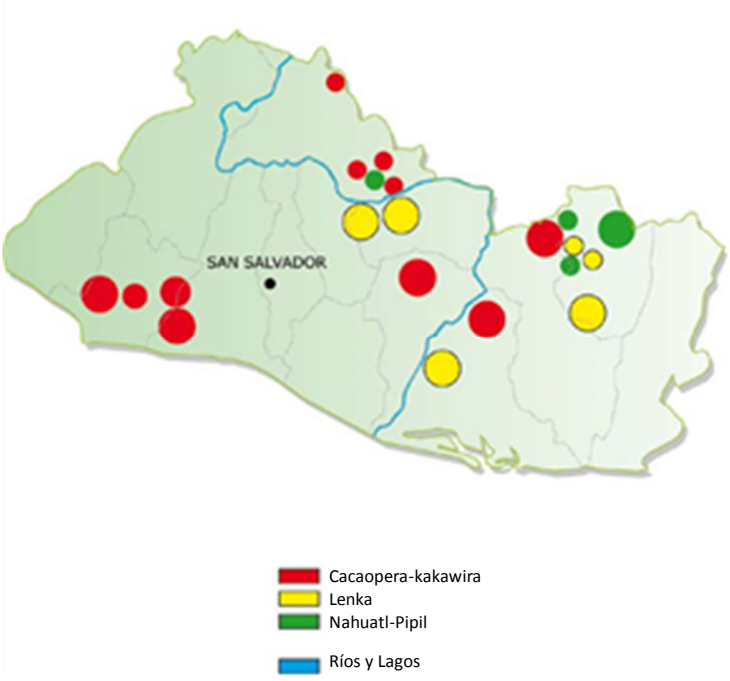
The number of indigenous organizations has been rising. Before 1992, there was only the National Indigenous Association of El Salvador (ANIS), created in 1975 with bases in Sonsonate and Ahuachapán. Currently, there are 17 indigenous organizations and 53 *cofradías, mayordomías,* and *hermandades*. Notable among these are the Coordinating Association of Indigenous Communities of El Salvador (ACCIES), which has achieved the granting of small areas for collective use in the province of Sonsonate; the Salvadoran National Indigenous Coordinating Council (CCNIS); and the Salvadoran National Indian Council (CONAIS). There are also other organizations with a more local scope, such as the Lenca Communal Association of Guatjiagua, the Nahuat Indigenous Communal Development Association, and the Tierra Sagrada National Indigenous Association.[23]

Indigenous communities are being pressured by the proliferation of so-called megaprojects, especially mining licenses and hydroelectric projects, as highlighted, for example, in a study by Irene Lungo (2007).[24] The communities oppose these interventions, because they fear that they will lose their sources of water and their access to rivers, which form part of their livelihoods; but above all, they oppose them because they were not consulted on them.

[23]CADPI. 2012. Nota técnica de país sobre cuestiones de los pueblos indígenas. República de El Salvador. FIDA.

[24]Lungo, Irene. 2007. Pueblos Indígenas afectados por desarrollos mineros, petroleros y represas en Mesoamerica, El Caso de El Salvador. Proyecto Sensunapan II La lucha por el río Nahuizalco.

Map 14. El Salvador. indigenous people



Source: http://www.pueblosoriginariosenamerica.org/?q=mapas

The Honduran State recognizes it multicultural and multilinguistic character. As a result, the legal status of indigenous peoples is more defined there. Indigenous peoples' organizations are very solid, and they are recognized as federations in Honduran legislation and function under officially approved rules, but their norms of ancestral customary rights remain in effect. The largest organization is the Confederation of Native Peoples of Honduras (CONPAH), created in 1992, which brings together the eight federations that represent each indigenous people: FETRIXY, FINAH, ONILH, MILH, FITH, MASTA, NABIPLA, and OFRANEH (Garifunas and blacks). Women have their own organization: National Coordinating Committee of Indigenous and Black Women (CONAMINH).[25]

[25] UNOHCHR. 2011. Diagnóstico sobre la situación de los derechos humanos de los pueblos indígenas de América Central. Volume I. Managua, Nicaragua.

The people with the greatest numbers and territory in the dry corridor are the Lenca, Ch'orti, and Pech. Conditions for these peoples have deteriorated during the last few years due to the proliferation of megaprojects for mining, hydroelectricity, and tourism, as well as large-scale melon, tobacco, and shrimp farming. In addition, they have been the most impacted by disasters in recent years, particularly Hurricane Mitch in 1998, and in general, lag behind socially and economically.

In Guatemala, despite having the largest indigenous population within the dry corridor, the organizing situation of the indigenous peoples is very precarious, with minimal representation. The most solid entity is the Xinca Indigenous Parliament, which brings together, according to the organization, more than 300,000 people in the provinces of Santa Rosa, Jutiapa, and Jalapa. The Ch'orti have several organizations, among them the New Day Ch'orti Peasant Central Coordinating Committee (CCCND), the Chorti Indigenous Coordinating Committee, the Coordinating Committee of Associations and Communities for the Integrated Development of the Ch'orti Region (COMUNDICH), and other focused on rural development, such as the Ch'orti Regional Peasant Association (ASORECH). The remaining peoples with a close relationship with the dry corridor, including the Poqomam of Jalapa, the Achi of Baja Verapaz, the Sacapulteko of Quiché, and the Awakateco and Jacalteko of Huehuetenango, have many organizations, especially at the community level, but they do not have an organization that unifies and represents the whole group. In the same vein, despite many attempts, there is as yet no single

entity to represent indigenous peoples in Guatemala, although there are many organizations working for this kind of representation and which are political reference points for indigenous peoples.

In the core of the dry corridor of Guatemala, the situation of the indigenous peoples is extremely precarious. The Ch'orti of Chiquimula, the Poqomam of Jalapa, and the Achi of Baja Verapaz are among the most vulnerable to climate change. Year after year, their populations have difficulties satisfying their nutritional needs, and in the recent past, they have suffered the most from the impacts of disasters caused by hurricanes and tropical storms.

The peasant sector

The peasant organizations of Honduras have come together in three large councils: The National Peasant Council of Honduras (CNC), founded in 1992, bringing together 4,500 grassroots organizations and affiliated with 12; the Coordinating Council of Peasant Organizations of Honduras (COCOCH), comprised by 7 large peasant associations and centers; and the Honduran Confederation of Peasant Women, to which 4 major organizations are affiliated.[26]

In El Salvador, the largest peasant organizations are: The National Agricultural Coordinating Committee (CAN), the Coordinating Committee of the Social Movement (CMA), the Cooperative Confederation of Agrarian Reform (CONFRAS), the National Coordinating Committee of Rural Workers (CNTC), and the National Association of Agricultural Workers (ANTA). The peasant organizations belong to regional and global organizations, such as the Latin American Coordinating Committee of Rural Organizations (CLOC) and Vía Campesina.

In Guatemala, at the national level, the peasant organizations with a strong national presence are: the Peasant Unity Committee (CUC), the National Indigenous and Peasant Coordinating Committee (CONIC), the Peasant Committee of the Plateau (CCDA), the Peasant Development Committee, the Verapazan Union of Peasant Organizations (UVOC), and the Alliance of Rural Women (AMR). All of these are organizations that seek improvements in legislation and public policies for the peasant sector, such as the fight that took more than ten years to achieve the passing of the Integrated Rural Development Law and mobilization for access to lands. There are also other peasant organizations more focused on the implementation of projects with government or international cooperation support, such as the Ch'orti Regional Peasant Association (ASORECH), as well as numerous local organizations in the form of cooperatives, local development associations, and associated peasant enterprises.

In Nicaragua, the most important peasant organization is the National Union of Agricultural and Livestock Workers (UNAG), which is the organization most representative of peasants in Nicaragua. It has 125,000 affiliated members, works on 60% of cultivated land, and produces the majority of the country's coffee, basic grains, and fruit, all which is a product of the agrarian reform conducted in the country by the Sandinista Revolution.[27]

At the regional level, taking into account the vulnerability of peasants to climate change, several projects have been launched to support peasant agriculture with the goal of food security. The International Fund for Agricultural Development (IFAD) is financing several projects

[26] http://www.ina.hn/userfiles/ORGANIZACIONES%20CAMPESINAS%202010(2).pdf

[27] http://www.envio.org.ni/articulo/592

in agricultural and natural resource management with a focus on adaptation and mitigation, such as the Rural Development Program for Las Verapaces (PRODEVER) and IFAD West in Guatemala, focused on improving the production of coffee, cacao, and cardamom, the provision of irrigation, and fostering the use of wood-saving stoves.

The same peasant organizations have begun to undertake efforts in climate change mitigation and adaptation. Some of these changes can be seen in the adoption of agro-ecological and agro-forestry practices and improvements in the integrated management of the territory and of communal resources. The challenge is that these practices should be occurring at a greater scale and that they should be considered strategic elements for better governance of natural resources and productive systems, in which civil society actors, local governments, entrepreneurs, and government entities should all be involved.

Another emblematic effort is the Special Program for Food Security (SPFS), supported by FAO and international foundation Action Against Hunger.

Environmental sector

The Central American Integration System, SICA, has three agencies with an environmental emphasis related to climate change. The first and oldest is the Central American Commission for Environment and Development (CCAD), formed for the purpose of building consensus on legislation, unifying public policies, and managing environment and development projects. Among other initiatives, the CCAD convened the Regional Convention on Climate Change in 1993, with the objective of protecting the climate system, with an emphasis on food production and economic development. With support from GIZ, CCAD has implemented INTEGRACIÓN, an online platform with forest resources data for Central America and the Dominican Republic,[28] in a web site that provides REDD Program maps and data. It also has the Early Warning System for Central America (SATCA), whose website provides information for forecasting climate threats.[29]

The second agency is the Regional Committee on Water Resources (CRRH), created to strengthen the institutional framework and public policies around the management of water and the design of climate change adaptation and mitigation policies. The third is the Coordination Center for the Prevention of Natural Disasters in Central America (CEPREDENAC), created to promote and coordinate international cooperation and the exchange of information, experience, and technical and scientific advice in the areas of disaster prevention, mitigation, and relief.

Another effort by the integration system has been the Regional Program for the Reduction of Environmental Degradation and Vulnerability (PREVDA), a coordination agency for fostering, at the regional level and in each county, political and institutional conditions for integrated management of risks, water resources, and environmental vulnerability. PREVDA was implemented from 2006 to 2012, with support from the European Union and executed by SICA, CCAD, CEPREDENAC, and CRRH.

SICA has also contributed to the development of the Central American Strategy for Territorial Rural Development (ECADERT), which seeks to generate opportunities for and strengthen the capacities of the population of rural territories. This space intends to support the institutional framework for rural territorial develop-

[28] http://integracion.sytes.net/

[29] http://www.satcaweb.org/alertatemprana/inicio/satcaweb.aspx

ment, the social fabric and territorial cooperation networks, the rural territorial economy, the cultural identity of the territories, and the natural aspects of the territories, all to foster processes of mutually supportive, inclusive, and sustainable development, for territorial actors to improve their living conditions.[30]

One of the purposes of ECADERT is the formation and declaration of kindred territories, as it names them, from which strategies may be solidified that respond to the principle of social inclusion and equity, considering a long-term vision that orients the investments in the territories, through joint initiatives of the social and institutional actors and territorial networks. One of the first proposals is the Garifuna Kindred Territories of Central America (MAMUGAH/ONEGUA, 2013).

In El Salvador, some of the Salvadoran civil society organizations tied to the environment are extensions of private organizations, such as Salvanatura, which works in environmental protection, certifications, and climate change. It has been responsible for co-management of some protected areas (El Imposible, Los Volcanes, and Bicentenario); it is also the certifying agency for coffee for Starbucks and a member of the Sustainable Tourism Certification Network for the Americas with the Smart Voyager seal. It also is part of, together with other entities, the Water Roundtable (*Mesa de Agua*).

In the Salvadoran social movement, the Salvadoran Ecological Unit (UNES) is a second-tier non-governmental organization comprised of 32 first-level organizations, that has been working for over 25 years in environmental protection. It coordinates efforts with regional and international entities, such as the Continental Social Alliance, the Mesoamerican Campaign for Climate Justice, and the International Union for the Conservation of Nature (UICN). In the same vein, the Environmentalists in Action Network (RAA) brings together different organizations, people, and communities at the national, regional, and local levels that work on environmental protection.

Both UNES and the RAA have been actively involved in the study of and debate around climate change, launching the Mesoamerican Campaign for Climate Justice, whose purpose is to coordinate advocacy with governments around international climate change negotiations. Notable among its work is the Regional Adaptation and Mitigation Proposal, which reflects the sentiments of leaders, peasants, indigenous people, women, fishers, and communities facing climate risk. It has also produced popular education materials (texts, audio, and video) to motivate reflection on and social participation in adaptation and mitigation actions (Garrido, 2010).[31]

In Nicaragua in 2009, the main civil society actors formed the Nicaraguan Alliance against Climate Change (ANACC) and the National Roundtable on Risk Management (MNGR) to influence the National Environment and Climate Change Strategy (ENACC), the REDD+ strategy, and the implementation of UNFCCC agreements.

Specifically in the dry area, civil society actors have joined forces in the Alliance of the Dry Forest, comprised of FUNDENIC-SOS, FUNDAR, the Network of Private Forestry Reserves, Paso Pacífico, Flora and Fauna International, The Nature Conservancy, Rainforest Alliance, and GIZ. Additionally, the National Program for the Conservation, Restoration, and Management of the Dry Forest Ecosystem of

[30] http://www.territorioscentroamericanos.org/ecadert/Paginas/default.aspx

[31] http://unes.org.sv/es/unes/temas/cambio-climatico-y-energia

Nicaragua[32] (Programa del Bosque Seco) was formulated in 2011 to guide conservation of the most threatened ecosystem in the country.

Another relevant initiative in the dry area is the Sustainable Management of the Earth (MST) Project, supported by UNDP, with a focus on adaptation based in food security.

In Honduras, one of the key organizations is the Committee for the Defense and Development of the Flora and Fauna of the Gulf of Fonseca (CODDEFFAGOLF), affiliated with the international Redmanglar (Mangrove Network) that works on the defense mangroves, and lobbies for the regulation of activities in shrimp farming, salt flats, tourism, and logging, to reduce their impacts on mangroves.

In the Dry Corridor of Guatemala, Defenders of Nature (FDN) works in two key areas of conservation, the Sierra de las Minas and Motagua Valley, two closely related zones, as the first contributes the majority of the water for human consumption, agricultural irrigation, and agricultural industry utilized in the valley.

At the regional level, the International Mangrove Network (Redmanglar Internacional) began to form in 1993, beginning with the reflections of communities affected by the expansion of productive activities (salt flats, shrimping, infrastructure, fishing, forest management, transportation) in the marine coastal regions, which threaten the condition of the mangroves. Covered in the Ramsar Convention on Wetlands, the network is working to defend and improve the vitality of the mangroves and to contribute to community-based development. To that end, they fight to stop the expansion of industrial economic activities that affect mangroves and demand compliance with the law and reparation for damages to these ecosystems. It is currently comprised of organizations from 10 countries, including Guatemala, El Salvador, and Honduras.

The academic sector

At the national level, each country has a solid academic structure constituted by universities and research centers that have gradually begun to make efforts to address the concept of climate change in their curricula and in their research agendas. Notable in Guatemala are the University of San Carlos, particularly its campuses in Chiquimula (CUNORI) and Huehuetenango (CUNOROC); the Universidad del Valle de Guatemala; and the Universidad Rafael Landívar, with its institute of Research in Natural Resources and Environment (IARNA). There are also private research centers, such as the Climate Change Institute (ICC) of the sugarcane union. In Honduras, important work is being done by the Universidad Nacional Autónoma de Honduras (UNAH) in geophysical animation and international seminars, and by private universities in Choluteca in other areas. In El Salvador, the Universidad Centroamerica (UCA) and the Universidad Nacional de El Salvador (UES) have contributed to the climate change discussion. The PRISMA Foundation, based in El Salvador, is, without a doubt, the most recognized research center for promoting reflection on various topics that pertain to climate change and territorial dynamics in the region.

Among notable research centers in Nicaragua are Nitlapan (of the Universidad Centroamericana), the Center for Research on Aquatic Resources of the Universidad Nacional Autónoma

[32] ALIANZA NACIONAL DEL BOSQUE SECO, 2011. Programa Nacional para la Conservación, Restauración y Manejo del Ecosistema del Bosque Seco de Nicaragua. Programa formulado con el apoyo de la Agencia Alemana de Cooperación Internacional (GIZ), en el marco del apoyo al desarrollo en el Sector Verde a través de Medida de Desarrollo impusadas con Organizaciones de la Sociedad Civil. 74 p.

de Nicaragua (CIRA), and the Centro Humboldt.

International cooperation

A report published by FAO (2012) indicated that in Central America there are 54 institutions and organizations that contribute in areas related to drought, climate change, and risk management. The report groups them into nine blocs: government cooperation agencies (9), actors in the United Nations System (7), non-governmental organizations (7), Central American integration actors (5), Latin American intergovernmental organizations (2), trade organizations (1), networks (9), multilateral financial institutions (8), and research centers (6).[33] Obviously, this list is very short, keeping in mind that the region has many more and diverse actors. For example, the study identifies only six research centers, when in reality there are many more that are contributing to the study of drought and climate change, among them: IARNA, CEAB, PERT, DIGI, CUNORI, PRISMA, NITLAPAN, Centro Humboldt, ICC, CATIE, IICA, UCA, CIRA, etc. Another example, is that the only trade organization included in the study is ACICAFOC, when in reality this is a community-based social organization and, instead of this organization, the report should have mentioned private sector organizations, represented by companies, cooperatives, industries, etc.

Official cooperation agencies

Regional European Union cooperation with Central America for the period 2007 to 2013 totaled 860 million Euros. Among the priority sectors is Sector 4 (Reduction of Vulnerability and Improvement of Environmental Management), which channels aid in coordination with the SICA environment subsystem, especially in support of the Integrated Risk Management Policy and the Regional Climate Change Strategy, all with the objective of reducing vulnerability to disasters and environmental degradation, through PREVDA, to which it has allocated 24 million Euros. In that context, the EU also supports food projects, such as the Regional Nutritional and Food Security Program (PRESANCA), the Regional Program for Nutritional and Food Security Information Systems (PRESISAN), and the Regional Program of Research on Innovation in the Agrarian Value Chain (PRIICA). In concrete terms, through the Department of Humanitarian Aid and Civil Protection (ECHO), the EU supports the Central American Dry Corridor Project, to aid 20,000 producers affected by drought in Guatemala, Honduras, El Salvador, and Nicaragua.

Multilateral financial institutions (CABEI, GEF-CABEI, GEF-IDB, GEF-UNDP, and GEF-UNEP) finance five regional projects, all of them focused on mitigation. Multilateral cooperation agencies (European Union and FAO) have three projects on adaptation and one on mitigation at the regional level. Official cooperation agencies support four projects in regional adaptation and one in mitigation, and international NGOs support four regional projects in adaptation and none in mitigation (Centro Humboldt, 2011). However, there is no breakdown of this information for the dry corridor.

In Nicaragua, for example, the Centro Humboldt (2011) notes that in the country, there are 31 projects related to climate change (19% in adaptation) supported by international financial institutions (CABEI, IDB, GEF, Adaptation Fund, UNDP, and World Bank). In addition, multilateral cooperation, represented by the European Union and FAO, supports 16 projects (38% in adaptation and 19% in mitigation). Official cooperation agencies (GIZ, COSUDE,

[33] FAO. 2012. Identificación de actores relevantes y relaciones interinstitucionales en el Corredor Seco Centroamericano. ACF, FAO y ECHO. Honduras.

AECID, JICA, Austrian Development Cooperation, British Cooperation [DFID], and Norway) support 64 projects, with the majority focused on mitigation and only 6% on adaptation. For their part, international non-governmental organizations (Diakonia, HIVOS, Ibis, Oxfam, Global Witness, Ford Foundation, among others) support 16 projects, of which 12 are in adaptation and the rest are in mitigation.[34]

Private sector

The most influential private industry in the CADC and, in turn, the one that could be most affected by climate change is, without a doubt, agriculture and agro-industry. This sector is one of the primary drivers of development in the region, representing 18% of total GDP, but even in the most optimistic scenario this proportion could be reduced to 9% (ECLAC, 2011). Paradoxically, according to the same study, the trend for this sector indicates that in the next 100 years, the use of land for agriculture and livestock will be 51%.

The tourism and real estate sector is also influential because of the magnitude of investments in it, and it is also vulnerable to weather events, seen with the storms and hurricanes of the past 20 years.

In Honduras, the most influential companies in the better part of the dry corridor of Honduras are the shrimping companies situated along the coast of the Gulf of Fonseca, surrounding the most important mangroves in the country. Production has doubled in the last three years, going from 38 million pounds in 2011 to 60 million in 2013, according to data from the National Association of Aquaculturists of Honduras (ANDAH), covering 18,200 hectares, and representing revenues of $170 million for the country. However, the sector is very vulnerable to events associated with climate change, as in 1998, when 4,000 hectares were lost during Hurricane Mitch.[35]

In the majority of the CADC, sugarcane expansion is unprecedented, threatening mangroves and competing with other activities for the use of water, especially in the peasant economy. In Guatemala, the sugarcane sector has created the Climate Change Institute (ICC), with the purpose of researching and driving action in climate change adaptation and mitigation. Among its lines of work are the generation of meteorological information, research on and management of risks, greenhouse gas inventories, adaptation of productive systems, conservation and restoration of ecosystems, integrated water management, and capacity building.

ECADERT and Efforts to Rethink the Institutional Framework for Rural Territorial Development

The Central American Strategy for Rural Territorial Development 2010-2030 (ECADERT), launched by the Agricultural Council of Central America (CAC) of the Central American Integration System (SICA), is a regional proposal for the integrated development of rural territories, conceived as socio-geographical spaces that, due to their rich history of social construction, are strongly associated with the identities of the peoples. Under this consideration, ECADERT focuses on the strengthening of the creative and innovative capacities of the rural population, public institutions, and civil society organizations in the territories of the Region, such that they can establish mechanisms that are inclusive in access to development and

[34] Centro Humboldt. 2011. Mapeo de riesgos, procesos, políticas públicas, y actores asociados a cambio climático en Nicaragua. Managua.

[35] http://www.centralamericadata.com/es/article/home/La_industria_camaronera_de_Honduras

conducive to social and territorial cohesion (ECADERT/CAC 2010).

The primary purpose of ECADERT is the participatory and inclusive promotion of the participatory social management of territorial public policies, driven by the territories' own social and institutional actors, valuing their cultural identities and potential for achieving sustainable development. Obviously, this requires the design of a new institutional framework capable of transforming the current social and economic structures of the region.

ECADERT intends to work in five components: 1) Institutional framework for Rural Territorial Development, which involves the renovation, transformation, and strengthening of the institutional and juridical framework of the social actors in the territories to enable integrated social management of rural territorial development policies. 2) Enrich and reinforce the social fabric and territorial cooperation networks, based on dialogue and consensus. 3) Strengthen the economies of the territories through sustainable productive activities and greater integration of value chains. 4) Revaluing the cultural identity of the territory and intercultural respect. 5) Transform the environmental management of the territory by adjusting the practices of social and institutional actors to the renewable capacity of the ecosystems. Its cross-cutting themes are a) social inclusion and equality, b) education and capacity building, and c) knowledge management. Both the components and the cross-cutting themes have their respective lines of action, which total 49.

ECADERT was developed through a great effort by SICA, CAC, IICA, and other institutional actors of the region that participated in its design. However, the key to the success of its implementation will be the extent to which it is integrated and adopted by the social actors in rural Central America, which is to say by associations representing those in the agricultural, forestry and hydro-biological, tourism, commerce, and service industries; by peasant and artisan organizations and rural communities, in general; by territorial governments (community, municipal); indigenous peoples' organizations; and formal and alternative institutional frameworks. For now, the efforts of ECADERT are concentrated on putting its institutional framework into effect at the regional and national level. The final goal is for it to be adopted by territorial actors (Territorial Action Groups) as the basis for formulating integrated development proposals that can serve as pilot experiences, a proposition that still seems far away.

Roadmap to Institutionalization of the Central American Dry Corridor

As was proposed during the Regional Dialogue: Climate Change, Agriculture, and Food Security in the Dry Corridor of Central America in October 2013, the challenges facing the CADC necessitate the development of a multiscale institutional framework that modifies the relationship with the territories, primarily in their agricultural, commercial, tourism, and industrial activities, to ensure the provision and flow of ecosystem services, not only to counteract the effects of climate change but also to strengthen the resilience of the population of each country.

The key issues for advancing in the definition of an institutional and public policy framework that would strengthen governance in the CADC are, among others: i) the need to promote measures for addressing the deep crisis in the rural territories of Central America; ii) the creation of incentives that go beyond traditional paternalistic schemes; iii) the systematization of successful experiences that can strengthen impact on policy-making; iv) the promotion of a systemic view that enables revision of formal education and an alliance between scientific-technical knowledge and ancestral knowledge; and v) the adoption of more sustainable agriculture and livestock practices (e.g., agroforestry and agrosilvopastoral systems) that respond to a regional approach to food sovereignty (PRISMA, 2013).

Along these lines, by institutionalization of the Central American Dry Corridor we mean a process that allows the different actors to link themselves to, own, and benefit from, in a collaborative manner, the actions to make the CADC a space for agreement and coordination to address the challenges and opportunities brought about by climate change. The proposal of the Roadmap is to mark out a path to follow to achieve changes in institutions, public policies, and regulations; and to build alliances necessary to reduce vulnerability, improve the conditions of poverty and malnutrition, regulate investments, and orient the agenda of the public sector toward integrated territorial management. The Roadmap is itself a process of consultation, inclusion, and participation to promote institutional and public policy reforms, as well as to develop the capacities and potential of actors for the integrated management of the Central American Dry Corridor.

The Roadmap includes a plan based in pillars of work, each with its respective strategic elements, necessary functions, and expected results.

First Pillar: Establish effective coordination among the different actors (Civil Society, State, and Private Sector) to define the rules of the game for the launching and functioning of the process.

Strategic Elements:
Taking into account that the fact that there exists in the CADC a diversity of actors on different scales and in different sectors and territories, each one with its interests, capacities, and spaces for intervention, there should be facilitation of the coordination having the capacity to catalyze this diversity of actors and interests.

An entity with a recognized history and capacity for proposals should become the focal point for the formation of the Coordination of the Process.

Necessary Functions:
The Coordination should establish rules of the game for communication among the different actors, highlighting meeting points and common interests.

The Coordination should achieve backing and its legitimation with the actors to the lead the process of institutionalizing the CADC.

Expected Results:
The starting of the process of institutionalization has a Coordination that has the backing and legitimacy of the majority of involved actors.

Second Pillar: Collaboratively define the priorities for the Central American Dry Corridor.

Strategic Elements:
The CADC should be a proposal of articulation of actors, through the formation of solid alliance to jointly respond to common interests and arrange mechanisms for resolving differences.

The priorities should result from a serious process of dialogue and negotiation among actors and should effect the transformation of the vulnerability, social disparities, and sustainable development of the countries and especially of the CADC.

Necessary Functions:
Building from the Coordination, spaces should be constructed for collective dialogue that transcends the traditional sectoral vision to define the territorial development priorities of the CADC.

Compare the posited priorities with the National Plans, Regional Programs, Sector Plans, Projects, and Agendas of the Actors, which are already underway, with the purpose of identifying gaps and meeting points.

Desired Results:
An agenda of priorities that is sufficiently backed by the different actors of the CADC, with the common pillars of reducing vulnerability, poverty, and regulating investments in the face of climate change.

Third Pillar: Design an institutional framework that allows for the articulation, representativeness, and legitimacy of social actors.

Strategic Elements:
The implementation of actions that will make real a common vision for the future regarding the CADC should be in the hands of the different social actors, at their different sectoral and territorial scales. To the end, there is a need for a reformed institutional framework (norms, regulations, control systems, social auditing, sanctions) and public policies that go beyond the traditional sector approach. Up to now, these actors have been relegated from the decision-making process due to the verticality and scarce inclusion of the existing institutional framework.

The CADC should not be posited as an additional project, but rather as a process truly owned and driven by the involved social actors.

Necessary Functions:
The existing institutions, both national and regional, should connect themselves with and make their agendas compatible with the proposals of the Dry Corridor.

Reforms in the existing public policy institutions should be identified and promoted to join efforts and collectively build among the actors better schemes and instruments for integrated territorial management based on the proposals of the CADC.

Desired Results:
A proposal of reforms to the institutional and public policy framework to have new rules of the game among the different actors that interact in the CADC.

Fourth Pillar: Generate knowledge about the territorial specificities of climate change.

Strategic Elements:
Beyond common elements, the territories that comprise the CADC have particular characteristics that should be considered when determining the actions to take in managing in the face of climate change. Every territory has particular systems of production, cultural traits, environmental conditions, alliances, networks, and actors, about which it is necessary to construct knowledge.

Funciones necesarias:
The social actors, and specifically the Universities and Academic Centers, should involve themselves in the construction of a research agenda that shows the diversity of territorial dynamics and expressions in the CADC.

The universities and research centers should tighten their alliances to posit a joint research agenda in consensus with and with the participation of the different territorial actors.

Desired Results:
An action research agenda agreed upon by the academic centers and the territorial actors that generates knowledge about the territorial dynamics and specificities, which would then serve as an input for decisions concerning the CADC.

Fifth Pillar: Development of capacities in the social actors for their more effective participation in the implementation of the actions of the CADC

Strategic Elements:
Confronting the challenges of climate change in the CADC requires the development of new capacities for understanding the magnitude of the problem and designing innovative forms of adaptation and mitigation. While all of the actors have capacities specific in function to their realities, conditions, and interests, there exists substantial disparity in their capacities.

Necessary functions:
It is important to facilitate spaces and events for providing actors with better skills and abilities for confronting the challenges of climate change from their own spaces and with their own activities, but also for interacting, forming alliances, and establishing agreements with other actors.

The centers of training (universities, technical institutes, and NGOs) should be involved to construct an agenda of capacity development to attend to the specific and joint needs of the different actors.

Expected Results:
A program of capacity development in key topics of climate change directed toward the actors of the CADC.

Sixth Pillar: Achieve the commitment of national governments and regional and international organizations for the implementation of priority actions.

Strategic Elements:
The future of the Dry Corridor necessitates that its priorities become part of the municipal, national, and regional plans, in which manner the governments would express their commitment. The CADC can not only be an initiative of the Civil Society Organizations of Cooperation, but rather fundamentally a commitment of the State and the Central American Integration System. Given the magnitude of the impacts of climate change in the CADC, its social dispari-

ties, and the lack of regulation of its investments, the States and SICA should have a more committed role, in terms of legislation, public policies, institutional frameworks, and allocation of resources.

Necessary Functions:
The national governments and SICA should institutionalize their support for the actions of the CADC, provide them the necessary institutional framework, adjust their public policies, allocate resources within their budgets, and manage technical and financial backing for its implementation.

Desired Results:
The CADC initiative has the backing of the national governments and SICA.

Seventh Pillar: Facilitate the territorial coherence of the interventions of the different actors in the CADC.

Strategic Elements:
The future of the CADC should ensure the territorial coherence of the interventions undertaken by different actors, which have, up to now, led to contradictions and disputes over the control of resources and the use of their potential. The lack of land management at the various levels leads to interventions increasing the exposure to disaster risk and the degree of socio-environmental unrest. The purpose of the CADC is precisely to manage, through consensus and articulation, the interests of the actors with a view towards a future of common interest.

Necessary Functions:
Establish roundtables for dialogue and coordination for defining plans for development and integrated management of the territory that respond to the needs of the different actors and seek coherence, cooperation, and solidarity, taking into account the common implications of climate change for all stakeholders.

Desired Results:
Proposals defined through consensus that contain priorities, alliances, regulations, mutual commitments, responsibilities, and benefits for the territorial actors of the CADC.

The CADC develops on the basis of land management plans at the municipal, national, and regional scales, according to the needs of the actors and in consideration of the challenges imposed by climate change.

Eighth Pillar: Facilitate processes of communication, consultation, and inclusion of the most disadvantaged sectors.

Strategic Elements:
Keeping in mind that one of the primary problems of the CADC is the profoundly low situation of the peasant, indigenous, and marginal urban sectors, especially youth, women, and seniors, the CADC initiative should target the inclusion of these actors in the definition of priorities according to their aspirations. One of the strategic goals of the CADC in the face of climate change is to overcome the social and economic vulnerability of the most vulnerable sectors, especially in terms of employment and food security.

Necessary Functions:
Establish processes of social communication and prior consultation with the actors of the indigenous, peasant, and marginal urban sectors to facilitate their inclusion in the planning and implementation of the actions of the CADC.

Desired Results:
The CADC will establish mechanisms for the inclusion of the most disadvantaged social actors and establish among its priorities addressing social and economic vulnerability in order to better adapt to climate change.

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