

8.0 Panama

ANAM	Autoridad Nacional del Ambiente (National Environmental Authority)
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza (Tropical Agriculture Research and Higher Education Centre) (Spain)
CIFOR	Center for International Forestry Research
CCAD	Comisión Centroamericana de Ambiente y Desarrollo (Central American Commission for Environment and Development)
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
CIA	U.S. Central Intelligence Agency
CONACCP	Comité Nacional de Cambio Climático de Panamá (National Climate Change Committee of Panama)
DFID	U.K. Department for International Development
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
IADB	Inter-American Development Bank
INIA	Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (National Institute for Research and Technology in Agriculture and Food) (Spain)
PAHO	Pan-American Health Organization
RIOCC	Red Iberoamericana de Oficinas de Cambio Climático (Ibero-American Network of Climate Change Offices)
SICA	Sistema de la Integración Centroamericana (Central American Integration System)
SIECA	Sistema de Integración Económica Centroamericana (Central American Economic Integration System)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USDS	United States Department of State

Marking the transition point between North and South America, the Republic of Panama has one of the most developed economies in Central America.¹⁷⁶ Much of its economy (70 per cent of Gross Domestic Product, or GDP) depends on a service sector that includes the Panama Canal, banking, tourism and healthcare (USDS, 2010). Agriculture (including livestock and timber) forms only a small portion (6.2 per cent) of the country's GDP (USDS, 2010). Although about 30 per cent of Panamanians live in poverty, this level has been declining in recent years (CIA, 2011).

A. Adaptation Needs and Priorities

Panama is periodically affected by droughts (often linked to El Niño events), tropical storms and hurricanes (though to a much lesser extent than the more northern parts of Central America) and inundations. Climate projections for Panama estimate that mean annual temperatures could rise by 1.2° to 1.5°C by 2050, and by 2.2° to 3.6°C by 2100. Rainfall projections have much wider uncertainty margins; on average, models project reductions of 2 to 6 per cent for 2100, much less than in other countries of the region. All figures are according to the averages of three models and compared to a 1980 to 2000 baseline (ECLAC, 2010).

Panama's First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) identifies the following sectors as sensitive to climatic changes: agriculture, water, coastal-marine systems, health and forests. The first three are highlighted as particularly vulnerable (República de Panamá, 2001). Panama's forthcoming Second National Communication identifies energy as a further vulnerable sector. It also has a regional focus on the dry arc, a dry area in the southeastern part of the country, and on islands. Vulnerability and adaptation assessment aim to analyze interrelations between sectors in the focus areas (ANAM, 2007).

Panama's First National Communication identifies key adaptation measures for the following vulnerable sectors (República de Panamá, 2001):

- *Coastal and marine systems* – Retreat from vulnerable areas; accommodate human intervention with ecosystem conservation (i.e. through integrated coastal zone management); and protect the most vulnerable zones (e.g., reforest mangroves and minimize erosion).
- *Agriculture* – Strategic sectoral planning taking climate risks into account; studies on plagues and diseases; improve efficiency of irrigation systems; improve coverage of weather stations; test new varieties; use crop models; and improve agricultural land planning.

¹⁷⁶ Per capita GDP in Panama in 2010 was estimated to be USD 12,700 (CIA, 2011).

- *Health* – Establish a strategy on health and climate change; improve statistics; monitor and develop projection for health indicators; conduct studies to identify vulnerable regions; improve sanitation and education; and technology development and transfer.
- *Water* – Education on water availability; improve the hydro-meteorological network; scientific studies on hydrology and climatology; protection, conservation and rational management of natural resources; promote alternative sources of renewable energy; promote policies that improve living conditions in watersheds; promote technology research to improve efficiency of water use; develop water use plan; explore alternative water sources; and strategic exchanges with other countries in the region.
- *Forests* – Management of protected areas and elaboration of plans for participative management.

B. National Level Policies and Strategic Documents

At a national level, Panama has developed policies and strategies that address vulnerabilities in priority sectors. For example, the government established a “National Climate Change Policy” in 2007 (República de Panamá, 2007) that proposes a general framework for mitigation and adaptation action in Panama. It says that a participatory action plan on climate change is to be elaborated and that vulnerability and adaptation considerations are to be included in national environment plans. Additionally, a “Climate Change Action Plan” is currently being prepared with support from the Inter-American Development Bank (IADB). However, Panama’s “Strategic Government Plan” for the period 2010 to 2014 identifies logistics, tourism, agriculture and financial services as economic priority sectors, but does not mention climate change or adaptation (República de Panamá, 2010).

In addition to these actions, Panama has finalized one National Communication (República de Panamá, 2001). A second report was to be published in 2010, but is not yet available. It will, among other things, contain vulnerability assessments for various sectors and with a regional focus on dry areas and islands (ANAM, 2010). The National Environmental Authority (ANAM) is the UNFCCC focal point and has a unit focusing on climate change and desertification. In 2009, the National Climate Change Committee of Panama (CONACCP) was founded in order to assist ANAM with implementation of the country’s climate change policy. CONACCP consists mainly of government agencies and universities.

Regionally, Panama is a member of the Central American Integration System (SICA), the institutional framework for the integration of Central American states, and of the Central American Commission for Environment and Development (CCAD), a committee which brings together environmental ministries of SICA member states. Under the auspices of SICA and CCAD, a regional climate change strategy has recently been developed (CCAD and SICA, 2010). The strategy summarizes climate information and sectoral vulnerabilities

and proposes six strategic areas, of which one is themed “Vulnerability and adaptation to climate variability and change, and risk management.” Nine strategic objectives with over 150 measures relating to disaster risk reduction, agriculture and food security, forest ecosystems and biodiversity, water, health, coastal-marine systems, tourism, indigenous people and public infrastructure are mentioned under this theme. Other strategic areas are: mitigation; capacity building; education, awareness raising, communication and participation; technology transfer; and international negotiations and management.

Table 1: Key Government Policies and Reports reflecting Adaptation Needs, Priorities and Planned Actions

Name of Policy Action		Government Division Responsible	Status	Sector(s) of Focus	Summary description
1.	First National Communication to the UNFCCC	National Environmental Authority	Published in 2001	Multi-sectoral	On adaptation, it presents available results of impact assessments and proposes adaptation measures for five vulnerable sectors.
2.	National Climate Change Policy	Government of Panama	Published in February 2007	Multi-sectoral	Presents a national policy on climate change, which aims at managing the issue and its effects at the national level, in conformation with international treaties and the national environmental law. Among other things, a Participatory Action Plan on climate change is proposed. Furthermore, it stipulates that vulnerability and adaptation objectives have to be included in national environment plans.
3.	Second National Communication to the UNFCCC	National Environmental Authority	Forthcoming	Multi-sectoral	Initially scheduled to be finalized by 2010, its expected priority area are the dry arc and islands.

C. Current Adaptation Action

A moderate number of adaptation projects exist to date in Panama. Most are directed towards building the capacity of government to respond to the projected impacts of climate change. Coastal zone management needs are also being addressed through more than one project. Action in several other sectors is also ongoing, including agriculture, water, energy, forestry and disaster risk management. Overall, adaptation programming in Panama remains mainly focused on capacity building and/or policy research.

Table 2: Current Adaptation Action in Panama

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)	
National Actions								
1.	Integration of Climate Change Adaptation and Mitigation Measures in the Management of Natural Resources in Four Priority Watersheds of Panama ¹⁷⁷	To build the capacity to adapt to and mitigate climate change in order to contribute to environmental sustainability and poverty reduction in four priority watersheds in Panama. This will be achieved through: the development of an Adaptation and Mitigation Strategy and a Pilot Climate Monitoring System; improvement of local management of land and water resources; and increased access to sources of funding.	Spain through the MDG Fund; UNDP, UNEP, FAO, PAHO <i>Budget: US\$ 4 million</i> ¹⁷⁸	UNDP, National Environmental Authority, Ministry of Agricultural Development, National Civil Protection System and the Ministry of Health	Capacity building; Policy formation and integration; Field implementation	2008–2011	Watershed management	Tuira and Chucunaque in Darién, Tabasara in the Ngobe Buglé Territory and La Villa in Arco Seco
2.	Support to the Climate Change Action Plan of Panama ¹⁷⁹	Activities to contribute to the preparation of a Climate Change Action Plan at national level by the Government of Panama.	Inter-American Development Bank	ANAM	Capacity building; Policy formation and integration	2008–2011	Government	Watersheds of Chico and San Pablo rivers, province of Chiriquí
3.	Integration of Climate Change Adaptation in twenty communities in the Darien region ¹⁸⁰	To build the capacity at the community and national level to support climate change adaptation in the Darien. At the national level, this will include providing training to Government of Panama ministry staff that has authority or influence over adaptation and response actions in our target areas. In specific communities in the Darien, USAID	USAID <i>Budget: US\$900,000</i>	Chemonics	Capacity building	2011-2012	Government; Disaster risk management	20 communities in the Cemaco district of the Comarca Embera-Wounaan

¹⁷⁷ MDG Fund, <http://www.mdgfund.org/program/integrationclimatechangeadaptationandmitigationmeasuresmanagementnaturalresourcesfourpriority> and ALM, <http://www.adaptationlearning.net/program/integration-climate-change-adaptation-and-mitigation-measures-managem-natural-resources-four>

¹⁷⁸ Contributions have been made as follows: FAO: \$604,282; PAHO: 611,450; UNDP: 1,250,851; and UNEP: 1,533,417.

¹⁷⁹ IADB, <http://www.iadb.org/en/projects/project.1303.html?id=PN-T1059>

¹⁸⁰ GWP, www.gwpcentroamerica.org/uploaded/content/event/596594949.ppt

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	will engage (working alongside SINAPROC) to help community groups organize and equip themselves to prevent, prepare for, and respond to the impacts of climate change.						
Participation in Regional and Global Actions							
4.	The Economics of Climate Change in Central America - Phase II ¹⁸¹	IADB, UK, Denmark, Spain, EU, Germany	ECLAC, CCAD, SIECA	Policy formation and integration; Knowledge communication	2008–2010	Government; Coastal zone management	<i>Regional:</i> Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama
			<i>In Panama:</i> A crop impact study for agriculture has been undertaken and published.				
5.	Climate Policy 2012: Extension of the global project “Capacity Development for Policy Makers to Address Climate Change” ¹⁸²	Spain, UNDP <i>Budget:</i> US\$3.6 million	UNDP	Capacity building; Policy formation and integration	2009–2011	Government	<i>LAC Region</i> ¹⁸³ : Including Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama
			<i>In Panama:</i> Further information required. ¹⁸⁴				

¹⁸¹ ECLAC, <http://www.eclac.org/mexico/cambioclimatico/index.html>

¹⁸² UNDP, http://www.undpcc.org/content/act_latino-en.aspx and http://www.undp.org/climatechange/docs/EEG_Flyer_EN.pdf

¹⁸³ Countries include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	countries that begin to consider adaptation to climate change in their National Development Plans.						
6.	Climate Change Vulnerability Evaluation of Coastal and Marine Areas ¹⁸⁵	Spain	ECLAC, University of Cantabria, national counterparts	Capacity building; Assessment; Knowledge communication	2009–2011	Coastal zone management	Most RIOCC countries, ¹⁸⁷ including all in Central America
		<i>In Panama:</i> Further information required.					
7.	Mitigation and Adaptation to Climate Change in Sustainable Forest Management in Ibero-America ¹⁸⁸	Spain	INIA, CIFOR, CATIE, Polytechnical University of Madrid (UPM)	Capacity building; Research; Knowledge communication	2009–2011	Forestry	RIOCC countries
		<i>In Panama:</i> Further information required.					

¹⁸⁴ UNDP, <http://www.undpcc.org/content/panama-en.aspx>

¹⁸⁵ RIOCC, http://www.lariocc.net/riocc_principal/es/proyectos_iniciativas/proy_marc_piacc.htm

¹⁸⁶ ECLAC, <http://www.eclac.org/mexico/cambioclimatico/index.html>

¹⁸⁷ The 21 member countries of RIOCC are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Portugal, Spain, Uruguay and Venezuela. Paraguay and Uruguay are not involved in this initiative.

¹⁸⁸ Proyecto MIA, <http://www.proyectomia.com/>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	studies, strengthening human resources and fostering the representation of the forest sector in the regional and international dialogue.						
8.	Peace Corps Renewable Energy and Climate Change Initiative ¹⁸⁹	United States Department of State (USDS)	U.S. Peace Corps, USDS	Community-based adaptation; Knowledge communication	Ongoing	Energy	LAC Region: Costa Rica, Dominican Republic, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Panama, Paraguay, Peru, Suriname
<i>In Panama: Further information required</i>							
9.	Integrating Climate Change Adaptation into National Development Processes in Latin America and the Caribbean	Spain <i>Budget:</i> US\$4,375,233	UNEP	Capacity building; Policy formation and integration	2010–2013	Government; Agriculture; Freshwater supply	LAC Region: Phase 1: 19 RIOCC countries ¹⁹⁰ Phase 2: 3-5 countries (Dominican Republic 1st country selected)

¹⁸⁹ ECPA, <http://www.ecpamericas.org/initiatives/default.aspx?id=35>

¹⁹⁰ The 19 RIOCC countries are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	development processes. It will focus on the most vulnerable sectors and ecosystems, especially water and agriculture.	<i>In Panama:</i> Further information required					

D. Proposed Adaptation Action

With respect to the initiation of new adaptation projects, Panama is anticipated to participate in two regional programs that individually will address food security and coastal zones management concerns. Funding for these projects is being provided by the United States Agency for International Development (USAID).

Table 3: Proposed Adaptation Actions

Name	Objectives	Type of project	Priority Sector(s)	Geographic focus (if any)
1. Food Security Program	USAID will support food security programs that focus on ways to protect areas of agricultural production likely to be impacted by climate change. The program will work to reduce disaster risks and vulnerability to climatic shocks in Central America by improving information, such as Earth observation data. USAID will help build the capacity for government and community organizations to utilize early warning systems to prepare and plan for disasters.	Capacity building; Knowledge communication	Agriculture; Disaster risk management	Central America
		Notes: From USAID fast start finance notes; US\$300,000 for the whole of Central America.		
2. Coastal zone adaptation	USAID will invest an additional \$1 million in adaptation projects in the coastal zones of Central America.	Capacity building	Coastal zone management	Central America
		Notes: USAID program for Central America; budget of US\$1 million for the whole of Central America.		

E. Assessment

Policy documents on adaptation to climate change are presently scarce in Panama. The only detailed official document on priority sectors and adaptation measures is its First National Communication from 2001, as climate change is not mentioned in Panama's current national development plan elaborated in 2010. However, there are indications that adaptation is gaining momentum in national policy making. First, a national climate change policy with general directions was enacted in 2007. In 2009, the interagency climate



change committee CONACCP¹⁹¹ was established. Currently, IADB is funding the elaboration of a national climate change action plan. Also, the Second National Communication with a focus on vulnerable areas, especially dry areas and islands, is expected to be finalized soon.

A moderate number of current adaptation project have been identified, each of which will help provide a basis for more concrete adaptation action in the future. Most of these projects emphasize capacity building activities. A number provide support to the government as it develops its capacity to support adaptation within the country. Although adaptation needs in several sectors are being addressed, gaps in programming appear to be present with respect to areas such as human health, gender concerns, biodiversity and the built environment.

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¹⁹¹ Comité Nacional de Cambio Climático de Panamá, or the National Climate Change Committee of Panama.



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