



## SPOTLIGHT ON PUBLICATIONS: CITY-LEVEL CLIMATE CHANGE ADAPTATION AND MITIGATION



The publications presented in this Spotlight cover some of the key issues related to city-level climate change mitigation and adaptation in Latin America, with a particular focus on: the prominent role of cities in Latin America; city-level climate mitigation and adaptation in Latin America; greenhouse gas inventories; waste; transportation; disaster preparedness; health; and poverty.

### THE PROMINENT ROLE OF CITIES IN LATIN AMERICA

#### ► [Building Globally Competitive Cities: The Key to Latin American Growth](#)

As the most urbanised developing region in the world, this report explains the prominence of large cities (with populations of 200,000 or more) in Latin America's economy and highlights potential areas to develop their economic potential further. In 2007, Latin America's 198 large cities contributed to over 60% of the region's GDP (US\$3.6 trillion) and its top-ten cities contribute to 47% (US\$1.7 trillion) of this figure. In terms of climate change mitigation and adaptation, city-level initiatives covered in this report include environmental conservation, waste management, sustainable resource use, urban planning, improving energy productivity, setting green standards, and increasing efficiency of urban distribution.

Full Citation: Cadena, A. *et al.* 2011. *Building Globally Competitive Cities: The Key to Latin American Growth*. McKinsey Global Institute, Washington, DC.

#### ► [State of Latin American and Caribbean Cities 2012: Towards a New Urban Transition](#)

This report by the United Nations Programme for Human Settlements (UN Habitat) was produced by the Latin America and the Caribbean office with the support from the [Cities Alliance](#), the [Development Bank of Latin America](#), the [Economic Commission for Latin America](#) (ECLAC), the Latin American Federation of Cities, Municipalities and Local Government Associations ([Federación Latinoamericana de Ciudades, Municipios y Asociaciones de Gobiernos Locales](#)) and the Ministers and High-level Authorities of the Housing and Urban Development Sector in Latin America and the Caribbean ([Ministros y Autoridades Máximas de la Vivienda y el Urbanismo de América Latina y el Caribe](#)). The report includes the most up-to-date information about the major urban centres of the region, featuring issues such as economic development and equality, basic urban services, urban governance and urban environment and risk management, including city-level approaches to climate change mitigation, risk reduction and adaptation.

Full Citation: UN Habitat. 2012. *The State of Latin American and Caribbean Cities 2012: Towards a New Urban Transition*. UN Habitat, Nairobi.



### ► [State of the World's Cities 2012/2013: Prosperity of Cities](#)

This report examines how municipal leaders throughout the world can generate and equitably distribute the benefits and opportunities associated with economic prosperity within their cities, ensuring economic well-being, social cohesion, environmental sustainability and a better quality of life for inhabitants. Regarding environmental sustainability, respondents to the report survey overwhelmingly pointed to mitigation and adaptation as imperative urban measures. Of the more than 50 cities included in this report, Latin American cities include Sao Paulo, Mexico City, Santo Domingo, Belo Horizonte, Bogota, Buenos Aires, Caracas, Curitiba, Guadalajara, Leon, Lima, Montevideo, Porto Alegre, Rio de Janeiro, San Jose, Santiago, Este, Guadalajara, La Paz, Medellin, Panama City, Rosario, Santos, Tijuana, Valparaiso and Guatemala City.

Full Citation: Moreno, E.L. *et al.* 2013. *State of the World's Cities 2012/2013: Prosperity of Cities*. UN Habitat, New York.

### ► [Latin American Green City Index: Assessing the Environmental Performance of Latin America's Major Cities](#)

This study is part of a research project conducted by the [Economist Intelligence Unit](#) in various regions of the world, sponsored by Siemens. The methodology for the Green City Index was developed by urban environmental sustainability experts from prestigious organisations such as the International Institute for Environment and Development (IIED), the Organisation for Economic Cooperation and Development (OECD), CITYNET, the World Bank, the African Development Bank, the Inter-American Development Bank and UN Habitat. 17 Latin American cities – Belo Horizonte, Bogota, Brasília, Buenos Aires, Curitiba, Guadalajara, Lima, Medellin, Mexico City, Monterrey, Montevideo, Porto Alegre, Puebla, Quito, Rio de Janeiro, Santiago and Sao Paulo – are highlighted as good sustainable performers compared to regional averages. The Index measures environmental performance across eight categories: energy and CO<sub>2</sub>, land use and buildings, transport, waste, water, sanitation, air quality and environmental governance.

Full Citation: Latin American Green City Index. 2010. *Assessing the Environmental Performance of Latin America's Major Cities*. Siemens AG Corporate Communications and Government Affairs, Munich.

## CITY-LEVEL CLIMATE MITIGATION AND ADAPTATION IN LATIN AMERICA

### ► [Progress and Challenges in Urban Climate Adaptation Planning: Results of a Global Survey](#)

In this report, the Local Governments for Sustainability (ICLEI) and member communities, in collaboration with Massachusetts Institute of Technology (MIT), provide a comprehensive overview of the status of urban adaptation planning globally. The report is one of the first systematic assessments of urban adaptation to climate change, covering 468 cities from all over the world including Argentina, Brazil, Chile, Mexico and Peru from Latin America. Three key challenges identified are: (1) how to fund adaptation; (2) how to communicate adaptation needs at city-level; and (3) gaining commitment and support from higher-level government. The governments of the participating cities completed a 40-question survey on climate change. Globally, 68% of cities reported they are undertaking adaptation planning. At 95%, Latin American respondents exhibit the highest rates of adaptation commitments. The report's extensive statistical data and comparative analysis may be highly interesting to South Asian and African city managers engaged in adaptation.

Full Citation: Carmin, J., Nadkarni, N., Rhie, C. 2012. *Progress and Challenges in Urban Climate Adaptation Planning: Results of a Global Survey*. MIT, Cambridge, MA.



## ► [Wealthier, Healthier Cities: How Climate Change Action is Giving us Wealthier, Healthier Cities](#)

Based on responses from 110 global cities, this [Carbon Disclosure Project report](#) demonstrates that the benefits of tackling climate change at the city level can extend well beyond reducing greenhouse gas emissions and adapting to climate impacts. Cities in the survey are also saving money, creating more attractive investment opportunities and enabling citizens to live healthier lives. Latin America constitutes about 18% of the participating cities, showing that these opportunities are not limited solely to developed countries.

Full Citation: Riffle, C., Appleby, K., Martin, P. 2013. *Wealthier, Healthier Cities: How Climate Change Action is Giving us Wealthier, Healthier Cities*. Carbon Disclosure Project, London.

## ► [Mexico City Climate Action Plan \(2008-2012\): Summary](#)

This is the official report of the Mexico City Climate Action Programme (*Programa de Acción Climática de la Ciudad de México*), a world benchmark in terms of concrete adaptation and mitigation results achieved. It encompasses all actions and measures that have been carried out by the local authorities that led Mexico City to reduce seven million tonnes of CO<sub>2</sub> equivalent (beyond its own targets) and to develop a comprehensive climate change adaptation programme, today in full operation. The report explains in technical detail the methodology adopted to measure greenhouse gas emissions, as well as details of individual projects.

Full Citation: Government of Mexico City. 2008. *Mexico City Climate Action Plan (2008-2012): Summary*. Government of Mexico City, Mexico City.

## ► [Cities Lead the Way in Climate-Change Action](#)

The authors of this short comment appeal to scientists to support the efforts of cities to address climate change in urban planning. City authorities in Latin America and elsewhere are willing and able, but need timely information on long-term trends, potential tipping points and possibilities for surprise. Improving communication between researchers and city planners and expanding research networks – to include small and medium cities – are just two strategies that could help support this effort. Scientists from South Asia and Africa may be particularly interested in the links to scientific initiatives and political alliances covered in this piece.

Full Citation: Rosenzweig, C. *et al.* 2010. Cities Lead the Way in Climate-Change Action. In: *Nature* 467 909-911.

## ► [Latin American Cities and Climate Change: Challenges and Options for Mitigation and Adaptation Responses](#)

Latin American cities are growing emitters and extremely vulnerable to climate change impacts. The authors of this paper discuss the intersections of climate change mitigation and adaptation based on experiences from Latin American cities such as Mexico City, Manizales and Porto Alegre. They argue that integrating a pro-poor perspective can overcome current constraints in the climate change agenda of cities. This paper will be of interest to city authorities in Africa and Asia interested in learning from Latin America's more unconventional mitigation and adaptation approaches.

Full Citation: Hardoy, J., Romero Lankao, P. 2011. Latin American Cities and Climate Change: Challenges and Options for Mitigation and Adaptation Responses. In: *Current Opinion In Environmental Sustainability* 3 (3) 158-163.



## GREENHOUSE GAS INVENTORIES

### ► [Carbann Cities Climate Registry Annual Report \(2011\)](#)

This report shares the measurable, reportable and verifiable climate action at city level. It summarises the monthly newsletters issued by Carbann Cities Climate Registry (cCCR), with information about the commitments of cities around the world for climate and energy, offering references and links to follow up. As of March 2013, 302 cities from 42 countries, jointly responsible for GHG emissions of around 1.5 GtCO<sub>2</sub>e annually, reported 561 energy and climate commitments, 578 GHG inventories and 2,471 mitigation and adaptation actions and action plans. With 68 cities participating in the registry, Latin America is one of the most strongly represented regions in the world.

Full Citation: Carbann Cities Climate Registry (cCCR). 2011. *Carbann Cities Climate Registry Annual Report*. cCCR, Bonn.

### ► [Measure for Management: CDP Cities 2012 Global Report](#)

The latest report from the [Climate Disclosure Project](#) summarises findings from a global, 73-city survey on city-level mitigation and adaptation measures. Regionally, nine Latin American cities participated, as well as nine from Africa, and three from South Asia. The survey examines GHG inventories, per capita emissions, green job growth opportunities, current climate change risks, and mitigation commitments and funding streams. Pages 84-89 in the appendix provide a very useful summary table organised by region and country.

Full Citation: Riffle, C., Appleby, K. *Measure for Management: CDP Cities 2012 Global Report*. Climate Disclosure Project, London.

### ► [6 Lessons Brazilian Cities Learned from Greenhouse Gas Inventories](#)

This report summarises findings from a sustainable cities conference hosted by the [WRI](#), [C40](#), and [GPC](#) in Sao Paulo, Brazil, with 200 Brazilian city leaders and planners. The summary identifies the necessary preconditions and potential challenges of establishing GHG inventories in Brazilian cities. The city-level governments of Sao Paulo, Rio de Janeiro, Belo Horizonte, and Piracicaba presented their experiences using the GPC (a carbon accounting and verification tool established by the [GHG protocol](#)). Because Brazilian cities vary in their level and duration of efforts dealing with GHG measurement and mitigation, this summary will be useful for other cities in developing countries, regardless of the current status of their urban mitigation programmes.

Full Citation: Fong, W. 2013. *6 Lessons Brazilian Cities Learned from Greenhouse Gas Inventories*. World Resources Institute, Washington, DC.

### ► [Belo Horizonte's Steps Towards a New Solar Energy Legislation: A Case Study by ICLEI](#)

This publication describes Belo Horizonte's experience drafting and implementing its first policy to promote the installation of solar water heating systems on the city's private and public buildings. This policy was created through a partnership between Belo Horizonte's Municipal Committee on Climate Change/Eco-efficiency and the Local Governments for Sustainability (ICLEI) initiative. As a result, over 50% of the city's energy for heating water comes from these solar heating systems, making Belo Horizonte the solar energy capital of Brazil.

Full Citation: Barbi, F., Freitas, P.G., Krosigk, R., Simpson, R. 2010. *Belo Horizonte's Steps Towards a New Solar Energy Legislation*. ICLEI, Bonn.



## WASTE MANAGEMENT

### ► [Guidance Note on Landfill Gas Capture and Utilization](#)

This Guidance Note produced by the Inter-American Development Bank (IDB) provides a tool on landfill-gas (LFG) production, flaring and utilisation for energy purposes. The Note showcases best practices in LFG capture and utilisation from the Latin America region, analyses reasons for under-performance, and describes current project design, construction and operational costs. The document is particularly relevant for countries that are exploring more innovative business models at the municipal level, as well as those that are aiming to better understand linkages between LFG projects and the Clean Development Mechanism (CDM).

Full Citation: Inter-American Development Bank. 2010. *Guidance Note on Landfill Gas Capture and Utilization*. IDB, Washington, DC.

### ► [Waste-to-Energy Industry in Latin America](#)

This document provides a review of the most promising technologies and policies related to the waste-to-energy industry in Latin America, as well as its relationship to the energy and solid waste sectors and market issues. It focuses on several case studies of the application of waste-to-energy approaches relating to agricultural and industrial residues, municipal waste, forest plantations, natural forests and agricultural crops, drawing on experiences from Brazil, Chile, Colombia, Costa Rica and Mexico.

Full Citation: UN-Habitat. 2010. *Waste to Energy Industry in Latin America*. UN-Habitat, Rio de Janeiro.

### ► [Solid Waste Management in the World's Cities](#)

This document is the third of UN HABITAT's 'State of Water and Sanitation in the World Cities' series, showcasing what is being done in solid waste management by more than 20 cities around the world, large and small, rich and poor. It analyses how development and modernisation of waste management is fundamental for environmental protection and public health, for understanding waste as a resource and for enabling cities to improve design and find local solutions under different circumstances. The report is a valuable resource as it offers potential solutions to cities of different sizes with different political, socio-economic and environmental contexts, and identifies ways to generate income for the poor. It analyses case studies from Belo Horizonte and the Selo Verde Programme in Ceara State in Brazil, as well as the cities of Canete in Peru and Catia La Mar in Venezuela, making comparisons with the waste management approaches of cities in other regions.

Full Citation: UN Habitat. 2010. *Solid Waste Management in the World's Cities*. Earthscan, London.

### ► [International Best Practices Guide for Landfill Gas Energy Projects](#)

This guide provides a broad overview of the process of developing Landfill Gas Energy (LFGE) projects and presents the technological, economic and political considerations that typically affect the success of LFGE projects in different national settings. The guide also presents a selection of best practices of environmentally and economically sound LFGE projects and provides readers with links to further information, tools and services. Case studies from the Latin America region include Argentina, Brazil, Chile, Colombia, El Salvador and Mexico. With a modelling tool for calculating LFG potential and a section on financing and running LFGE businesses, this guide will be most attractive to readers who want to learn more about how market forces can support the development of LFGE projects.

Full Citation: Global Methane Initiative (GMI). 2012. *International Best Practices Guide for Landfill Gas Energy Projects*. GMI, Washington, DC.



## ► [Regional Evaluation on Urban Solid Waste Management In Latin America and the Caribbean: 2010 Report](#)

This evaluation, carried out by the Inter-American Development Bank (IDB), analyses waste management trends over the last 10 years in Latin America and the Caribbean. The evaluation sheds light on opportunities for landfill gas recovery, selective collection, composting, materials recycling and incineration with waste-to-energy recovery, drawing on case studies and success stories from Brazil, Chile, Colombia, Ecuador and Mexico. The evaluation also includes examples from Latin American municipalities with relatively less-developed solid waste management programmes, which might prove useful to readers from countries where these approaches are still incipient.

Full Citation: Inter-American Development Bank. 2010. *Regional Evaluation on Urban Solid Waste Management in Latin America and the Caribbean: 2010 Report*. IDB, Washington, DC.

## GREENING TRANSPORT

### ► [Integrated Environmental Strategies \(IES\) – Bogotá: Joint Implementation Plan](#)

The Integrated Environmental Strategies (IES) is an approach developed by the U.S. Environmental Protection Agency to help developing countries to achieve economic growth while implementing effective measures to reduce both air pollution and GHG emissions. In Bogota – the capital city of Colombia with the worst air quality among Latin American cities – the IES-Bogota project aims to help the city achieve substantial public health and climate benefits. Bogota has undergone a complete reform of its public transport infrastructure in recent years in order to achieve the goal of a 30% reduction in CO<sub>2</sub> emissions by 2020. This and other strategies adopted by the local government are detailed in this study.

Full Citation: Clean Air Institute and Universidad de los Andes. *Integrated Environmental Strategies – Bogotá. Joint-Implementation Plan. 2010*. Clean Air Institute and Universidad de los Andes, Bogota.

### ► [Considering Climate Change in Latin American and Caribbean Urban Transportation: Concepts, Applications and Cases](#)

At the request of the World Bank, the University of California developed this report setting out a framework and methodologies for analysing CO<sub>2</sub> emissions from urban transportation in Latin America and the Caribbean. The study highlights the challenges of obtaining better information on the science of climate change and the effects of GHGs in relation to transportation and, as such, proposes strategies for overcoming these issues. The report also analyses projects from different Latin American cities, including greener vehicles and fuels, integrated public transport systems, cycle routes, pedestrian infrastructure and improved traffic management.

Full Citation: Schipper, L. *et al.* 2009. *Considering Climate Change in Latin American and Caribbean Urban Transportation: Concepts, Applications and Cases*. Center for Global Metropolitan Studies, University of California, Berkeley.



## ► [Implementation of Sustainable Urban Transport in Latin America](#)

Transportation is a crucial sector in any city. In the face of growing concern about an increasing number of motorised vehicles on the roads and the impacts of these on city environments, this article examines the development, implementation and future of sustainable transportation systems in Latin American cities. Evidence from the region suggests that it is possible to modify motorisation trends by reallocating resources to maximise access for people and goods. The authors emphasise the importance of regional cooperation and support from the international community for the pilot testing and scaling-up sustainable urban transport systems.

Full Citation: Hidalgo, D., Huizenga, C. 2013. Implementation of Sustainable Urban Transport in Latin America. In: *Research in Transportation Economics* 40(1) 66-77.

## ► [Lessons from the Spread of Bus Rapid Transit in Latin America](#)

This comparative study of Bus Rapid Transport (BRT) systems in four cities in Latin America – Curitiba (Brazil), Bogota (Colombia), Quito (Ecuador) and Lima (Peru) – draws interesting lessons for other countries interested in developing greener, more efficient public transport systems. As well as examining the factors that triggered the development of BRTs, the authors analyse the technological developments that occurred as these systems were expanded, including the barriers they faced and how these were overcome.

Full Citation: Mejía-Dugand, S. *et al.* 2012. Lessons from the Spread of Bus Rapid Transit In Latin America. In: *Journal of Cleaner Production* 50(1) 82-90.

## ► [Bus Rapid Transit – Planning Guide](#)

This guide was developed by the Institute for Transportation and Development Policy to help orientate decision makers and planners interested in developing and/or improving a mass transportation system in a city setting. As well as providing basic information about BRT, the publication offers an overview of the history of this type of infrastructure, including the case study of Curitiba, Brazil, home to one of the first BRT systems in the world. This planning guide will be useful for any city that is trying to understand possible strategies for improving the transport sector, and, more specifically, how to plan and implement a bespoke BRT system of its own.

Full Citation: Institute for Transportation and Development Policy (ITDP). 2007. *Bus Rapid Transit – Planning Guide*. ITDP, New York.

## ► [Curitiba – The Cradle of Bus Rapid Transit](#)

The city of Curitiba, Brazil, pioneered the development and implementation of the BRT system for mass transportation and was also one of the first cities to recognise the importance of harmonising environmental, land-use and transportation issues in city development plans. This paper explores the history of the Curitiba BRT system, from improvements to existing bus lines to pre-payment systems and the integration of biodiesel-fuelled buses. As such, this publication will be useful to readers in other regions interested in understanding the potential benefits and pitfalls of mass transportation systems for their cities.

Full Citation: Lindau, L.A., Hidalgo, D., Facchini, D. 2010. Curitiba – The Cradle of Bus Rapid Transit. In: *Built Environment* 36 274-282.





### ► [Bogotá's CicloRuta is One of the Most Comprehensive Cycling Systems in the World](#)

As a new way of combating urban transportation chaos, cycle paths have been emerging in cities around the world with researchers and government planners coming up with some interesting new ideas. This study analyses the evolution of the CicloRuta in Bogota, Colombia, which today covers some 340km, connecting citizens to major BRT routes, parks and community centres. The study includes impressive data relating to use and financial savings, estimated at US\$40 million annually on fuel costs and US\$40 per month per cyclist, making a strong case for the replication and scaling-up of cycle routes in any country of the world.

Full Citation: C40. (No publication date). *Bogota's CicloRuta is One of the Most Comprehensive Cycling Systems in the World*. C40, online publication.

## DISASTER PREPAREDNESS

### ► [Design and Implementation of an Early Warning System Landslide Area for Bella Flor in the Framework of the Community Wireless Network in Ciudad Bolivar](#)

This article examines how information and communication technologies (ICTs) can be integrated into an early warning system (EWS) for landslides in cities, highlighting the case study of a high-risk neighbourhood in the city of Bogota, Colombia. The authors also identify some successful practices from other cities where effective EWS have been implemented by placing monitoring technology in vulnerable communities. In doing so, the article not only highlights the importance of ICTs for improving EWS and raising awareness amongst at-risk populations, it also shows how the digital divide might potentially be putting low-income communities at higher risk from landslides (as well as other disasters).

Full Citation: Galeano, K. R., Pedraza, L. F., Guevara, J. C. 2011. *Design and Implementation of an Early Warning System Landslide Area for Bella Flor in the Framework of the Community Wireless Network in Ciudad Bolivar*. World Academy of Science, Engineering and Technology, Las Cruces, NM.

### ► [Landslide Risk Reduction Measures by the Rio de Janeiro City Government \(Chapter 4: Improving the Assessment of Disaster Risks to Strengthen Financial Resilience\)](#)

This book chapter examines the measures taken by the Rio de Janeiro City Government over the past 40 years to reduce landslide risk, including the EWS system. The publication also contains a detailed explanation of the Geotechnical Foundation (GEO-RIO), responsible for retention work, risk mapping and other activities to reduce risk in the city. Details are also provided about the mapping process, and on the actions that were taken with the Civil Defence to improve the city's alert and warning system. This document shows how after a series of disasters the city invested significantly in disaster risk reduction, with excellent results. The specific actions detailed in this article might be of interest to those in other developing cities that wish to improve EWS and reduce disaster risk.

Full Citation: Brazilian Government. 2012. *Landslide Risk Reduction Measures by the Rio de Janeiro City Government (Chapter 4: Improving the Assessment of Disaster Risks to Strengthen Financial Resilience)*. World Bank and G2012, Washington, DC.

### ► [Third International Conference on Early Warning – From Concept to Action Compendium of Early Warning Projects](#)

This document is the outcome of an international conference held in Bonn, Germany, and highlights a range of early warning projects in different regions of the world, including contact information of project developers. The types of threats for which





EWS have been implemented go beyond floods and landslides. Those interested in learning more about EWS in the Latin America region should refer to pages 34-41, where examples are given from Argentina, Bolivia, Brazil, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama and Venezuela. Other regions are also covered in this document, and might provide interesting contacts for those wishing to develop local EWS.

Full Citation: UN International Strategy for Disaster Reduction and Government of Germany. 2006. *Third International Conference on Early Warning – From Concept to Action Compendium of Early Warning Projects*. UNISDR, Bonn.

### ► [Climate Risk Management in Western South America: Implementing a Successful Information System](#)

This article assesses the implementation of a regional monitoring and early warning system in Central and South America, which integrates inputs from a range of countries and seeks to improve weather forecasts, optimise information systems and reduce socio-economic risks. The integration of technological monitoring equipment from across the region has greatly strengthened the system. In addition to investments in monitoring, significant attention has been paid to information dissemination among communities at risk, using methods such as mobile text messaging, radio and the internet.

Full Citation: Martínez Güingla, R., Mascarenhas, A. 2009. Climate Risk Management in Western South America: Implementing a Successful Information System. In: *WMO Bulletin* 58(3) 189-196.

### ► [A Landslide Early Warning System Within an Integral Risk Management Strategy for the Combeima-Tolima Region, Colombia](#)

This paper describes the implementation of an EWS in a mountainous area prone to rain-induced landslides in Colombia. The project included risk analysis, disaster risk reduction, alert and warning systems, as well as community engagement and governance components. The authors conclude that the involvement of community members was absolutely key to success, and that local risk management hubs represent an effective platform for coordinating community-based action aimed at reducing the incidence of disasters. This paper will be useful to readers interested in developing simple yet effective EWS.

Full Citation: Huggel, C. *et al.* 2008. *A Landslide Early Warning System Within an Integral Risk Management Strategy for the Combeima-Tolima Region, Colombia*. Paper presented at the International Disaster Risk Conference (IDRC) in Davos, Switzerland.

### ► [Differential Vulnerability to Hurricanes in Cuba, Haiti, and the Dominican Republic: The Contribution of Education](#)

This study examines the role of education in reducing disaster risk by comparing Cuba to Haiti and the Dominican Republic. Cuba is considered a world leader in Early Warning Systems and Cubans have been educated about disaster risk, and what to do in the case of an emergency. Cuba has also integrated its communication systems to ensure that warnings of anticipated threats reach all potentially affected areas. The author draws convincing conclusions about the importance of education in EWS and DRR by showing how fatalities in Cuba have fallen drastically, despite an increasing frequency of disasters. This case provides very valuable lessons for those in other regions, because the methods developed and implemented in Cuba are low cost and highly effective.

Full Citation: Pichler, A., Striessnig, E. 2013. Differential Vulnerability to Hurricanes in Cuba, Haiti, and the Dominican Republic: The Contribution of Education. In: *Ecology and Society* 18(3) 31.



## HEALTH

### ► [Protecting Health from Climate Change](#)

This report is a crucial resource for understanding the co-benefits of effective climate change mitigation and adaptation in developing regions. The most relevant sections are section (12) Choosing healthy paths to a low-carbon future, for climate mitigation; and section (8) The most vulnerable: they support the greatest health burdens, for climate adaptation. Both stress the need for city mayors to take action to protect the health and well-being of their populations in the face of climate change.

Full Citation: Ebi, K. *et al.* 2010. *Protecting Health from Climate Change. Vulnerability and Adaptation Assessment.* World Health Organization, Geneva.

## POVERTY

### ► [Urban Poverty and Vulnerability to Climate Change In Latin America](#)

This journal article provides an extensive assessment of the vulnerability of urban poor in Latin America to climate change. The authors argue that much progress in reducing vulnerability to climate risks in the region has been achieved through good disaster preparedness and post-disaster response. How these actions can contribute to future adaptation efforts is also discussed. This article will be useful to policymakers, practitioners and researchers interested in getting a concise overview of climate adaptation in Latin American cities.

Full Citation: Hardoy, J., Pandiella, G. 2011. Urban Poverty and Vulnerability to Climate Change In Latin America. In: *Environment and Urbanization* 23 123-155.

### CONTACT [SSN](#)

To learn more about city-level adaptation and mitigation in Latin American cities, contact the author, Jarrod Russell, Researcher at the Human Development Network (*Rede de Desenvolvimento Humano – REDEH*) Rio de Janeiro, at [jarrod.m.russell@gmail.com](mailto:jarrod.m.russell@gmail.com).

### FIND OUT MORE FROM [ELLA](#)

To learn more about city-level climate change adaptation and mitigation in Latin American cities, read the [ELLA Guide](#), which has a full list of the knowledge materials on this theme. To learn more about other ELLA development issues, browse other [ELLA Themes](#).



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