ILAC

Regional Indicators Revision 2011

LATIN AMERICAN AND CARIBBEAN INITIATIVE FOR SUSTAINABLE DEVELOPMENT

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I. INTRODUCTION

Latin America and the Caribbean is a region of great cultural and environmental wealth. Its territory includes seven mega-diverse countries, the largest river basin in the world by volume and the largest expanse of tropical forest on the planet. Because of this patrimony and the particular ways in which the region's space has been occupied, its economic development has historically been based primarily on exploitation of natural resources and on goods and services provided by the region's ecosystems.

At a moment in history when the human/nature relationship needs to be refashioned to find a sustainable balance – one that will ensure that both human development and nature prosper – there needs to be a system for monitoring changes in the environment. Environmental indicators provide information that is relevant, accurate, current and scientifically based; they therefore serve this purpose, in that they assist both in setting policy and, at the personal level, in minimizing our impact on the environment.

The present publication presents regional data drawn from the indicators used in the Latin American and Caribbean Initiative for Sustainable Development (known by its Spanish acronym ILAC). This set of indicators covers, among other issues, those related to biodiversity, human development, human settlements, institutional arrangements, and consumption and production patterns. The indicators provide a tool to gauge the progress that Latin America and the Caribbean (LAC) has made with regard to sustainable development, and supplies information on a number of environmental trends that demand more immediate attention.

The data presented here are taken from official information sources. Given that this is a regional publication, its data are in most cases drawn from regional or global websites; as a consequence, there may be differences between data reported at the national level and those presented here, due to discrepancies in the methodologies used to calculate indicators at different geographic scales.

The document is divided into two chapters. The first provides a historical view of the Caribbean Initiative for Sustainable Development, as well as information on progress in building and achieving consensus on the ILAC indicators. The second presents data from the indicators. The methodology sheets for the indicators have been agreed upon by the Working Group on Environmental Indicators (WGEI) for application at the regional level. Some of the indicators in this chapter, given the scant regional data available, are presented for only certain countries, which have been selected because current information on them is available. Data are presented in map form when there is sufficient information to make this feasible.

II. LATIN AMERICAN AND CARIBBEAN INITIATIVE FOR SUSTAINABLE DEVELOPMENT

HISTORY OF THE INITIATIVE

The Latin American and Caribbean Initiative for Sustainable Development (ILAC) was approved on 31 August 2002 at the First Special Session of the Forum of Environment Ministers of Latin America and the Caribbean, held in the framework of the Johannesburg World Summit on Environment and Sustainable Development. It was later ratified at the fourteenth session of the Forum in 2003[1] and at the fifteenth session in 2005,[2] as part of the Implementation Plan adopted at the Summit, and as a tool for promoting and evaluating the region's progress towards achieving sustainable development.

The Initiative recognizes the challenges that the region faces in attempting to make sustainable development a reality, and the difficulty of bringing about the necessary changes in current development models. It places special emphasis on the need to reverse current trends of environmental degradation and reduce poverty and inequality in the region, and seeks to promote the implementation of sustainable development models that are equitable and inclusive. One of the Initiative's operational guidelines is "To strengthen or adjust existing systems of sustainability indicators or build new systems to address the region's unique social, economic and political characteristics."[3]

In 2003, the Fourteenth Forum of Environment Ministers of Latin America and the Caribbean approved the core set of indicators, which will monitor progress towards meeting the ILAC goals, foster the collection and standardization of data and indicators at the national level, and assist in developing common methodologies to measure variables at the regional level.[4]

This core set of indicators constitutes the ILAC environmental indicators. They have been developed by a group of experts from the region, and reflect the concerns of Latin American and Caribbean governments on reaching agreement regarding a common environmental agenda based on shared priorities.

At the Sixteenth Meeting of the Forum of Ministers, in 2008, it was acknowledged that Latin American and Caribbean countries have continued making broad efforts to reverse the past trends of environmental degradation, as well as to raise the living standards of their populations and promote the growth of their economies. Advances in this realm are confirmed by the indicators and reports, which show progress towards meeting the ILAC and Millennium Development Goals. Major challenges remain, however, due, in part, to the pressure generated by economic growth that, in most of the Region's countries, is based on natural resources. Adding to this challenge are the difficulties of carrying out the infrastructure projects being promoted by various productive and service sectors. Challenges such as these highlight the need to promote environmental sustainability, as set forth in the Millennium Development Goals.

Decision 4 of the Seventeenth Meeting of the Forum of Environment Ministers of Latin America and the Caribbean, held in Panama City in 2010, emphasizes the need to increase the availability of, and access to, environmental data and information, and supports strengthening the ILAC Working Group on Environmental Indicators (WGEI).

OVERVIEW OF THE SET OF ILAC INDICATORS

The ILAC set of indicators is organized around six priority areas for the Region's sustainable development: (1) biological diversity; (2) water resource management; (3) vulnerability, human settlements and sustainable cities; (4) social issues, including health, inequality and poverty; (5) economic issues, including competitiveness, trade, and production and consumption patterns; and (6) institutional arrangements.

Each of these subject areas addresses the guiding goals and indicative purposes defined as priorities by ILAC. The current structure of the ILAC indicators includes 6 thematic areas, 25 guiding goals and 38 indicative purposes (table 1). The full list of indicators is provided in annex I of this publication.

1- UNEP, 2003. / 2- UNEP, 2005 / 3- UNEP, 2002 / 4- UNEP, 2003.

Table 1. General Structure of the ILAC Indicators

Thematic Areas	Guiding goals	Indicative purposes	Indicators
1. Biological diversity	4	4	3
2. Water resource management	4	7	9
3. Vulnerability, human settlements and sustainable cities	7	10	10
4. Social issues, including health, inequality and poverty	3	7	10
5. Economic issues, including competitiveness, trade, and production and consumption patterns	3	4	6
6. Institutional arrangements	4	6	7
Total	25	38	45

The methodological sheets for the indicators were constructed by the Working Group on Environmental Indicators (WGEI), which, following the 2010 updating of focal points, now represents 25 countries. The WGEI enjoys support from UNEP's Technical Secretariat; the task of coordination, formerly overseen by Costa Rica, was assumed by Mexico. The WGEI has carried out its work both in person and via the internet,[5] discussing methodological issues, definitions, data sources and availability of information for each country, and verifying that the indicators correspond to the indicative purposes and goals. All such work is designed to establish consensus on a methodology for constructing the indicators and reporting on them – one that will work effectively for all of the indicators.

Some ILAC indicators (and their methodological sheets) have been aligned with the Millennium Development Goals (table 2) in order to take advantage of the capacities already created and to promote compatibility with information produced by national statistical agencies. In this process, UNEP-ECLAC cooperation has been instrumental in advancing and consolidating the regional initiative as a meaningful tool.

Table 2. List of ILAC Indicators and Corresponding MDG Indicators

ILAC	MDGs[6]
1.1.1.1 Proportion of land area covered by forest	**MDG 7.1** Proportion of land area covered by forest
1.2.1.1 Proportion of terrestrial and marine areas protected	**MDG 7.6** Proportion of terrestrial and marine areas protected
2.1.1.1 Proportion of total water resources used	**MDG 7.5** Proportion of total water resources used
2.4.1.2 Proportion of population using improved sanitation facilities	**MDG 7.9** Proportion of population using improved sanitation facilities
3.3.1.2 Amount of carbon dioxide emissions	**MDG 7.3** Consumption of ozone-depleting substances
3.4.1.1 Proportion of population using an improved drinking water source	**MDG 7.8** Proportion of population using an improved drinking water source
3.4.1.2 Proportion of population using improved sanitation facilities	**MDG 7.9** Proportion of population using improved sanitation facilities
3.7.1.2 Occurrence of natural disasters, by type of event	**MDG 7** **(Supplementary)** Occurrence of natural disasters
4.1.1.1 HIV/AIDS prevalence in persons aged 15 to 49 years	**MDG 6.1** HIV prevalence among population aged 15-24 years
4.1.3.1 Hectares of green urban areas in relation to size of urban population	**MDG 7** **(Supplementary)** Green areas per capita in the principal cities of LAC
4.3.1.1 Proportion of urban population living in precarious settlements	**MDG 7.10** Proportion of urban population living in slums
5.1.1.2 Renewable energy use as a proportion of total energy used	**MDG 7** **(Supplementary)** Renewability of energy supply
5.1.1.3 Energy use per US$1,000 of gross domestic product (PPP)	**MDG 7** **(Supplementary)** Energy use per US$1,000 of GDP (PPP)
5.2.1.1 Consumption of ozone-depleting chlorofluorocarbons	**MDG 7.3** Consumption of ozone-depleting substances
5.2.2.2 Companies with ISO 14001 certification	**MDG 7** **(Supplementary)** Companies with ISO 14001 certification

To date, ILAC national reports have been produced for Mexico (2005), Costa Rica (2005), Argentina (2006), Colombia (2007), Brazil (2007), Peru (2008), Panama (2010) and Cuba (2011).

5- Work carried out via internet was through the Virtual Forum, available at www.geodatos.org; planned, synchronized sessions used Elluminate; electronic communications were via email.

6- Information updated with United Nations 2010 Millennium Development Goals, Advances in Environmentally Sustainable Development in Latin America and the Caribbean.

SET OF INDICATORS

The indicators are grouped in three categories, according to the following criteria: statistical viability, availability of information, and relevance to the guiding goals and indicative purposes. These three categories consist of: those that have been agreed upon and approved by the WGEI and that meet the three criteria; those still being developed and on which WGEI consensus has not yet been reached owing to difficulties in bringing together the necessary information – though progress has been made in formulating the relevant methodological sheets; and emerging indicators, which require more extensive methodological work in order to establish WGEI consensus.

Currently, the set of ILAC indicators is composed of 45 indicators; for 31 of these (69%) (table 3), methodological sheets have been agreed upon. At the August 2009 meeting of the WGEI, 10 new indicators were proposed to support and complement the information obtained by the 45 indicators approved by the Forum of Ministers. These are currently being validated and analysed by a subset of the WGEI, and have been designated as supporting indicators.

Table 3. ILAC INDICATORS, by Progress Status*

	TOTAL	Agreed	Being developed	Emerging	Supporting
1.Biological diversity	3	3	0	0	2
2.Water resource management	9	4	1	4	3
3.Vulnerability, human settlements and sustainable cities	10	9	0	1	2(+1)
4.Social issues, including health, inequality and poverty	10	6	1	3	2
5.Economic issues, including competitiveness, trade, and production and consumption patterns	6	5	0	1	1
6.Institutional arrangements	7	4	0	3	0
Total	45	31	2	12	10 (+1)

**Indicative purpose 3.7.2, calling for the incorporation of indicators in development plans, currently has no indicator. It was eliminated at the 2009 WGEI meeting; thus, a new one needs to be formulated to appropriately correspond to the goal. There are, including this, a total of 11 new indicators.*

III. AGREED INDICATORS

Thematic area 1. Biological diversity

Goal: 1.1 ..... Increase land area covered by forest.

Indicative purpose 1.1.1 .... Ensure the sustainable management of the region's forest resources, significantly reducing the current rate of deforestation.

Indicator 1.1.1.1 ..... Proportion of land area covered by forest.

46% of the region is covered by forest.

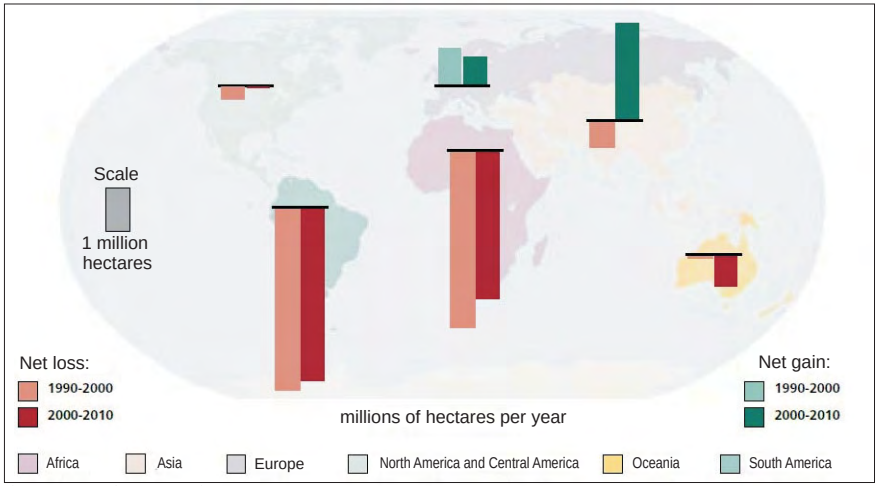
This indicator shows the proportion of a country's total area that is covered by forest. Proportions vary considerably, reflecting the particular bio-geographical conditions of each country, as well as the degree of deforestation in the region.

Forests cover 31% of the planet's surface, or an average of 0.6 hectares per inhabitant. For Latin America and the Caribbean, the figure is 46%, or 1.65 hectares per inhabitant (FAO, 2010).

The region houses 23.7% of the planet's forested area (FAO, 2010); however, while it contains a high proportion of the globe's total forested area, it continues to be one of two regions in the world experiencing the greatest net loss of forested area – Africa being the other (figure 1).

As of 2010, 46% of the Region's area was covered by forest. This is 8.84% less than the proportion reported in 1990 (table 4). Despite the decline in the annual rate of change, the region lost nearly 44 million hectares of forest between 2000 and 2010, representing 84% of the planet's total loss of forest during that period. The area in question is equivalent to slightly less than the entire territory of Nicaragua and Honduras combined. The reduction in forest cover is due principally to factors such as the expansion of agriculture, the use of scrubland and wooded areas for grazing, and uncontrolled forestry activities.

Figure 1. Annual change in amount of area covered by forest, by region, 1990-2010



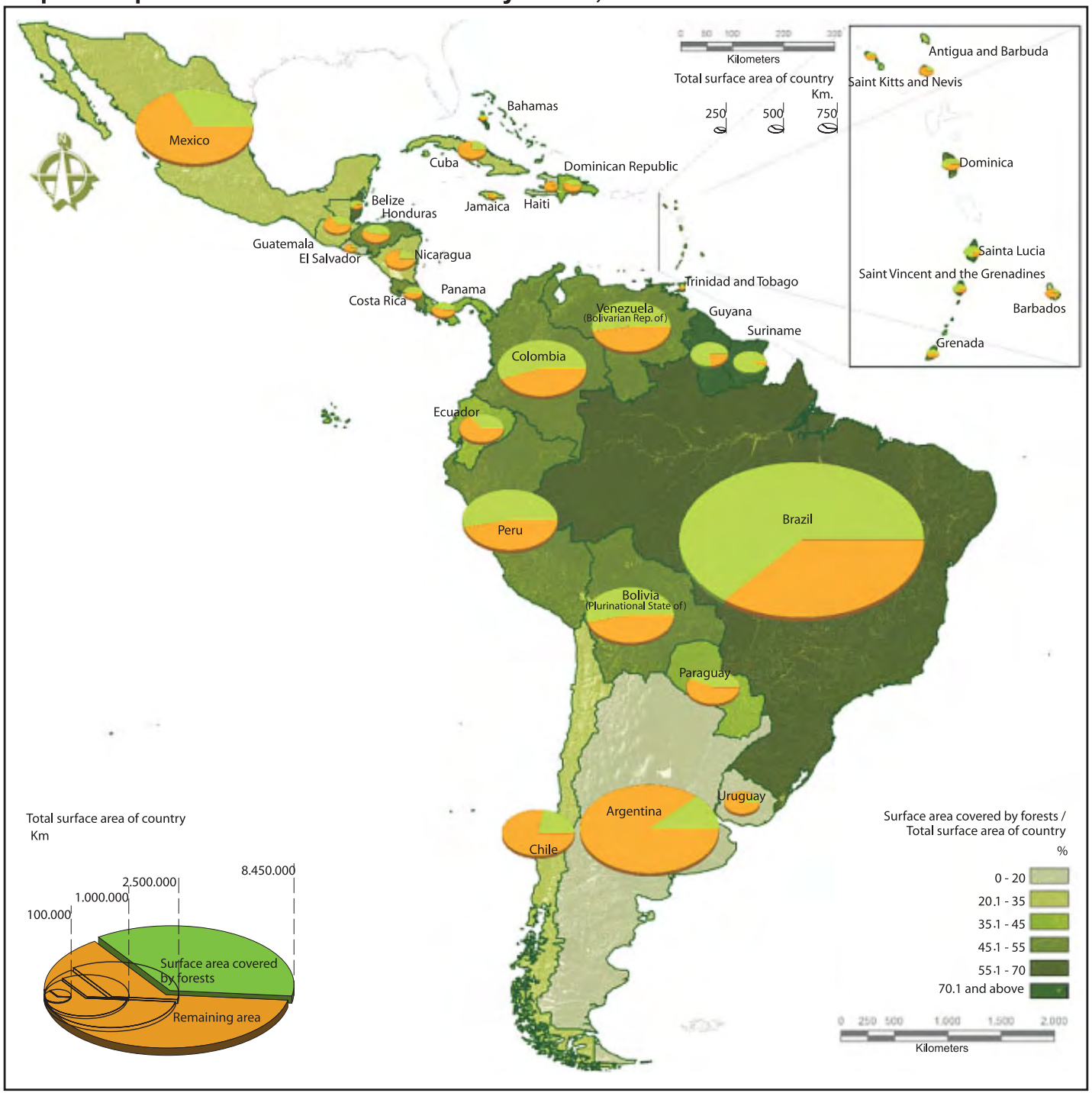
Source: FAO; 2010. Global Forest Resources Assessment 2010. Main Report.

Table 4. Amount of Forest Cover, and Change in Forest Cover, between 1990 and 2010 in Latin America and the Caribbean

Country/area	Forest area (thousands of hectares)				Annual rate of change					
	1990	2000	2005	2010	1990-2000		2000-2005		2005-2010	
					1 000ha/year	%	1 000ha/year	%	1 000ha/year	%
Mexico	70,291	66,751	65,578	64,802	-354	-0.52	-235	-0.35	-155	-0.24
Central America	25,717	21,980	20,745	19,499	-374	-1.56	-247	-1.15	-249	-1.23
Caribbean	5,902	6,434	6,728	6,933	53	0.87	59	0.90	41	0.60
South America	946,454	904,322	882,258	864,351	-4,213	-0.45	-4,413	-0.49	-3,581	-0.41
LAC	1,048,364	999,487	975,309	955,585	-4,888	-0.47	-4,836	-0.48	-3,944	-0.40
World	4,168,399	4,085,168	4,060,964	4,033,060	-8,323	-0.20	-4,841	-0.12	-5,581	-0.14

Source: FAO, 2010

Map 1. Proportion of land area covered by forest, 2010



Source: FAO, FRA, 2010.

Map 1 shows the surface area covered by forest for the countries of Latin America and the Caribbean. In 2010, Guyana had figures in excess of 70%, while Haiti had less than 10%. In the same year, 86% of the region's approximately 947 million hectares were concentrated in six countries: Brazil, with 55%, and Peru, Mexico, Colombia, the Plurinational State of Bolivia and the Bolivarian Republic of Venezuela with the remaining 31% (FAO, 2010).

Goal 1.2 ..... **Increase amount of protected areas.**
Indicative purpose 1.2.1 .... Significantly increase the amount of regional land under protection, including under this category transition zones and biological corridors.

Goal 1.4 ..... **Ensure marine diversity.**
Indicative purpose: 1.4.1 ... Ensure the appropriate use and conservation of marine resources, particularly the coastal-marine ecosystems, in the countries of the Caribbean Watershed.

Indicator 1.2.1.1 ..... Proportion of terrestrial and marine areas protected.

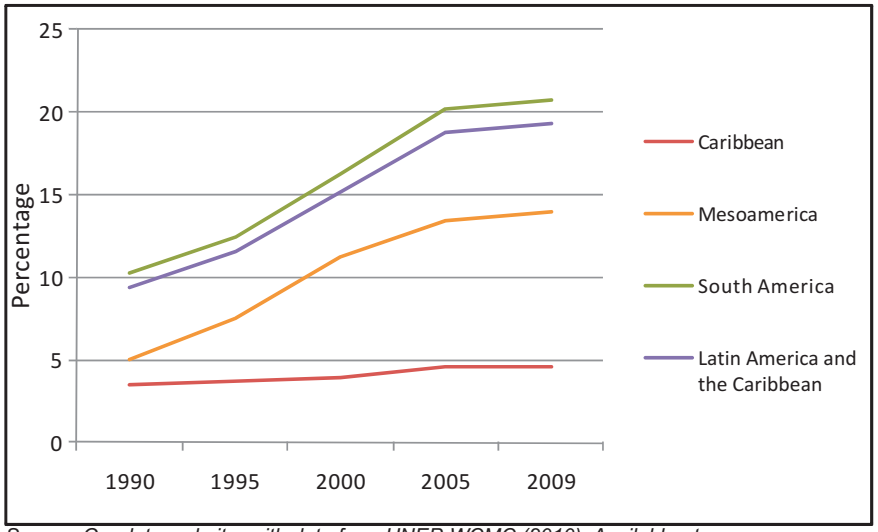
19.3% of the region's total area is under some form of protection.

According to the Millennium Development Goals report for 2010, nearly 12% of the land area and 1% of the oceans have been declared protected areas. However, this proportion is not sufficient to ensure the conservation of the planet's biodiversity. Not all ecosystems are represented in the protected areas, and in many cases the areas delimited consist of isolated fragments, making it difficult to adequately monitor the conservation of species.

The proportion of protected terrestrial and marine areas has been on the rise, at both the regional and subregional levels (figure 2). This trend reflects governments' role and commitment in protecting biological diversity, preventing the disappearance of species, and stemming the loss of biological resources.

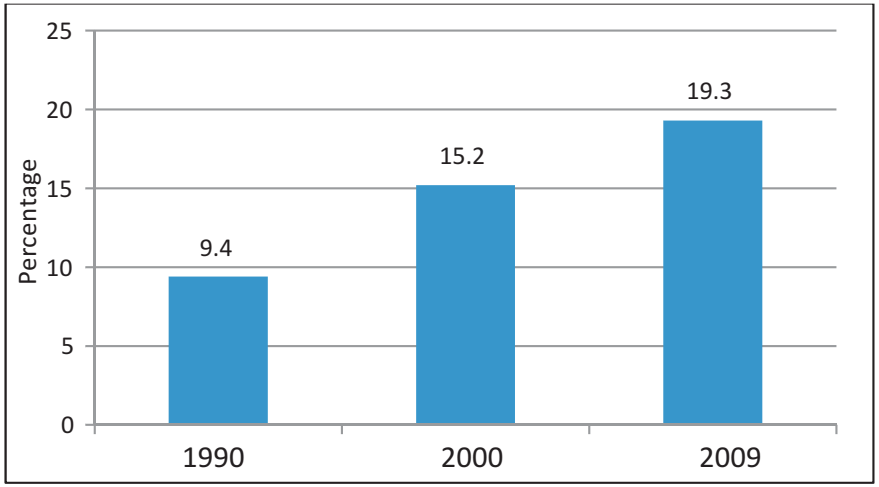
According to data from IUCN and UNEP-WCMC (2010), 19.3% of the region's area fell within some category of protected area as of 2009 (figure 3). This represented an increase of nearly 184 million hectares compared to 1995.

Figure 2. Percentage of terrestrial and marine areas protected, by subregion, 1990-2009.



Source: Geodata website, with data from UNEP-WCMC (2010). Available at: http://geodata.grid.unep.ch. Accessed January 2010.

Figure 3. Latin America and the Caribbean: Percentage of protected terrestrial and marine area



Source: IUCN and UNEP-WCMC, 2010. World Database on Protected Areas (WDPA), January 2010. Cambridge, UK: UNEP-WCMC. Available at: http://www.wdpa.org/Statistics.aspx

Map 2. Proportion of terrestrial and marine areas protected, 2009

Source: ECLAC, CMAP, FAO. Accessed 26 October 2010.

The amount of increase in the percentage of protected areas has varied from country to country (map 2). The proportion in the Plurinational State of Bolivia rose from 8.59% of its national territory in 1990 to 18% in 2009, Brazil's from 11% to 28% in that period, Costa Rica's from 16% to 18%, and in the Bolivarian Republic of Venezuela from 42% to 50%.

Goal 1.3 ..... Genetic resources – establish equitable distribution of benefits.

Indicative purpose1.3.1 ..... Adopt regulatory frameworks for access to genetic resources, as well as fair and equitable participation in the benefits derived from their use, consistent with the Convention on Biological Diversity.

Indicator 1.3.1.1 ..... Existence of laws and/or decrees and national regulations relating to access to genetic resources and distribution of their benefits**.**

This indicator is designed to reflect national efforts to optimise the management of, and access to, genetic resources, and to distribute the benefits derived from them justly and equitably, in order to achieve a sustainable means of exploiting the resources so as to further the country's development.

COSTA RICA

As with the countries of the Andean Pact, Costa Rica has a Biodiversity Act that also addresses the sovereignty of genetic resources and the equitable distribution of the benefits obtained from research on, and use of, these resources.

Law 7788, the Biodiversity Act (1998), includes procedural details, as well as basic requirements and the institutional framework, for accessing genetic resources. It also contains a section on intellectual property and traditional knowledge bases. The Act called for creation of a National Commission for the Management of Biodiversity (CONAGEBIO) charged, among other functions, with formulating national policy on conservation, and addressing ecologically sustainable use and restoration of biodiversity. The legislation also makes the law subordinate to the Convention on Biological Diversity and other relevant international agreements and treaties, as well as to the national interest. Further information is available at: http://www.conagebio.go.cr/.

ARGENTINA

Argentina's Resolution 1659/2007, published in the Official Bulletin of 16 November 2007, approves "Guidelines and directives on access to genetic resources and just and equitable participation in the benefits derived from their use".

A new resolution is currently in the process of being signed; it governs progress in implementing the regulatory framework mandated by the Convention on Biological Diversity and the mandates resulting from negotiations on the international regime (information as of March 2010).

Thematic area 2. Water resource management

Goal 2.1 ..... Improve water supply.

Indicative purpose 2.1.1 .... Improve technology to increase efficiency in water use in industry, agriculture and for domestic consumption.

Indicator 2.1.1.1 ..... Proportion of total water resources used.

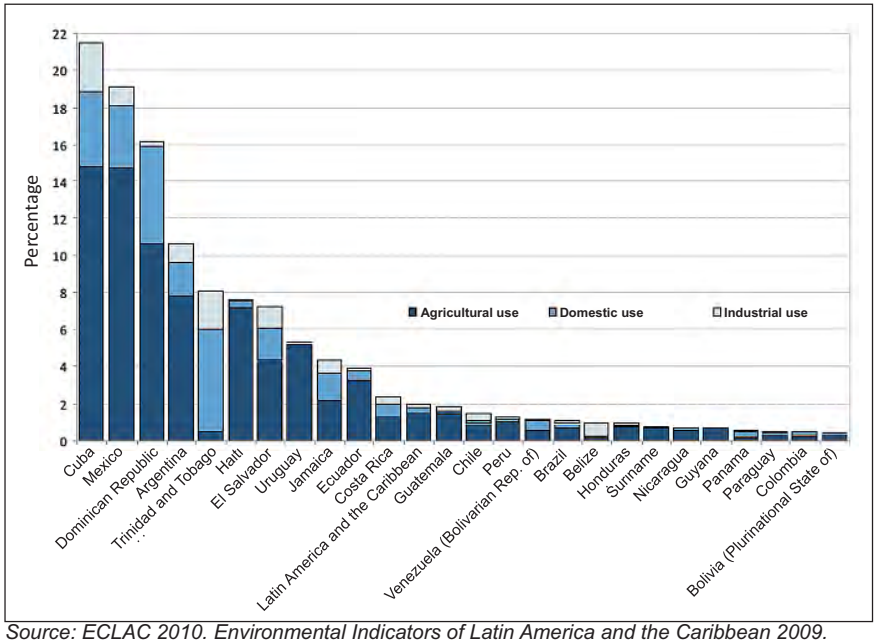
The region uses 1.4% of its water resources.

Water is a fundamental element for the life of human beings and the development of economic activity in the countries. Therefore, quantifying its quantity and quality, along with ongoing monitoring of its different sources, plays a major role in the planning and sustainable use of this resource.

The region as a whole contains 31% of the world's water resources, given its vast watersheds, such as the Amazon and Río de la Plata basins, as well as smaller rivers, freshwater lakes and aquifers of various sizes. The region consumes 1.4% of these resources.[7] However, the territorial distribution of this resource is very uneven, with the demand for water being a function of the quantity and distribution of population and the level of economic activity. In countries with an extensive supply of available water, such as Brazil, the amount extracted represents only 0.7% of the total, whereas Cuba, ranking highest, extracts 22.15%, while Mexico extracts 17%, the Dominican Republic 16.1%, Trinidad and Tobago 8.1%, Haiti 7.1% and Jamaica 4.45% (figure 4).

The growing importance in the region of activities such as agriculture and mining (which consume vast quantities of water), as well as increasing population and urbanization, are creating strong pressure on water availability. At the same time, the lack of domestic and industrial waste water treatment, along with excessive use of fertilizers and agrochemicals, can affect the water's quality and safety. Hence the importance of effective management, and the need for an integrated system for managing the resource – as highlighted by ILAC and other international initiatives.

Figure 4. Countries of Latin America and the Caribbean: Extraction of water, by sector, as a percentage of renewable water. Latest year, in the 1998-2002 period, for which information was available (percentage).



Source: ECLAC 2010. Environmental Indicators of Latin America and the Caribbean 2009. Statistical Notebook No. 38.

7- United Nations 2010, Millennium Development Goals Report. Available at: http://mdgs.un.org/unsd/mdg/Resources/Static/Data/2010%20Stat%20Annex.pdf

Map 3. Proportion of water resources used, 2000

Source: ECLAC, UN MDG. Accessed 26 October 2010.

Map 3 shows the amount of water resources used as a proportion of the total volume of water available in each of the region's countries. This indicator reflects the total amount of ground and surface water extracted for human use in the agricultural, domestic and industrial sectors, as a proportion of the total water available throughout the hydrological cycle, at the national scale.

Goal 2.2 ..... Improve watershed management.

Indicative purpose 2.2.1 .... Improve and strengthen institutional capacity for the integrated management of watersheds and aquifers, through, inter alia, the establishment of watershed committees, and the participation of all governments at the sub-national level and of civil society, the private sector and all concerned stakeholders.

Indicator 2.2.1.1 ..... Proportion of watersheds with management committees.

This indicator is designed to strengthen institutions in providing integrated management of watersheds and aquifers, by encouraging the formation of committees or organizations to oversee proper management of these resources, drawing on additional participation from governmental institutions, foreign organizations and firms of all types.

COLOMBIA

Colombia has designated, as being of priority concern, 256 watersheds, for all of which it is currently developing usage regulations. These cover approximately 23.5 million hectares, or 20.6% of the national territory.

The process of regulating a watershed begins with the development of a use and management plan, with six phases: preparation, proposals, formulation, execution, follow-up and monitoring. Each of the watersheds in question is in one of these phases. Once the watershed management plan has been established, the environmental authority approves it through an administrative act, which sets in motion implementation of the projects outlined by the plan.

Under Colombian law (Decree 1604 of 2002), in cases involving watersheds for which more than one environmental authority has jurisdiction, a joint commission must be formed to develop the management plans.[8] To date, 60 such watersheds have been identified, of which 58 have formed joint commissions.

As of August 2009, 77 watershed management plans had been approved. Table 5 shows the plans approved under the new (2002) legal structure.

Table 5. Watershed Management Plans Adopted

Year	Number of watershed management plans adopted	Cumulative
2005	5	5
2006*	28	33
2007*	13	46
2008	19	65
2009	12	77

Source: Ministry of Environment, Housing and Territorial Development (MAVDT), National Administrative Department of Statistics (DANE) and UNEP, 2007.

** The information was reviewed and adjusted based on updated reports sent by the environmental authorities to the Ministry in 2007.*

8- Their objective is to coordinate, harmonize and define policies for the regulation and management of shared watersheds, respecting constitutional and legal principles and national and regional policy.

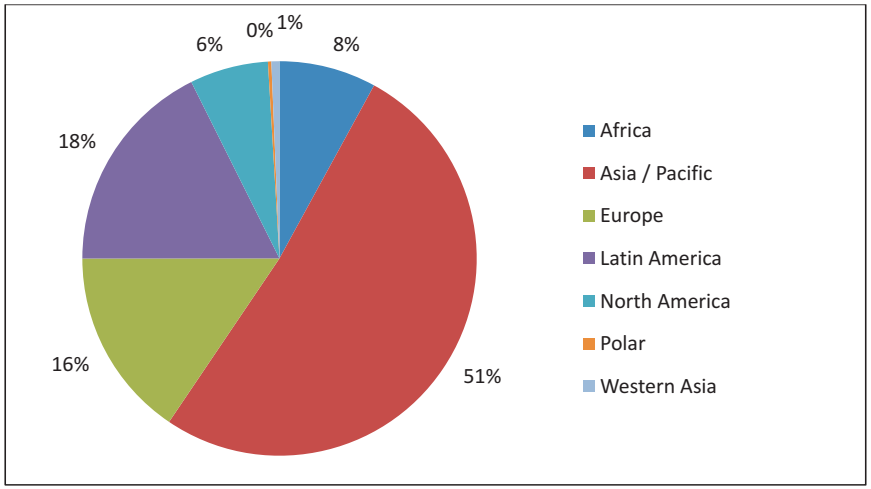
Goal 2.3 ..... Improve management of coastal-marine areas and their resources.

Indicative purpose 2.3.1 .... Implement action plans for the integrated management of coastal and ecosystem resources, with particular attention to the small island developing states.
Indicator 2.3.1.1 ..... Amount of fish catches.

Over-fishing creates strong pressure on marine fisheries, and can reduce, or even exhaust, the supply of commercially valuable species. This indicator shows the total volumes of catches of marine fish, crustaceans and molluscs recorded in the region's countries. It does not take into account inland fishing.

As yet there are no statistics showing the precise relationship between volumes caught and biologically acceptable levels sufficient for ongoing reproduction. Doubtless, however, the values of this indicator and its change over time point to growing pressures on the populations of species extracted.

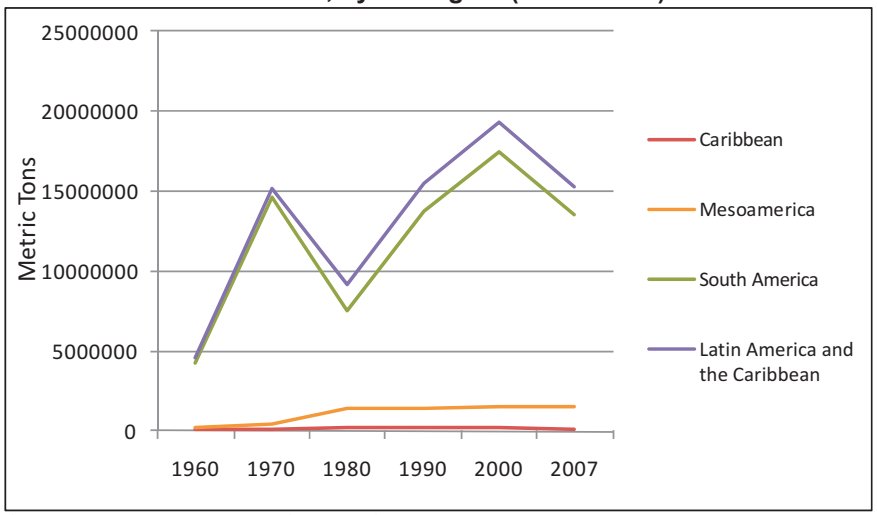
Figure 5. Total fish catches, by regions, 2007.



Source: UNEP, Geodata website. Accessed November 2010.

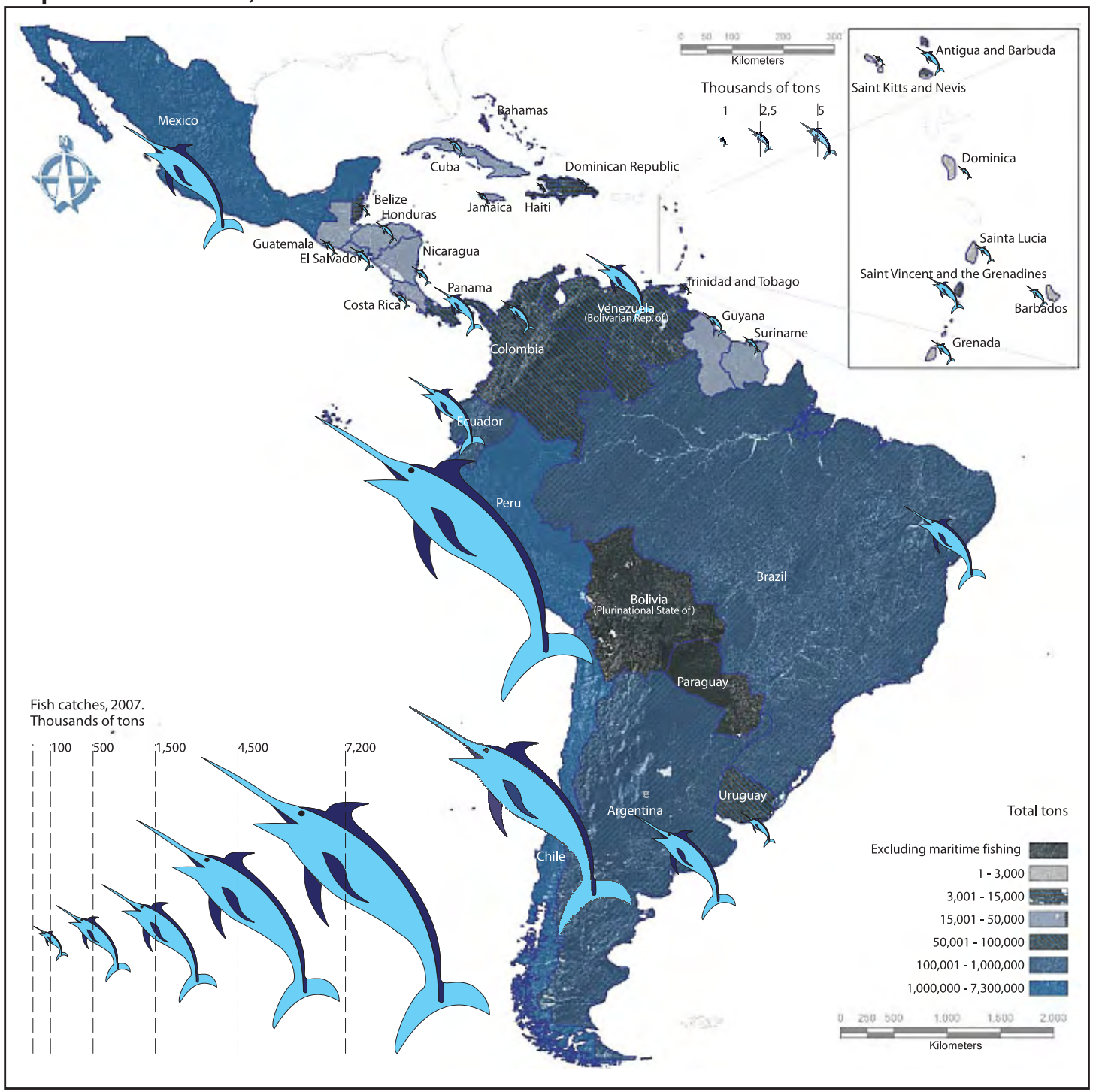
According to data from the Geodata website, the region accounts for 18% of total fish catches, based on 2007 data (figure 5). The main countries responsible for this are Chile, Ecuador and Peru. As can be seen in map 4, the South Pacific Coast countries account for catches totalling more than 7 million tons per year. Peru and Chile account for 6.5 million tons; the Atlantic countries with major coastlines, such as Argentina and Brazil, each account for roughly 1 million tons; and Mexico accounts for 1.3 million tons. Figure 6 shows subregional differences.

Figure 6. Latin America and the Caribbean, total fish catches, 1960-2007, by subregion (metric tons).



Source: UNEP, based on data from the Geodata website, http://geodata.grid.unep.ch. Accessed January 2011.

Map 4. Fish catches, 2007.



Source: FAO 2007. Accessed 27 January 2010.

Goal 2.4 ..... Improve the quality of inland waters.

Indicative purpose 2.4.1 .... Improve the quality of effluents and reduce the discharge of contaminants into surface and underground bodies of water and into coastal waters.

Indicator 2.4.1.2 ..... Proportion of population using improved sanitation facilities.

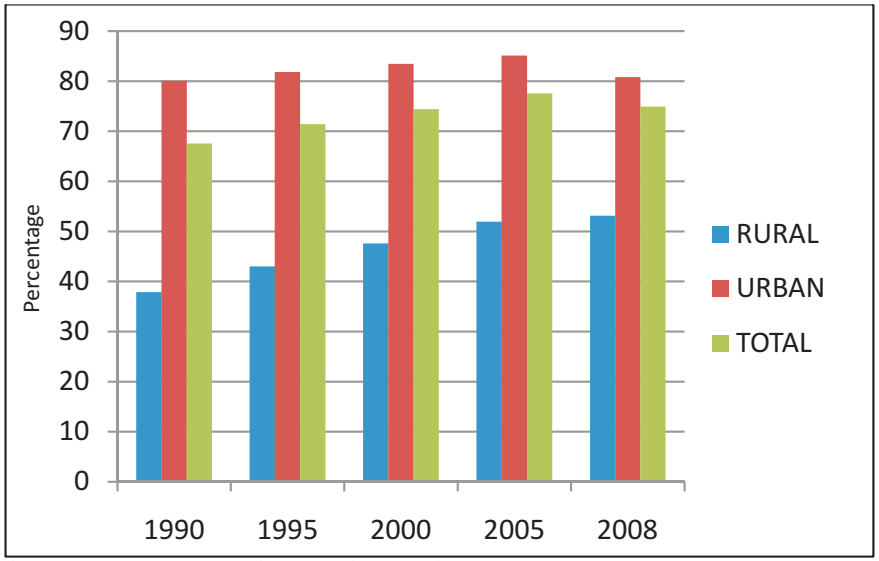
74.67 % of the population has sustainable access to improved sanitation services.

The proportion of the population with access to sanitation services overall in the region has increased significantly, probably as a consequence of improvements and investments in public services implemented by the countries.

Most of the countries, regardless of the size of their territories and number of inhabitants, show values above 70% for this indicator, although the figures vary considerably between urban and rural areas (figure 7), with only 53% of the region's rural population enjoying access to improved sanitation services.

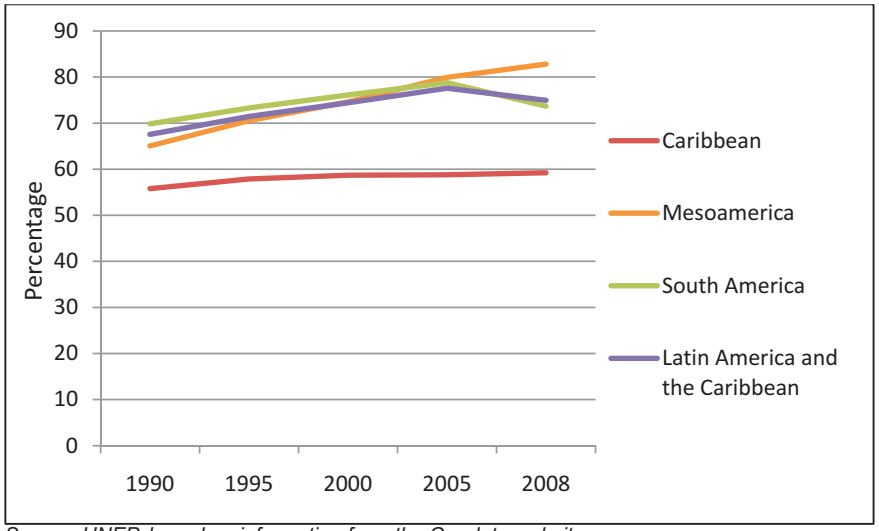
There are also subregional differences, as shown in figure 8, with the Caribbean subregion having the lowest figure.

Figure 7. Latin America and the Caribbean: Percentage of population with access to improved sanitation services – rural, urban, total, 1990-2008.



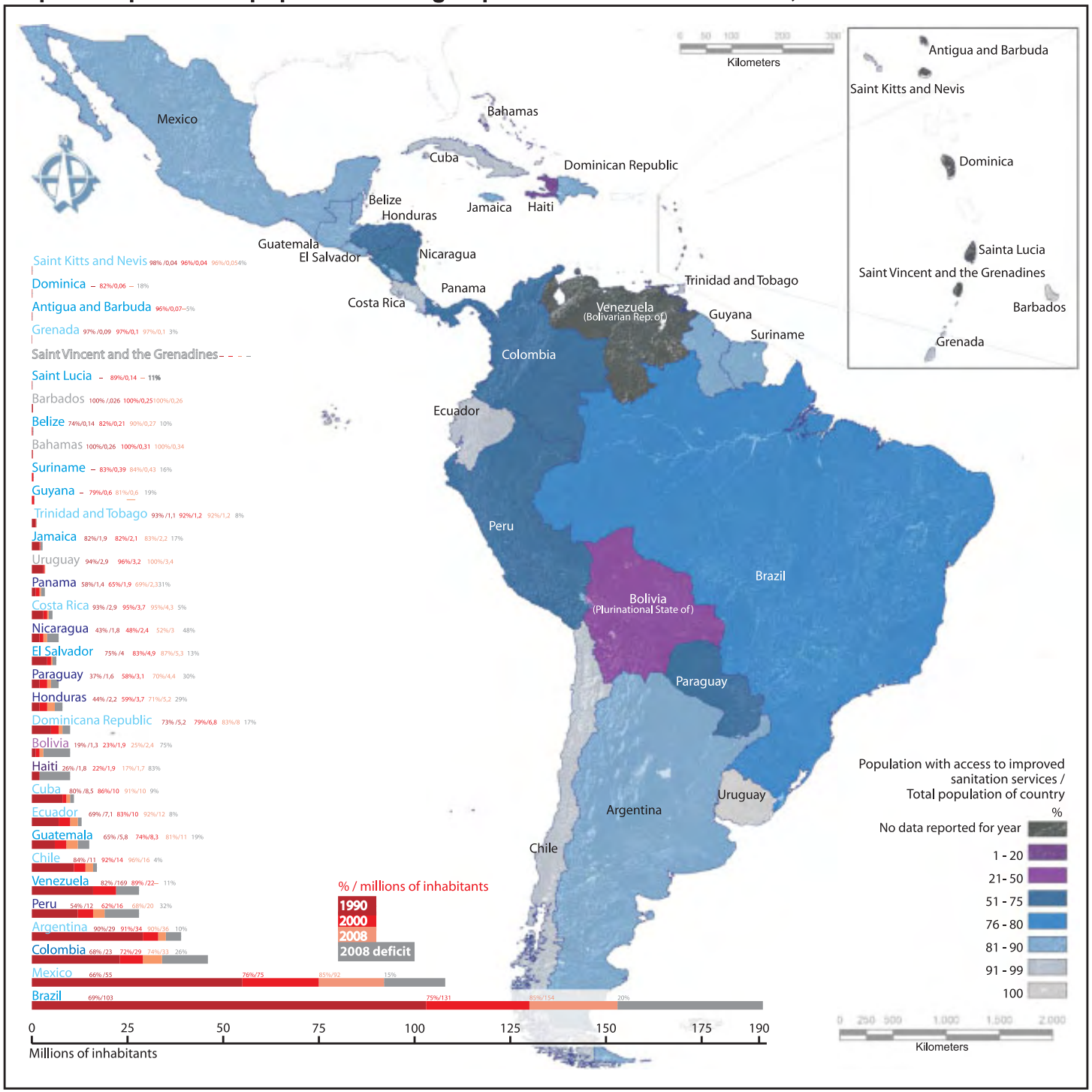
Source: UNEP, based on information from the Geodata website, http://geodata.grid.unep.ch. Accessed November 2010.

Figure 8. Percentage of population with access to improved sanitation services – rural, urban, total, 1990-2008.



Source: UNEP, based on information from the Geodata website, http://geodata.grid.unep.ch. Accessed November 2010.

Map 5. Proportion of population using improved sanitation services, 2008.



Source: WHO, UNICEF. Accessed 16 October 2010.

Certain situations also highlight the critical social and environmental circumstances that some countries face, due most likely to severe financial and economic constraints that make it difficult to execute the necessary sanitation infrastructure works (map 5). Cases in point are Haiti, the Plurinational State of Bolivia and Nicaragua, where only 17%, 25% and 52% of the populations, respectively, have access to such services.

Thematic area 3. Vulnerability, human settlements and sustainable cities

Goal 3.1 ..... Improve land-use planning.

Indicative purpose 3.1.1 .... Implement land-use plans and policies, from the perspective of sustainable development.
Indicator 3.1.1.1 ..... Proportion of national territory with land use plans.

This indicator is designed to show the implementation of policies governing land-use planning in the countries' territories, as one of the requirements for sustainable development, and to evaluate actions that promote growth that is equitable with respect to the existing social, economic and natural factors within individual political divisions of each country.

MEXICO

Ecological land management involves creating a consistent structure that outlines potentials, priorities and needs concerning soil use. The provisions are legally defined as "the environmental policy instrument whose object is to regulate and encourage land-use planning and productive activities so as to protect the environment; and to preserve and sustainably exploit natural resources based on an analysis of trends of deterioration and potentials for exploitation" (General Law on Ecological Equilibrium and Environmental Protection – or LGEEPA – title 1, article 3, section XXIII).

The publication of the LGEEPA regulations regarding ecological standards represented a change from the earlier regulatory approach to one capable of serving as an instrument for ecological planning – one that balances productive activities with natural conservation. The regulatory scheme is conceived as a process in which the different sectors within a territory articulate their needs and interests (current and future) and seek, through negotiation and reconciliation of interests, to find a pattern of land use that minimizes conflicts between the various activities, culminating in the signing of an agreement to adopt and abide by the terms of the plan.

Under the LGEEPA, there are four types of ecological land management programmes. The first is a general ecological plan, indicative in nature, directed at private parties and mandatory for the Federal Public Administration. It applies to the entire national territory. The second type involves regional planning, and is applicable to two or more states, two or more municipalities, or to a portion (or the entirety) of a State. Lastly, there is the marine ecological management plan, which includes marine areas and the federal areas contiguous with them.

Source: Secretariat of Environment and Natural Resources (SEMARNAT), Situation report on the environmental situation in Mexico. 2008 edition. Compendium of environmental statistics. Mexico City, 2008.

Table 6. Ecological Regulations Mandated, Mexico, 2010

Number	Type	Area(millions of hectares)	Percentage of national territory
67	Land	44.5	22.7
1	Marine (including the Exclusive Economic Zone)	24.7	8

Note: The area described does not include the area encompassed by ecological plans that overlap previously mandated ones. This is to avoid overestimating the actual area under mandate.
Source: Secretariat of Environment and Natural Resources (SEMARNAT). General Office of Environmental Policy and Regional and Sectoral Integration. December, 2010.

Goal 3.1 ..... Improve land-use planning.

Indicative purpose3.1.2 ..... Incorporate instruments for risk management in land-use planning
Indicator 3.1.2.1 ..... Annual change in land use.

This indicator registers changes over time in the distribution of a country's land between different types of land use, as a proportion of the country's total area.

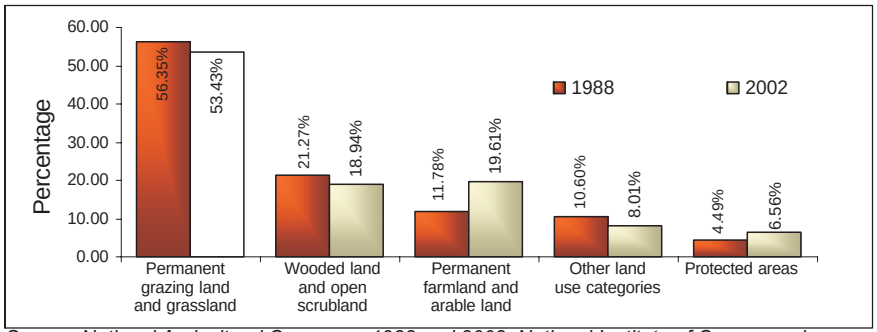
The purpose of the indicator is to identify the degree of change in the use of productive or protected land, as well as residential, cultural or recreational uses, for purposes of setting policies on land use and sustainable development.

ARGENTINA

Methodological clarifications: The construction of this indicator does not precisely follow the methodological sheet proposed by ILAC. The change is not shown as an annual figure, but, rather, is based on the period between the last two agricultural censuses, in 1988 and 2002. No information is provided on the land dedicated to urban, recreational or industrial uses, since data on these are not available.

In the time interval analysed, there was a reduction in permanent grazing land and grasslands, as well as forested land, and an increase in arable land and permanent farmland. This is primarily a reflection of the increased amount of land dedicated to agriculture (figure 9).

Figure 9. Argentina: Percentage change in land use.



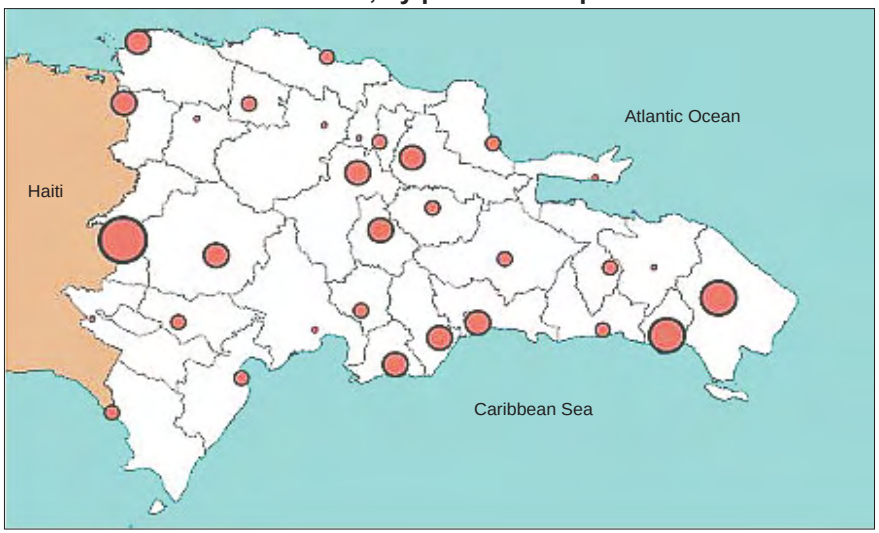
Source: National Agricultural Censuses, 1988 and 2002. National Institute of Census and Statistics. Protected Areas. National Parks Administration.

DOMINICAN REPUBLIC

According to the National Office of Statistics (ONE) and others, 2010, the land use indicator for the Dominican Republic is based on an analysis of increases in urban area in the last 18 years and the rate at which urban land is being consumed by provincial capitals.

The average growth of capital cities more than doubled (+116%) for the period studied. The average rate at which land area was consumed was, on average, 0.5 km^2/year for each city, with the figure for Santo Domingo being approximately 10 km^2/year (figure 10).

Figure 10. Dominican Republic: Increase in urban area, 1988 -2006, by provincial capital.



Source: National Office of Statistics (ONE) and others, 2010.

The growth of urban area in Jimaní, La Romana and La Altagracia is noteworthy. Among these cities, only Jimaní grew in population density, although this is the city with the greatest amount of rural hinterland. Growth of areas taken up by urban infrastructure has led to a loss of agricultural land. The three cities consuming the greatest amount of land are in the country's eastern provinces. This is associated primarily with the growth of tourism (particularly beach-side hotels) in areas where this industry plays a major role.

Goal 3.2 ..... **Reduce amount of area affected by degradation.**

Indicative purpose 3.2.1 .... Significantly reduce the regional land area prone to erosion, salinity and other soil degradation processes

Indicator 3.2.1.1 ..... Amount of area affected by degradation.

22.3% of the region's land is subject to some degree of soil degradation.

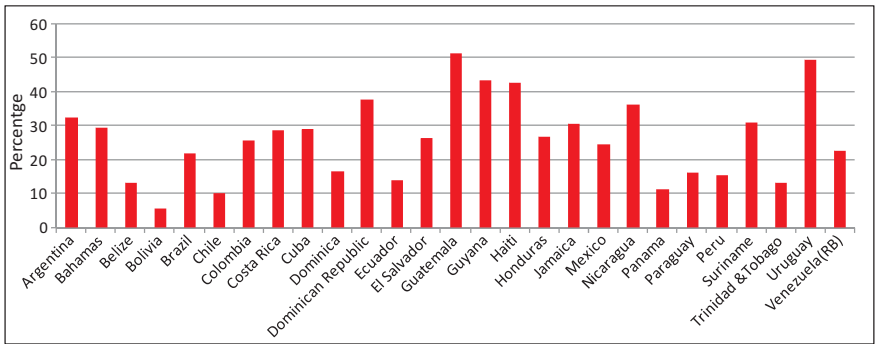
The information used for this indicator is drawn from the study "Proxy Global Assessment of Land Degradation", carried out as part of the FAO Land Degradation Assessment in Drylands (LADA) programme. A summary was published in the journal of the British Society of Soil Science: "Soil Use and Management", September 2008, 24, 223-234.

The above-mentioned study defines "land degradation" as the long-range reduction of the functions and productivity of ecosystems resulting from alterations caused by natural phenomena or human activity. The concept of "degradation" implies that the land cannot recover its original capacity and potential without human intervention.

The evaluation of degraded areas is based on an analysis of trends in a series of data for the 1981-2003 period collected by remote sensors; these serve as the basis for the values in the Normal Difference Vegetation Index (NDVI). The methodology used consists of mapping the index's linear trends and correlating these with the distribution of precipitation. Degraded areas are then identified based on negative trends in the sums of the indices' values. As explained in the study's conclusions, this procedure makes it possible to construct a proxy which, although it cannot differentiate different types and degrees of degradation, does show in a comprehensive and consistent manner, the areas in which significant biological changes have occurred.

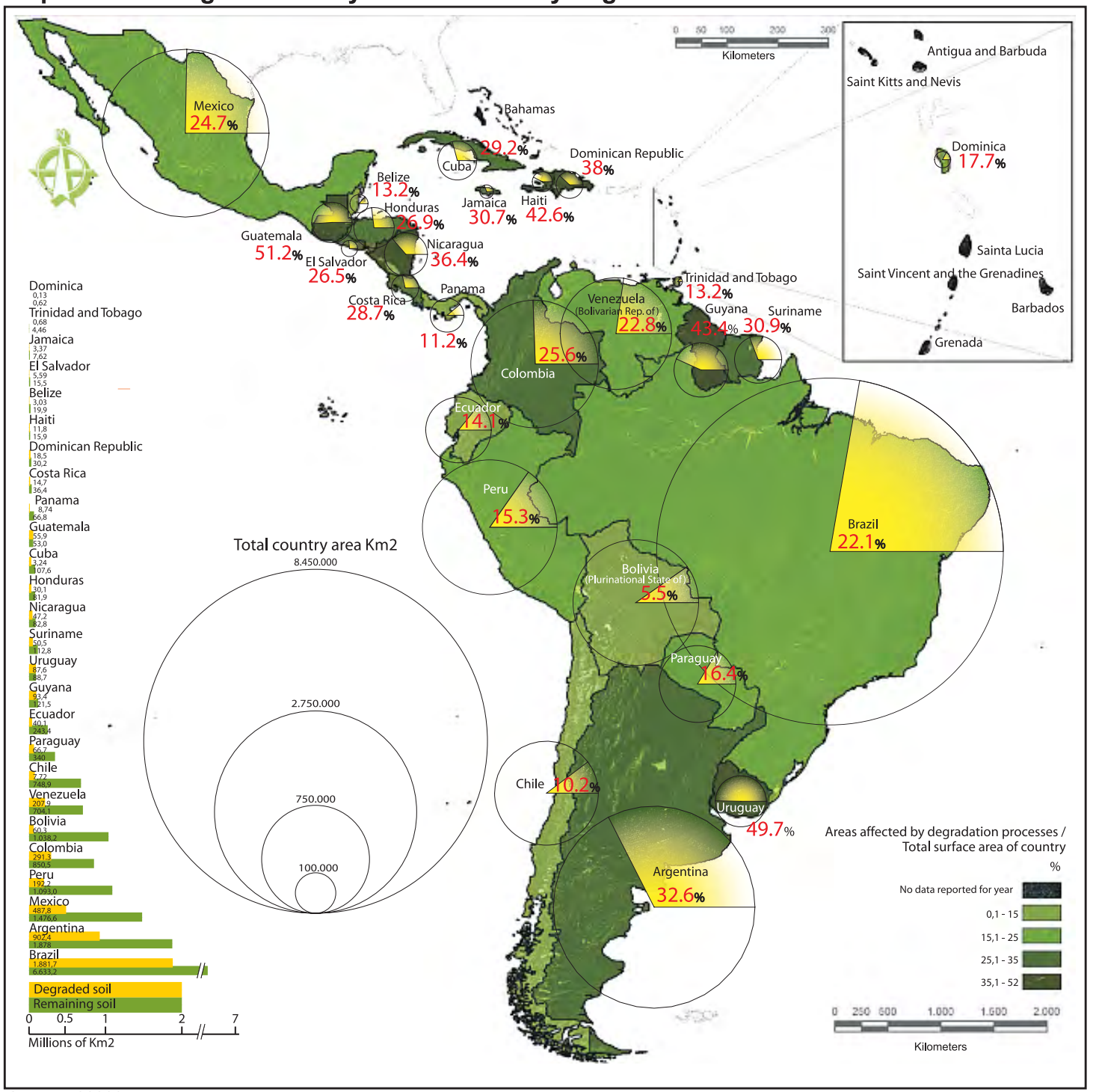
According to this study, 14% of the planet's degraded surface area is in the LAC region, with these processes affecting nearly 150 million individuals (UNEP, 2010). The data in map 6 are expressed in percentages of the countries' total territory (figure 11).

Figure 11. Latin America and the Caribbean: Degraded areas by country, as a percentage of national territory.



Source: UNEP, 2010, with data from Bai and others, 2008. Period: 1981-2003.

Map 6. Percentage of country area affected by degradation.



Source. ?????

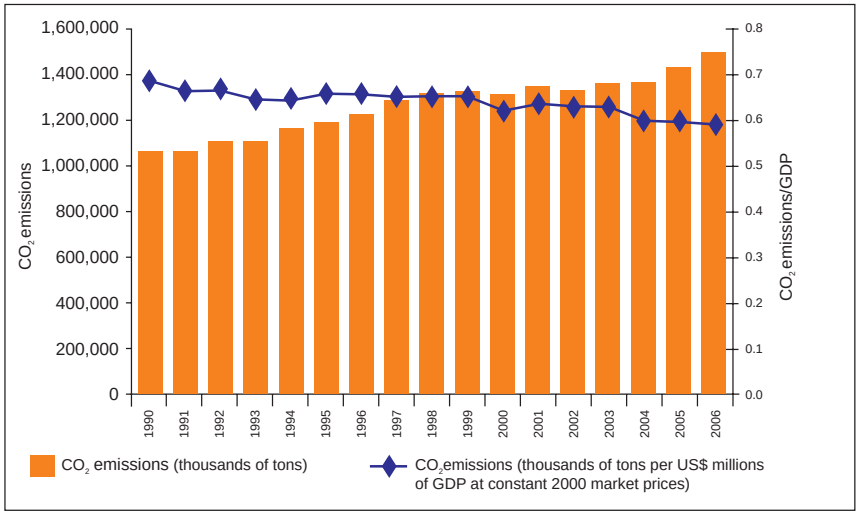
Goal 3.3 ..... Reduce air pollution.

Indicative purpose 3.3.1 .... Reduce the concentration of polluting emissions in the air.
Indicator 3.3.1.2 ..... Amount of carbon dioxide emissions.

The emission of harmful substances into the atmosphere alters the air quality and affects the health of humans and other living beings, as well as the sustainability of ecosystems, causing changes that can even have an impact on the climate of the entire planet. Carbon dioxide (CO_2) is a gas produced by both natural sources (such as the respiration of organisms) and human activities (principally the burning of fossil fuels and changes in land use). It is the main greenhouse gas regulated by the Kyoto Protocol.

The calculation of the amount of emissions is based on the 2006 revised methodology of the Intergovernmental Panel on Climate Change (IPCC). This methodology is an indirect estimate of the emissions generated by the different agents, based on emission factors calculated by unit of consumption or production.

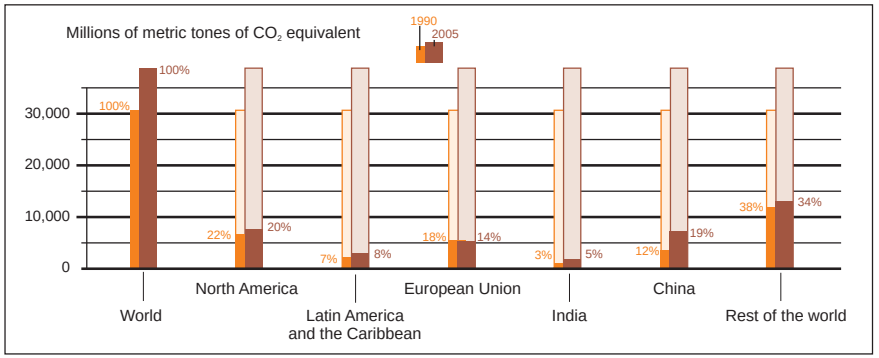
Figure 12. Latin America and the Caribbean: CO_2 emissions (1990-2005).



Source: Economic Commission for Latin America and the Caribbean (ECLAC), based on United Nations database for Millennium Development Goals Indicators (http://mdgs.un.org/unsd/mdg/Default.aspx), with CO2 statistics compiled by the Carbon Dioxide Information Analysis Centre (CDIAC). This includes emissions due to fossil fuel burning and cement production. The GDP data at constant 2000 prices were obtained from ECLAC. Database of Economic Statistics and Indicators (BADECON) (http://website.eclac.cl/sisgen/Consulta Integrada. asp?idAplicacion=6).]

According to the United Nations (2010), the region's CO_2 emissions have increased in absolute terms, although their level as a proportion of GDP has declined slightly (figure 12). In 2005, the region's countries accounted for only 8% of global greenhouse gas (GHG) emissions, excluding emissions due to changes in land use (figure 13) (UNEP, ECLAC, UNEP/GRID-Arendal, 2010).

Figure 13. Region's share of global greenhouse gas emissions (excluding emissions due to changes in land use).



Source: UNEP, ECLAC, UNEP/GRID-Arendal, 2010.

Map 7. Amount of carbon dioxide emissions, 2006.

Source: UNSD – MDG – 2009 Global Monitoring Data (CDIAC). Accessed 25 January 2009.

Map 7 shows the distribution of total CO_2 emissions in the region's countries in absolute terms, in relation to both GDP and population. Mexico, Brazil, Argentina and the Bolivarian Republic of Venezuela have the highest absolute levels. In terms of emissions as a proportion of GDP, however, the values are between 0.19 kg and 1.20 kg of CO_2 per US$ of GDP (PPP). In relation to population, the values vary between 0.2 tons of CO_2 per capita for Haiti to 6.5 for the Bahamas. Except for Trinidad and Tobago, for which the figure is 25.3, the region's values are lower than those of some industrialized countries, such as the United States, Canada and Germany, which have figures of 19.7, 17.2 and 10.7, respectively, according to information from the United Nations Framework Convention on Climate Change (UNFCCC) for 2006.

Goal 3.4 ..... Reduce water pollution.

Indicative purpose 3.4.1 .... Expand the coverage of drinking water services and the treatment of waste water

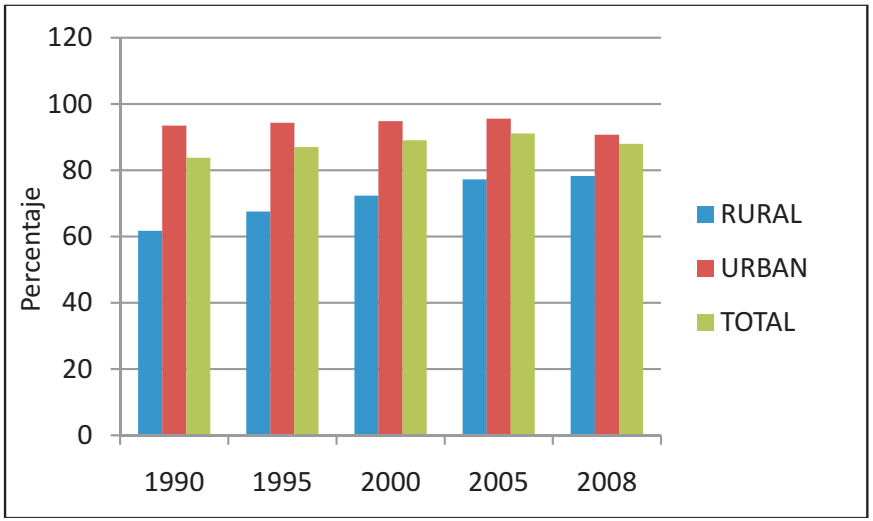
Indicator 3.4.1.1 ..... Proportion of population using an improved drinking water source.

In 2008, 87.9% of the region's population had sustainable access to improved drinking water sources.

Drinking water supplies from improved sources is a fundamental element in peoples' quality of life and in carrying out economic activities. Improved sources are considered to include water piped to homes or to the lots or land parcels on which they are located, public water sources, protected or encased wells and protected springs. Any other system of supply – directly from rivers or lakes, from cistern trucks, or from open or unprotected wells – is considered to be an "unimproved source."

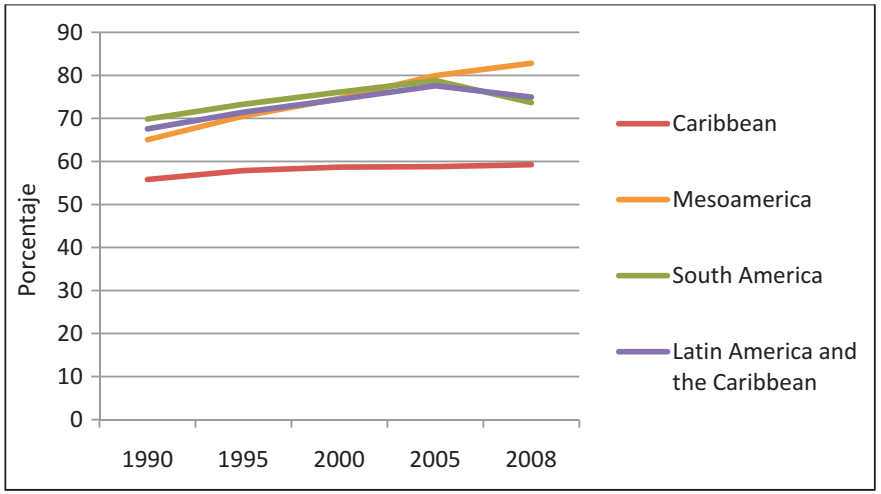
According to WHO data[9] for 2008, 87.9% of the region's population had access to improved drinking water sources. As with the indicator of access to sanitation services, this positive value conceals vast inequalities in terms of the availability of services in rural areas of the region's countries (figure 14), as well as in terms of availability at the subregional level (figure 15).

Figure 14. Proportion of population with sustainable access to improved drinking water sources, 1990-2008.



Source: UNEP, with data from the Geodata website, http://geodata.grid.unep.ch. Accessed November 2010.

Figure 15. Proportion of population with sustainable access to improved drinking water sources, by subregion, 1990-2008.



Source: UNEP, with data from the Geodata website, http://geodata.grid.unep.ch. Accessed November 2010.

9-http://geodata.grid.unep.ch/mod_download/download_file.php, Accessed December 2010.

Map 8. Proportion of population using an improved drinking water source, 2008

Source: WHO, UNICEF. Accessed 16 October 2010.

The proportion of the total population with access to improved drinking water sources is over 80% throughout most of the region's countries (map 8). Exceptions include Haiti; moreover, in some countries, such as Uruguay, the entire population has drinking water services. However, the figures change considerably when examined intra-nationally, comparing urban and rural areas, and vary even within low-income sectors. ECLAC estimates suggest that 70% of individuals without access to potable water are in the lower two income quintiles.

Goal 3.5 ..... Reduce generation of solid waste.

Indicative purpose 3.5.1 .... Significantly reduce the generation of solid waste (domestic and industrial) and promote measures such as recycling and reuse.

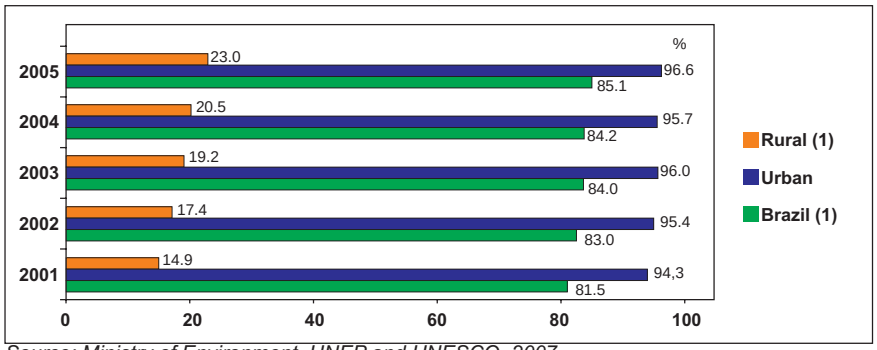
Indicator 3.5.1.1 ..... Proportion of population with access to garbage collection services.

The purpose of this indicator is to obtain an objective assessment of trends, and to determine the proportion of the population with access to garbage collection. A drop in access to this service could entail a health risk for inhabitants and for the environment.

BRAZIL

According to ILAC's Brazil report (Ministry of Environment, UNEP and UNESCO, 2007), the proportion of residents of private homes directly served by public garbage collection services has been stable in that country.[10] Based on data from the 2005 National Household Survey (PNAD) by the IBGE, 84% of the residents of permanent private homes had access to such service in 2003. By 2005 the percentage had risen to 85.1% (figure 16).

Figure 16. Brazil: Percentage of residents of permanent private homes with home garbage collection services, by location of the home, 2001 -2005.



Source: Ministry of Environment, UNEP and UNESCO, 2007.

10- The data do not cover the rural areas of Rondônia, Acre, Amazonas, Roraima, Pará and Amapá.

COSTA RICA

Costa Rica's National Evaluation of Municipal Solid Waste Management Services (EVAL-2002, published in San José in October 2003, and endorsed by the Pan American Health Organization) studied the average production of waste per person per day, and as a function of the size of different municipalities' populations. It concluded that the country generates approximately 3,780 tons of household solid waste per day.

According to EVAL-2002, only 7 of the 81 municipalities have organizational structures with specific units in charge of issues relating to the collection and transport of garbage. The municipalities in question are San José, Alajuela, Desamparados, Curridabat, La Unión and Escazú. Approximately 85% of the municipalities provide garbage collection and transport directly, while the remainder use private services (PRESOL, Plan de Residuos Sólidos, 2007).

Table 7. Costa Rica: Proportion of Population with Access to Solid Waste Collection.

Size of municipalities	Coverage (%)	Total 2006 population (number of inhabitants)	Population served
Large (over 200,000 inhabitants)	78.49	836,820	656,820
Medium (between 50,001 and 200,000 inhabitants)	79.86	2,017,877	1,611,476
Small (less than 50,000)	63.17	1,547,303	977,431
Total	Weighted average of coverage: 73.73	4,402,000	3,245,727

Source: EVAL-2002 and INEC 2006.

Goal 3.5 ..... **Reduce generation of solid waste.**

Indicative purpose 3.5.2 .... Implement integrated solid waste management, including treatment and appropriate final disposal.
Indicator 3.5.2.1 ..... Collection and appropriate disposal of urban solid waste.

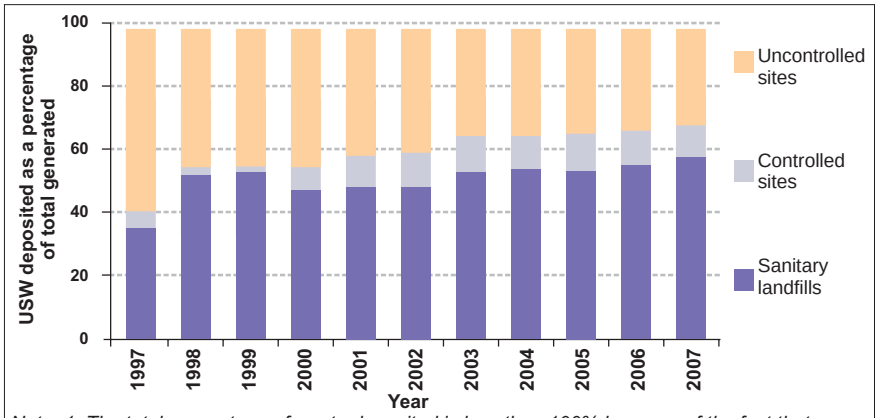
This indicator shows the amount of urban waste (residential, commercial and industrial) deposited in sanitary landfills and dumps, incinerated and/or recycled in the principal cities of a country. Urban solid waste represents an enormous loss of resources in materials and energy. It also has a highly significant environmental impact in the form of air, soil and water pollution.

MEXICO

Final disposal of waste refers to its being deposited or permanently confined at a variety of types of appropriate sites. Sanitary landfills are the best solution for the final disposal of urban solid waste, since they are able to control the release of waste into the environment. This type of infrastructure requires engineering works and special processes to treat lixiviates, burn gases, carry out reforestation of filled areas and control odours to reduce any impact on the environment, human health and ecosystems.

The indicator points to improvements in Mexico between 1995 and 2008 (figure 17). While the total amount of waste generated grew 23% during that period, disposal in controlled land sites and sanitary landfills rose from 28% of the total in 1995 to 68% in 2008. Meanwhile, disposal in uncontrolled sites (open dumps) fell from 70% to 28%. Nevertheless, there are significant regional differences. The situation in the southern states and parts of the central region is less favourable than in the northern border area and the Federal District (figure 18).

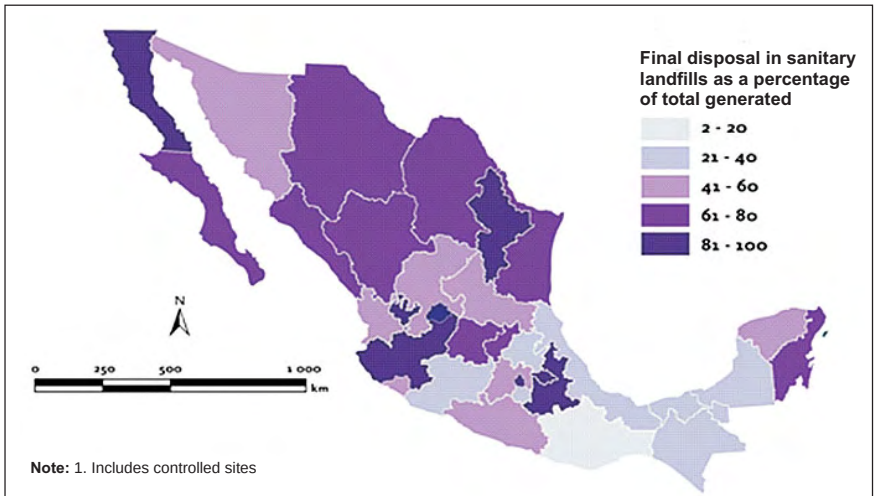
Figure 17. Mexico: Final disposal of urban solid waste, 1997-2007.



Note: 1. The total percentage of waste deposited is less than 100% because of the fact that some is recycled.
Source: SEDESOL. General Office for Equipment and Infrastructure in Marginalized Urban Areas. Mexico, 2008.]Urbano-Marginadas, México, 2008

Source: SEMARNAT, 2008.

Figure 18. Mexico: Final disposal of urban solid waste in sanitary landfills, by state, 2007.



Note: 1. Includes controlled sites

Source: Original work, based on data from SEDESOL. General Office of Equipment and Infrastructure in Marginalized Urban Areas. Mexico. 2008.

Source: SEMARNAT, 2008.

Goal 3.6 ..... Reduce vulnerability to disasters caused by natural phenomena or human activity.

Indicative purpose 3.6.1 .... Implement and strengthen regional cooperation mechanisms for risk management and mitigation of anthropogenic disasters and those caused by natural phenomena, including the establishment of a regional early-warning system and the formation of rapid-response teams

Indicator 3.6.1.1 ..... Existence of National Emergency Commissions and rapid-response teams.

The terms “national emergency commission” and “rapid-response team” refer to a national entity or organization responsible for executing and coordinating efforts to deal with natural disasters or emergencies.

PERU

The National Disaster Prevention and Response Plan (PNPAD), approved by Supreme Decree No.001-A-2004-DE-SG on 15 January 2004, establishes Peruvian national policy and objectives for disaster prevention and response. It also sets forth the policy instruments of the National Civil Defence System. Supplementing the PNPAD are the following sub-plans:

- National Social Communication Plan to Prevent and Address Disasters
- Plan to Monitor and Evaluate Training Activities

The Integrated Information System was created in the framework of PNDAP to systematize knowledge about hazards, vulnerabilities and risks within the national territory, and to provide information on monitoring and warning systems, response capacity and interagency management procedures. The National Civil Defence Institute (INDECI) is charged with organizing the system, which is to be kept current and serve the National Civil Defence System (SINADECI). The system includes all public and private institutions responsible for sustainable development. Its purpose is to identify, localize and evaluate hazards, vulnerable areas and areas affected by natural events, in order to formulate plans and make decisions regarding emergencies caused by natural phenomena.

This policy instrument is essential in efficiently prioritizing the activities and projects of institutions, as well as programmes that fall within the purview of the National Disaster Prevention and Response Plan, in that it makes it possible to assess conditions of risk and institutional capacity for responding to disasters within the national territory. Disaster prevention and response plans have been designed as part of the national plan.

Public entities with plans in place include:

- Ministry of Energy and Mines
- Ministry of Economy and Finance
- Ministry of Foreign Trade and Tourism
- Ministry of Education
- Ministry of Transportation and Communications
- Ministry of Housing, Construction and Sanitation
- Ministry of Production
- Ministry of Health
- Ministry of Defence (National Plan for Air Search and Rescue, SAP)

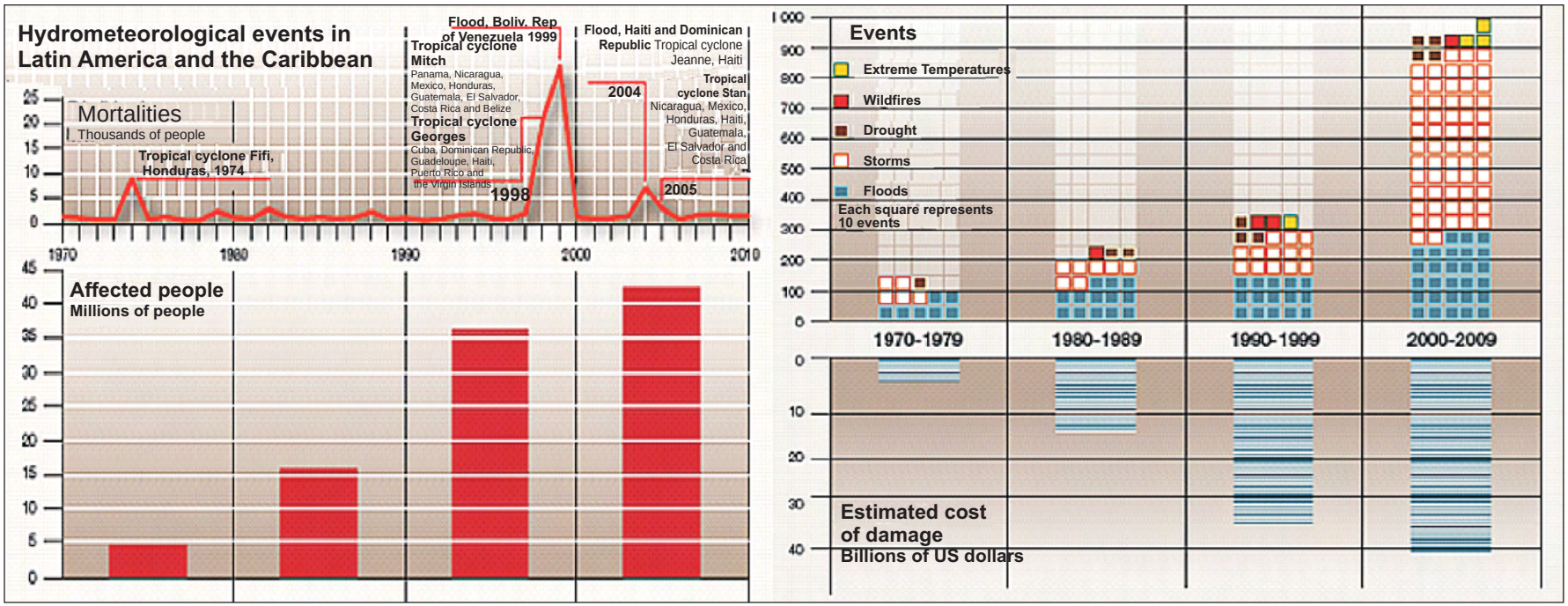
Goal 3.7 ..... **Reduce vulnerability and improve risk management.**

Indicative purpose 3.7.1 .... Refine and implement vulnerability indicators.
Indicator 3.7.1.2 ..... Occurrence of natural disasters, by type of event.

Extreme climatic events appear to be correlated (most likely in a non-linear manner) with greenhouse gas emissions, increasing temperatures, increasingly intense hurricanes and rising sea levels (IPCC, 2007a and Stern, 2007).

According to UNEP, ECLAC, UNEP/GRID-Arendal, 2010, Latin America and the Caribbean have seen a recent increase in the number of extreme climatic events (figure 19), as well as in the number of people affected. For example, the number of storms between 2000 and 2009 rose by a factor of 12 compared to the figure for 1970-79. The number of floods quadrupled, while the number of people affected by extreme temperatures, forest fires, drought, storms and floods rose from 5 million in the 1970s to over 40 million in the most recent decade, as a result of both the increasing number of human settlements in the region's marginalized urban areas and the greater vulnerability of coastal areas to such events. The estimated cost of the damage caused by these extreme climatic events during the last 10 years is in excess of US$40 billion.

Figure 19. Hydrometeorological phenomena in Latin America and the Caribbean.



Source: UNEP, ECLAC, UNEP/GRID—ARENDAL, 2010.

Thematic area 4. Social issues, including health, inequality and poverty

Goal 4.1 ..... Improve health and reduce environmental risks to health.

Indicative purpose 4.1.1 .... Implement comprehensive measures to control and reduce the spread of the AIDS virus, including the development of a coordinated approach to research, education, treatment and access to retroviral drugs.

Indicator 4.1.1.1 ..... HIV/AIDS prevalence in persons aged 15 to 49 years.

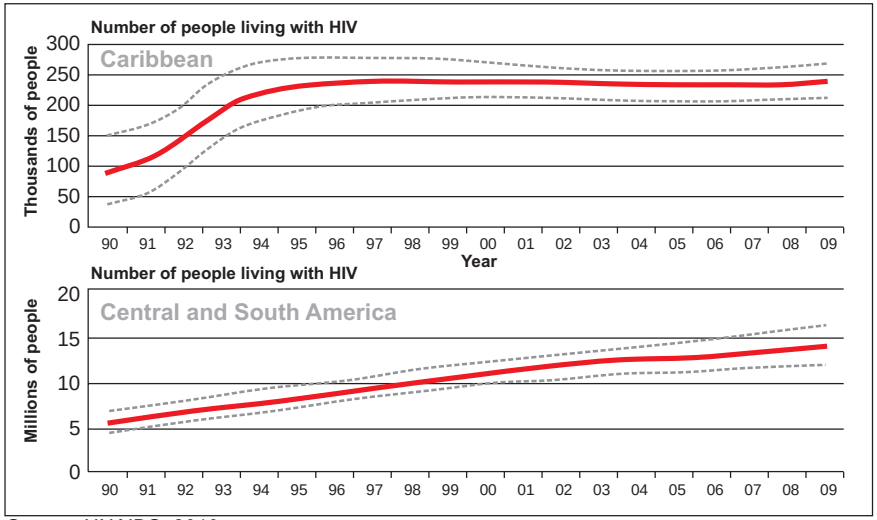
Recent reports published by UNAIDS[11] indicate that despite advances in the fight against HIV, major obstacles remain. Although the epidemic is generally remaining stable, transmission of the virus continues within high-risk groups. In some of the region's countries, AIDS continues to be one of the principal causes of death among adults. Table 8 and figure 20 show levels and trends, including subregional figures.

Table 8. HIV Statistics for the Caribbean Subregion and for Central and South America

		People living with HIV	People recently infected with HIV	Children living with HIV	HIV related deaths
Central and South America	2009	1.4 million (1.2-1.6 million)	92,000 (70,000-120,000)	36,000 (25,000-50,000)	58,000 (43,000-65,000)
	2001	1.1 million (1.0-1.3 million)	99,000 (25,000-120,000)	30,000 (20,000-42,000)	53,000 (44,000-65,000)
Caribbean	2009	240,000 (220,000-270,000)	17,000 (13,000-21,000)	17,000 (8,500-26,000)	12,000 (8,500-15,000)
	2001	240,000 (210,000-270,000)	20,000 (17,000-23,000)	18,000 (9,100-27,000)	19,000 (16,000-23,000)

Source: UNAIDS, 2010.

Figure 20. HIV trends in the Caribbean subregion and in Central and South America



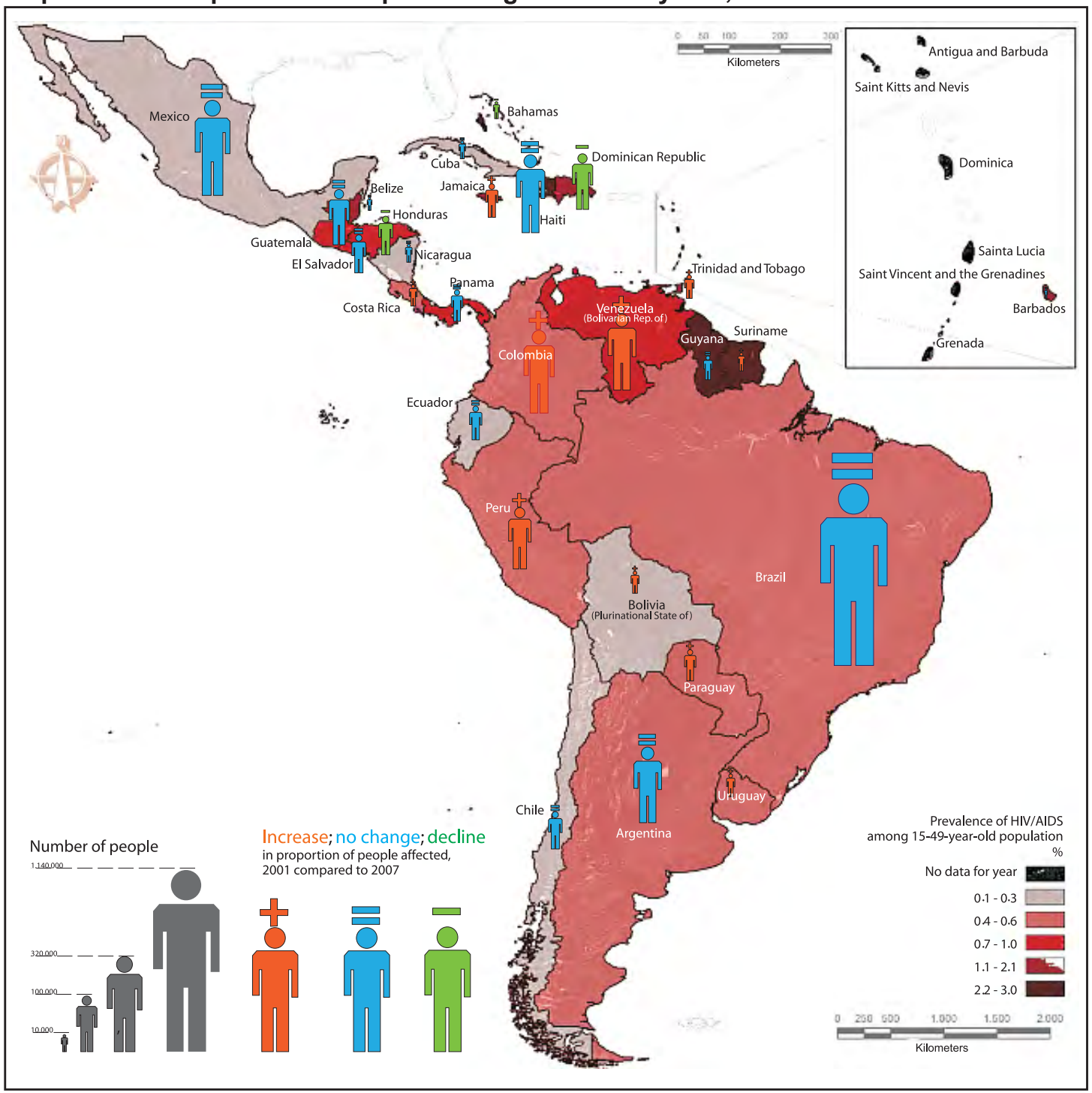
Source: UNAIDS, 2010.

The indicator shown on map 9 reveals the percentage of individuals between the ages of 15 and 49 living with HIV/AIDS, as a proportion of the total population of that age group in each country. Although the indicator is defined in terms of the 15-to-24-year-old population, the series of data available actually covers the 15-to-49-year-old population.

Figures for most of the countries are lower than 1% of the reference population. Figures for Barbados, Jamaica, Panama, the Dominican Republic and Trinidad and Tobago are between 1% and 2%, while for Belize, Guyana, Haiti and Suriname they are above 2%.

11-UNAIDS, the Joint United Nations Programme on HIV/AIDS, brings together ten organizations to prevent the propagation of HIV, care for those infected by the virus and mitigate the effects of AIDS at the world level.

Map 9. HIV/AIDS prevalence in persons aged 15 to 49 years, 2007.



Source: ECLAC, UNSD. Accessed 1 December 2010.

Goal 4.1 ..... Improve health and reduce environmental risks to health.

Indicative purpose 4.1.2 .... Implement policies and plans to reduce the risk of harmful environmental effects on health, particularly waterborne diseases, vectors, atmospheric pollution and exposure to chemical substances.

Indicator 4.1.2.1 ..... Rate of morbidity attributable to acute respiratory diseases.

According to the definition included in the methodological sheet for this indicator, acute respiratory infections (ARIs) are infectious diseases caused by microorganisms that affect the respiratory tract for a period of up to 15 days (1), and include asthma, bronchitis, pneumonia, streptococcus infection and diseases related to air pollution, as per the criteria of the International Statistical Classification of Diseases, revision 10 (ICD 10). Respiratory system illnesses appear in group J00-J99 of the classification.

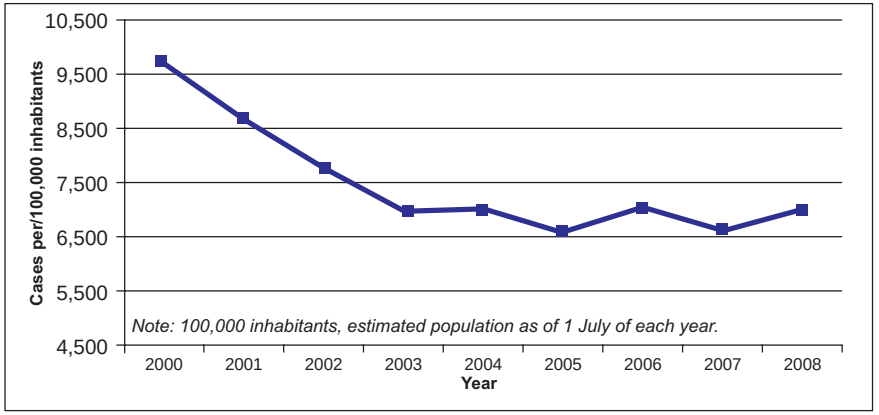
PANAMA

Although Panama has become the leading country in terms of vaccination, respiratory infections are among the principal causes of illnesses registered by Panama's health care system. These particularly affect children (figure 21 and table 9), and are associated with environmental pollution and changes in climate.

The inhalation of smoke inside residences, overcrowding, low birth weight and poor nutrition double the risk of pneumonia and other infections of the lower respiratory tract in children under age 5; home use of wood or charcoal as fuel is also associated with a high risk of contracting pneumonia.

At the national level, cases of pneumonia and bronchopneumonia in children under age 5 between 1997 and 2007 increased significantly – from 1,406.6 cases per 100,000 inhabitants in 1997 to 2,572.2 per 100,000 inhabitants in 2007. For children under 1 year of age during the reference period, the incidence rose from 3,155.7 to 5,492.9 cases per 100,000 inhabitants, and for children between the ages of 1 and 4, from 972.2 to 1,831.1 cases per 100,000.

Figure 21. Morbidity attributable to acute respiratory illnesses, 2000-2008.

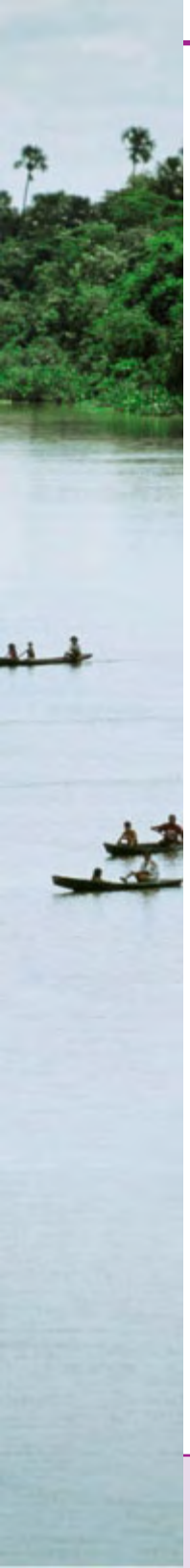


Source: ANAM and others, 2010

Table 9. Panama: Morbidity Attributable to Respiratory Illnesses, by Type, 2000-2008.

Tipo	2000	2001	2002	2003	2004	2005	2006	2007	2008
TOTAL	9,671.1	8,691.1	7,755.0	6,999.3	7,035.6	6,594.7	7,058.8	6,656.0	7,002.6
Bronchopneumonía	272.8	224.5	215.3	190.9	212.1	243.6	228.7	229.7	258.3
Influenza	9,219.9	8,314.9	7,384.1	6,653.2	6,827.7	6,190.4	6,653.6	6,218.2	6,574.4
Pneumonía	178.4	151.7	155.6	155.3	162.1	160.7	176.5	208.1	169.9

Source: ANAM and others, 2010.



Goal 4.1 ..... Improve health and reduce environmental risks to health.

Indicative purpose 4.1.2 .... Implement policies and plans to reduce the risk of harmful environmental effects on health, particularly waterborne diseases, vectors, atmospheric pollution and exposure to chemical substances.

Indicator 4.1.2.2 ..... Rate of morbidity attributable to waterborne diseases.

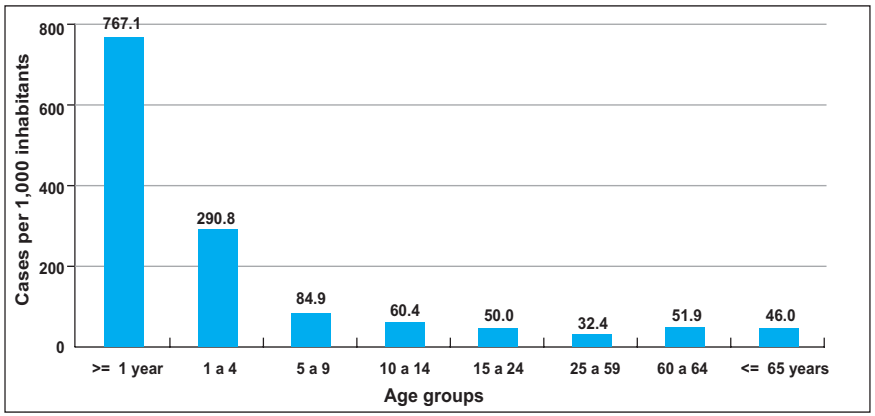
The methodological sheet for this indicator defines waterborne diseases as those transmitted by organisms or toxic substances found in water. The Pan American Health Organization cites as examples diarrhoea, cholera, hepatitis A, paratyphoid and typhoid, ascariasis and paragonimiasis. Cuba reports morbidity attributable to acute diarrhoeal diseases.

CUBA

This indicator is a tool to evaluate or detect acute effects as a result of exposure to contaminants in water, food and fomites at a given time. The reference term represents the number of medical consultations requested, at any health centre, for infectious intestinal diseases (acute diarrhoea resulting from an infection, typhoid fever and paratyphoid) per 100,000 inhabitants in the period and territory analysed.

The highest incidence in the country is among children under the age of 1, with the second most affected group being children up to age 4, as shown in figure 22.

Figure 22. Morbidity attributable to acute diarrhoeal diseases



Source: CITMA, National Office of Statistics (ONE) and UNEP, 2010.

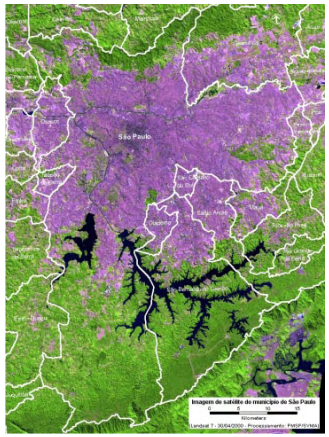
Goal 4.1 ..... Improve health and reduce environmental risks to health.

Indicative purpose 4.1.3 ... Increase the number of green and safe areas per capita.
Indicator 4.1.3.1 ..... Hectares of green urban areas in relation to size of urban population.

São Paulo

Although green areas are an important indicator of a city's environmental quality, there is, as yet, no consensus on how to quantify this. Different cities in Brazil have different ways of calculating green area indicators, based on differing ideas and methodologies, thus making comparison difficult.

Various studies have been conducted in the last several decades in São Paulo by different public entities, in order to identify and quantify the distribution of green areas in the city by using an index of green areas (table 10). However, the calculation suffers from the methodological problems cited above.



Taking as a starting point data from official sources of the Prefecture of São Paulo calculated in the last decade, highly disparate values can be generated for the city's average green area index.

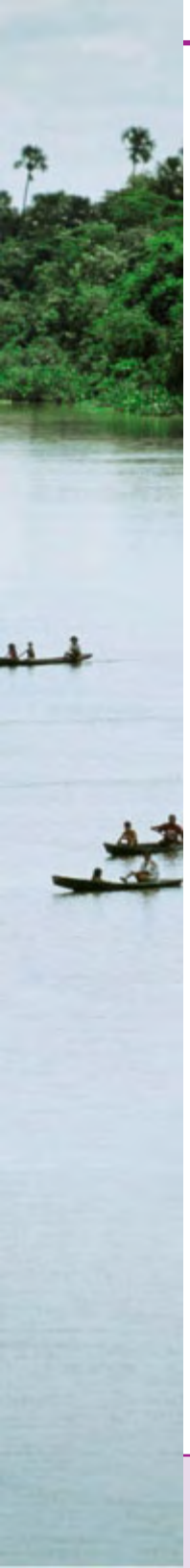
Rather than pointing to any real variation in São Paulo's green areas, these discrepancies merely illustrate the difficulty of working with indicators that do not have standardized conceptual definitions and methodologies. A more detailed analysis concludes that these sets of data are not comparable to each other.

Table 10. São Paulo, Index of Green Area per Inhabitant

Publication/Year	Basis of calculation/Year	Method of calculating area	GAI*(m^2/ inh.)
SEMPLA: «SP en Números».Published 2000-2001	Total public green areas, including urban parks and gardens, and areas with public facilities.Year of data: 1995	Ground plan and totalling of cadastral data.	4.6
SVMA-SEMPLA: «Atlas Ambiental del Municipio de São Paulo».Published 2000	Total plant cover of the city, including vegetation native to the periurban area, agriculture, neighbourhoods with trees, parks, residential gardens, etc.Year of data: 1999	Calculated on the basis of Landsat images, summed through geoprocessing.	73.6
SEMPLA: «INFOCIDADE». Published 2008	Total public green areas, including urban parks, conservation plots in periurban area, linear parks, plazas and areas with gardens.Year of data: 2008	Geoprocessing of geographical data on urban parks and linear parks, plus conservation plots. Totalling of cadastral data for plazas and areas with gardens.	11.58

**Green area index (m^2/inhabitant)*

Autores: Geóloga Patricia Marra Sepe – Mestre em Geociências e Meio Ambiente/UNESP e Engenheiro Agrônomo Luiz Roberto de Campos Jacintho – Mestre em Geociências/USP.



Goal 4.3 ..... Reduce poverty and inequality.

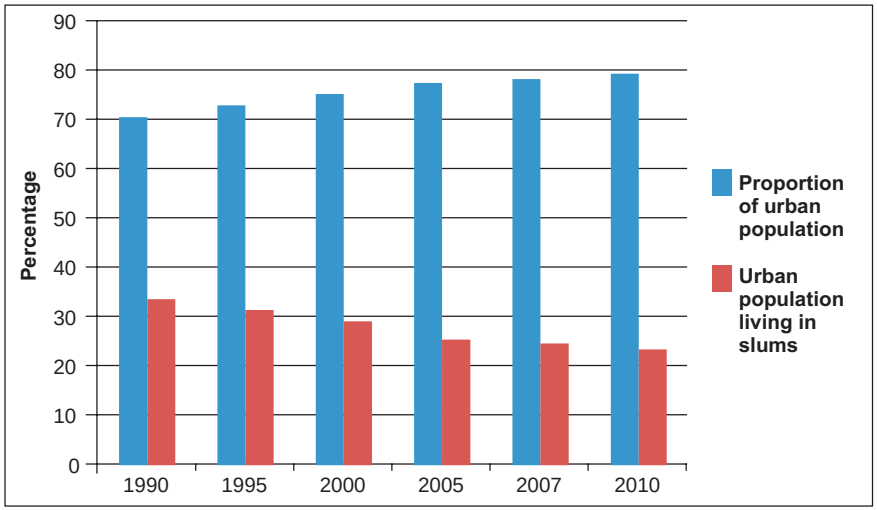
Indicative purpose 4.3.1 .... Drastically reduce poverty levels in the region's countries.

Indicator 4.3.1.1. ..... Proportion of urban population living in precarious settlements.

Close to 111 million individuals live in precarious settlements (23.5% of the total population).

In Latin America and the Caribbean, the number of people living in precarious settlements has declined since 1990 (figure 23). UN-Habitat estimates for 2010 indicate that 111 million people are still subject to these conditions.

Figure 23. Latin America and the Caribbean: Proportion of urban population living in precarious settlements, 1990-2010.

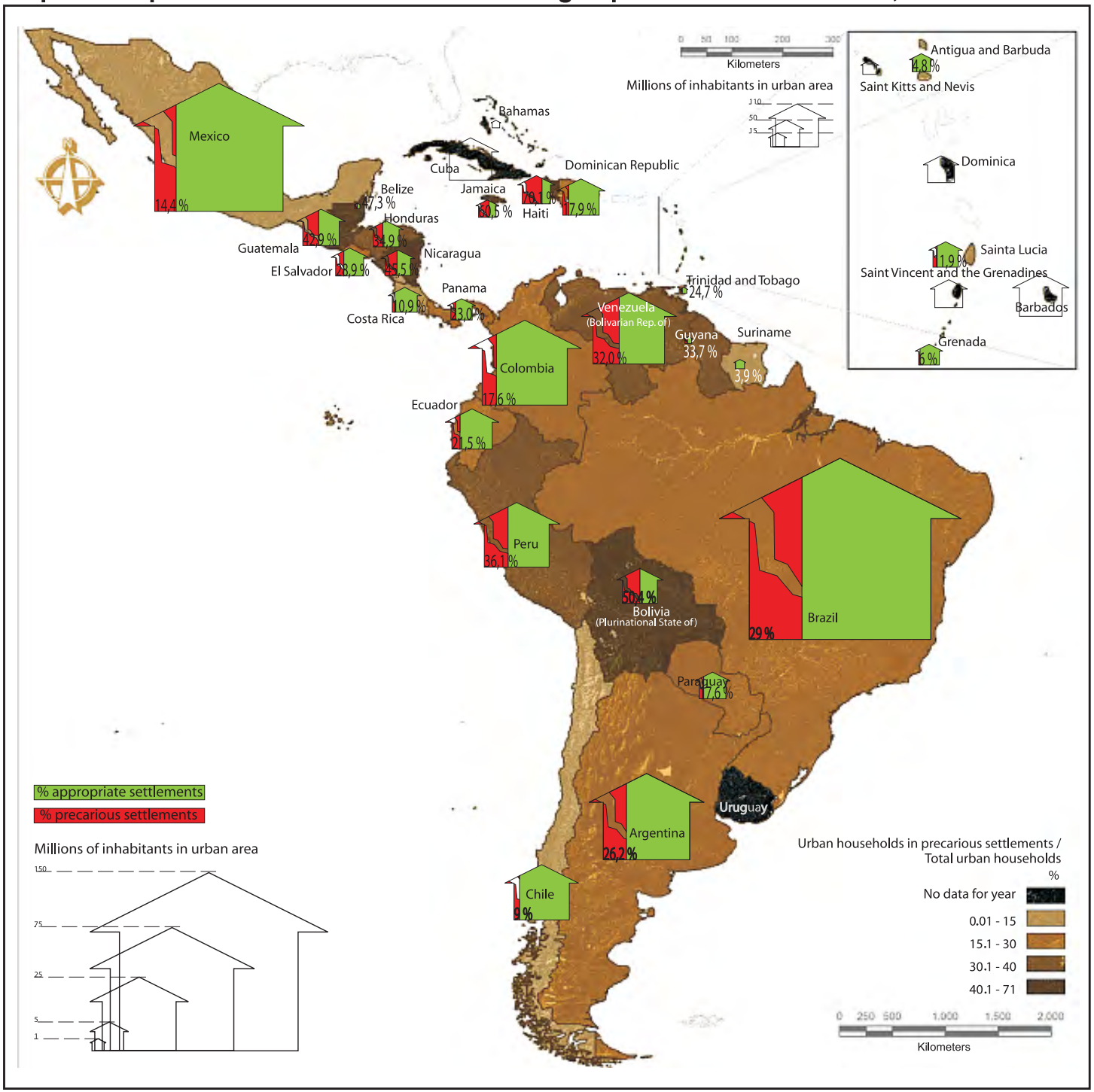


Source: UNEP, based on UN-Habitat data, 2010.

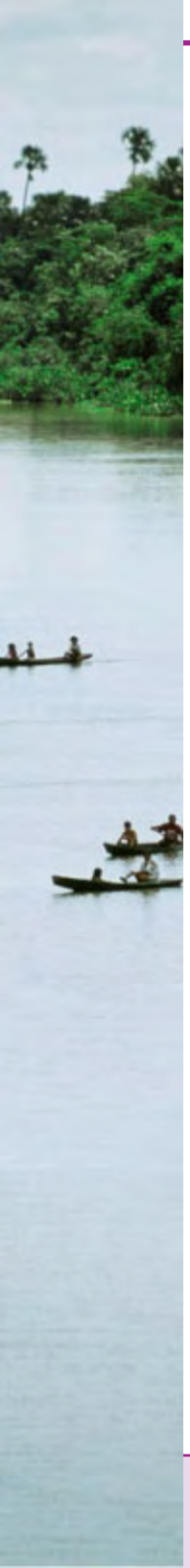
A precarious settlement – or "slum," to use the word employed officially by the United Nations in the Millennium Development Goals – is present when a group of people sharing a housing unit lack at least one of the following: access to an improved drinking water source, access to improved sanitation services, housing constructed with durable materials, and adequate physical space, with less than three individuals per room.

The most critical figures are found in Haiti and the Plurinational State of Bolivia (Map 10), where 57% and 50% of the urban population, respectively, live in precarious settlements. At the other extreme is Chile, with an equivalent figure of just 9%.

Map 10. Proportion of urban households living in precarious settlements, 2005.



Source: UNSD, United Nations Population Division, CELADE. Accessed 16 October 2010.



Goal 4.3 ..... Reduce poverty and inequality.

Indicative purpose 4.3.1 .... Drastically reduce the levels of poverty in the region's countries.

Indicator 4.3.1.2 ..... Proportion of people living on less than US$1 (PPP) per day.

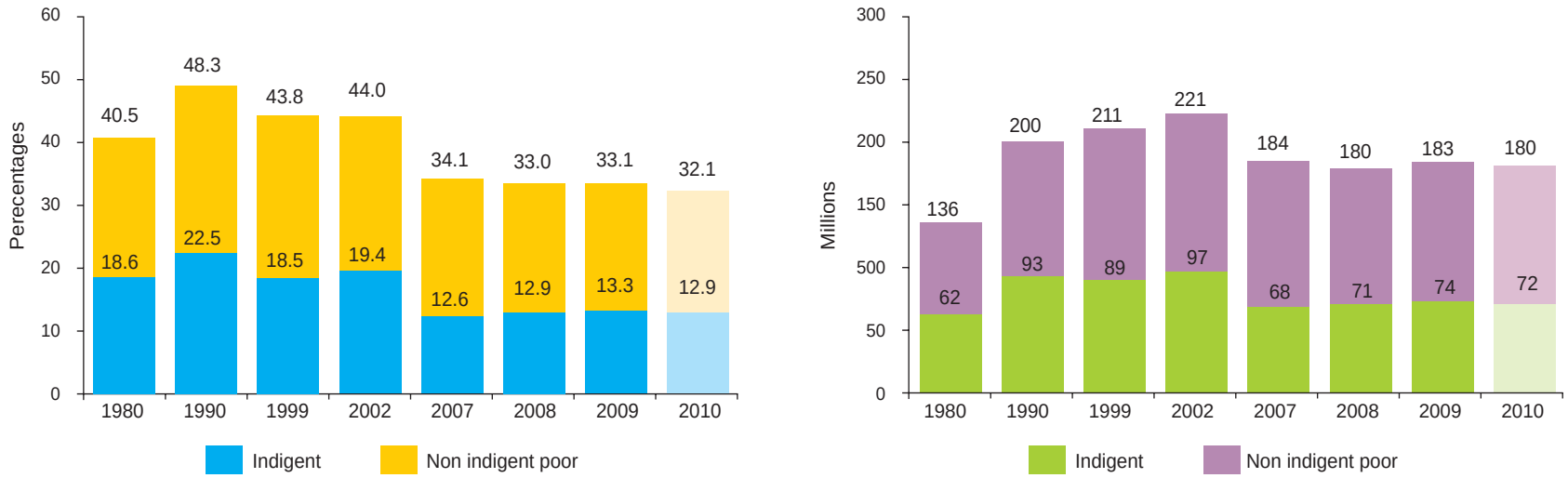
In 2008, 33 % of the population lived in poverty.

In 2008, during the international financial crisis, the economy of Latin America and the Caribbean experienced lower growth than in previous years, affecting most of the countries in the region. Per capita GDP for the region increased by an average of 3%, below the 4.6% figure of preceding years. Unemployment declined slightly, from 8.1% in 2007 to 7.5% in 2008, while real average wages began to increase once again, rising by 1.3%, a rate similar to that of the previous year.

Poverty, in 2008, affected 33% of the region's population, including 12.9% who experienced extreme poverty or indigence, representing a total of 180 million extremely poor and 71 million indigent people (figure 24). Despite improvements in certain aspects of human development, the extent of poverty and indigence (measured according to the countries' official "poverty line and indigence" parameters) show starkly that poverty and inequality continue to be the region's most serious social problem (ECLAC, 2009).

The "Proportion of the population that live on less than US$1 per day" indicator is being proposed as the means of assessing the first MDG, expressed originally as a function of a poverty line of US$1 per day, currently equivalent to US$1.25 per day of PPP for the year 2005 – a level established by the World Bank to measure poverty at the international level. However, for map 11, the information is problematic, in that it refers to different years, thus making it difficult to make a valid comparison. Nevertheless, given the importance of this indicator, it was decided that data from countries with information for 2006 should be used, while at the same time specifying what year is being referenced in the case of other countries.

Figure 24. Latin America: Change in poverty and indigence, 1990-2010 (in percentages and millions of people).



Estimate for 18 countries in the region, plus Haiti. Figures above the bars represent total number and percentage of poor people (indigent plus non-indigent poor).]

Source: ECLAC, 2010a.

Map 11.Proportion of people living on less than US$1 per day PPP (purchasing power parity), 2006

Source: ECLAC, World Bank. Accessed 25 January 2010.

Goal 4.3 ..... Reduce poverty and inequality.

Indicative purpose 4.3.3 .... Formulate and implement strategies for women, youth, indigenous people, Afro-descendant communities and other minority groups of the region, based on fundamental human rights and freedoms.

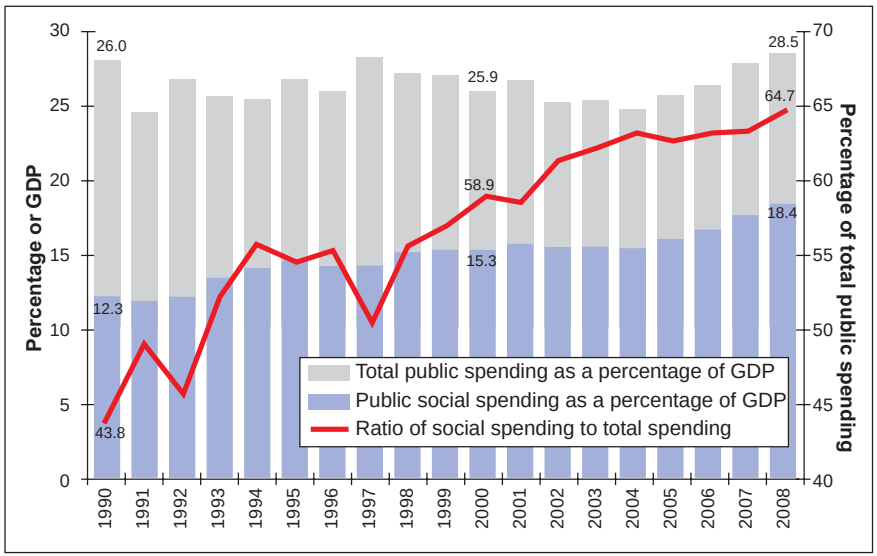
Indicator 4.3.3.1 ..... Social expenditure as a percentage of gross domestic product.

Para el periodo 2007-2008, el gasto social representaba el 26 del PIB Regional

La magnitud, comportamiento y distribución del gasto social refleja las prioridades y esfuerzo de los Estados en disminuir la pobreza y la desigualdad mejorando el bienestar y la protección de las personas. Se entiende por gasto social las partidas presupuestarias provenientes de recursos públicos destinadas al financiamiento de la educación, salud, seguridad y asistencia social, trabajo, vivienda, provisión de agua e infraestructura de saneamiento.

Since the early 1990s, the region has seen a steady increase in social spending by the State (figure 25), reflecting a growing commitment to allocating public resources to social policies, though these efforts are necessarily limited by countries' wealth and level of development.

Figure 25. Latin America (21 countries): Total public spending and public social spending (weighted average), 1990-2008 (percentage of regional GDP)



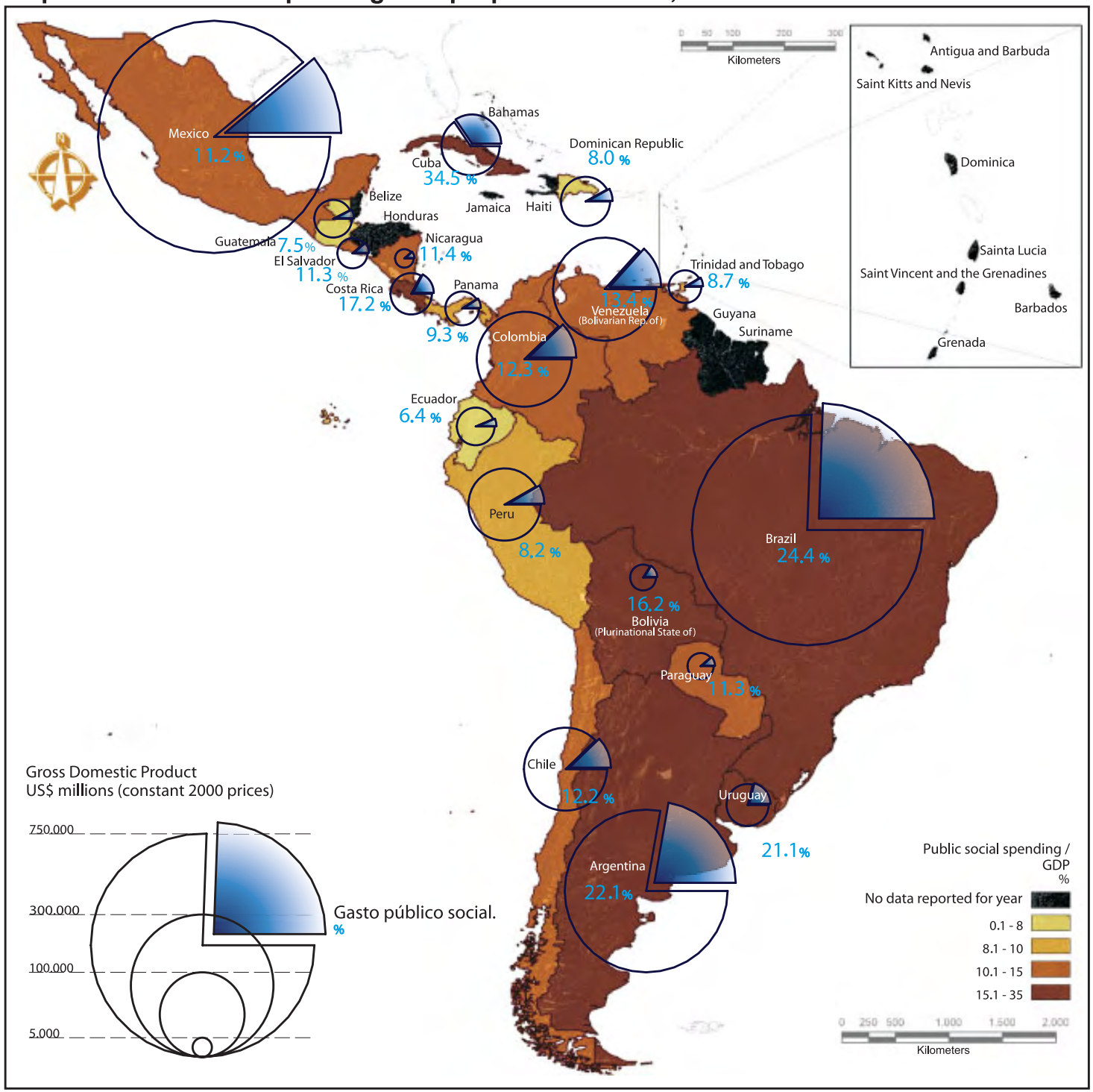
Source: ECLAC, 2010a.

ECLAC, in its publication "Social Panorama of Latin America 2009", recognizes (using the classification proposed by Rossana Mostajo[12]) the existence of three groups of countries, based on the macroeconomic reality reflected by the proportion of GDP dedicated to social spending. As a percentage of GDP, figures above 13% for social spending are considered to be high; percentages of 9% to 13% are considered moderate; and social spending below 9% of GDP is considered low. Using this classification, Argentina, the Plurinational State of Bolivia, Brazil, Costa Rica, Cuba, Uruguay and the Bolivarian Republic of Venezuela have high social spending; Chile, Colombia, El Salvador, Mexico, Nicaragua, Panama and Paraguay have moderate levels of social spending; the remaining countries fall within the low bracket.

"Social Panorama" for 2010 recognizes that at the regional level, public spending – particularly social spending – has increased very significantly over the last two decades. Though public spending has remained at around 26% of GDP, public social spending rose from 12.3% of GDP in 1990-1991 to 18.4% in 2007-2008. Thus, the share of the budget devoted to social spending has increased considerably – from somewhat below 45% of total public spending to nearly 65%.

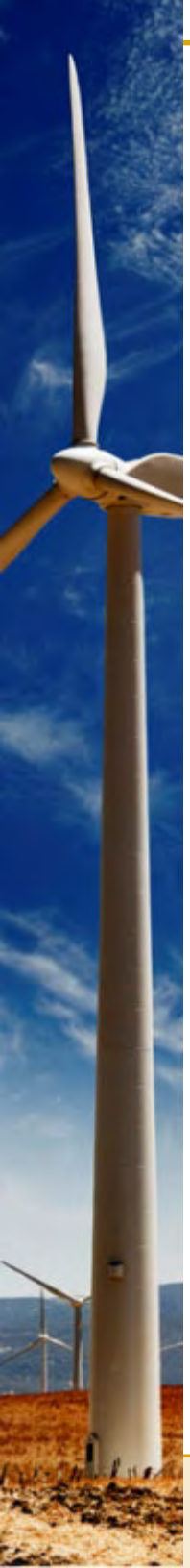
12- Gasto social y distribución del ingreso: caracterización e impacto redistributivo en países seleccionados de América Latina y el Caribe, Serie Reformas económicas, no 69, CEPAL, Santiago de Chile, 2000.

Map 12. Public social spending as a proportion of GDP, 2006-2007.



Source: ECLAC, 8 February 2010.

Map 12 shows public social spending as a percentage of GDP for the region's countries.



Thematic area 5. Economic issues, including competitiveness, trade, and production and consumption patterns

Goal 5.1 ..... Increase use of renewable energy.

Indicative purpose 5.1.1 .... Increase the use of renewable energy in the region to at least 10% of total energy use by 2010.

Indicator 5.1.1.2 ..... Renewable energy use as a proportion of total energy used.

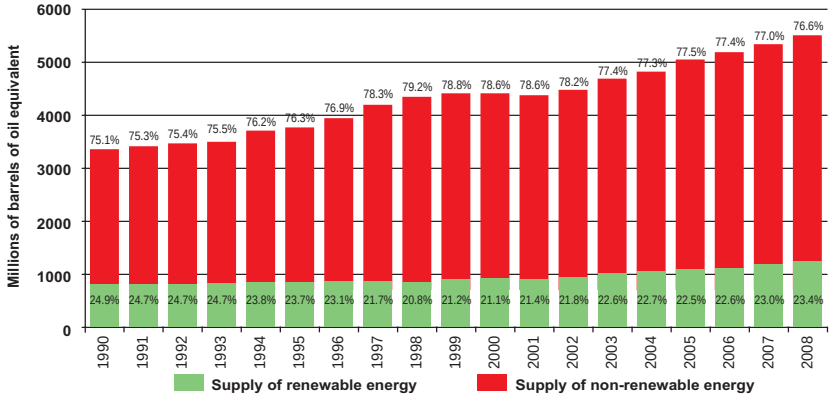
In 2008, 23.1% of the region's energy came from renewable sources.

Energy is vital to economic development and to providing the services needed to meet basic human needs, such as access to potable water, health care, housing, and overall improvements in the standard of living. However, excessive dependence on the fossil fuel energy matrix – oil, coal and gas – can create long- and medium-term problems of supply, since these resources are not renewable, and because prices fluctuate widely. Moreover, these fuels are the principal source of greenhouse gases, which contribute to climate change, in addition to having other negative effects on the environment.

Energy from renewable sources also has the advantage of being clean energy. The primary means of obtaining it does not involve using or emitting by-products or wastes that can pollute or be harmful to the environment. Clean energy includes wind, hydroelectric, solar and tidal energy, along with sustainable use of wood fuel.

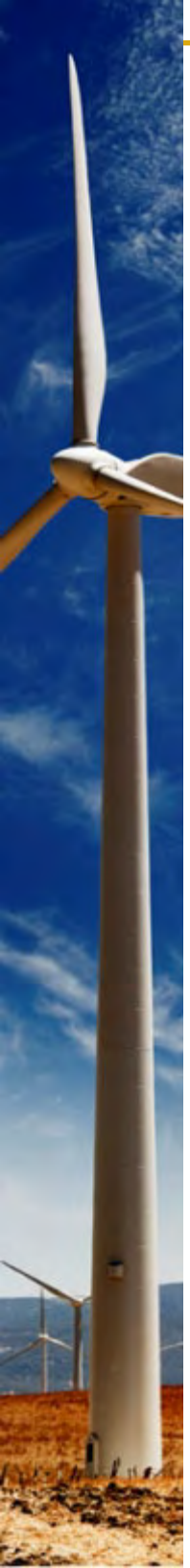
As of 2008, the region had achieved ILAC's proposed goal of having 10% of total energy come from renewable sources; according to OLADE data for that year, 23.4% of the region's energy supply came from renewable sources. Figure 26 shows not only renewable energy as a percentage of total supply, but also the region's increasing use of non-renewable energy since 1990.

Figure 26. Latin America and the Caribbean: Supply of renewable and non-renewable energy, 1990-2008 (millions of barrels of oil equivalent, and renewable and non-renewable energy as percentages of total energy supply)



1/ Renewable energy sources are considered to include: geothermal, hydro, sustainable wood fuel, cane products, and other renewable energy sources such as wind and solar. Non-renewable energy sources include: oil, natural gas, coal, nuclear and non-sustainable wood fuel.

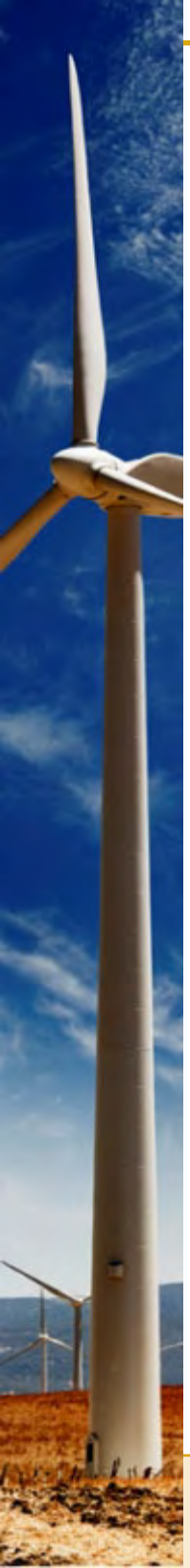
Source: ECLAC, 2010.



Map 13. Renewable energy use as a proportion of total energy used, 2008.

Source: ECLAC Yearbook, 2008.

Map 13 shows renewable energy as a percentage of total energy supply in the region's countries. Paraguay ranks highest at 68%, Costa Rica at 50%, and Brazil, El Salvador, Guyana, Honduras and Nicaragua at between 40% and 46%. Countries with figures below 11% are Argentina, Barbados, Cuba, Jamaica, Mexico, Trinidad and Tobago and the Bolivarian Republic of Venezuela.



Goal 5.1 ..... Increase use of renewable energy.

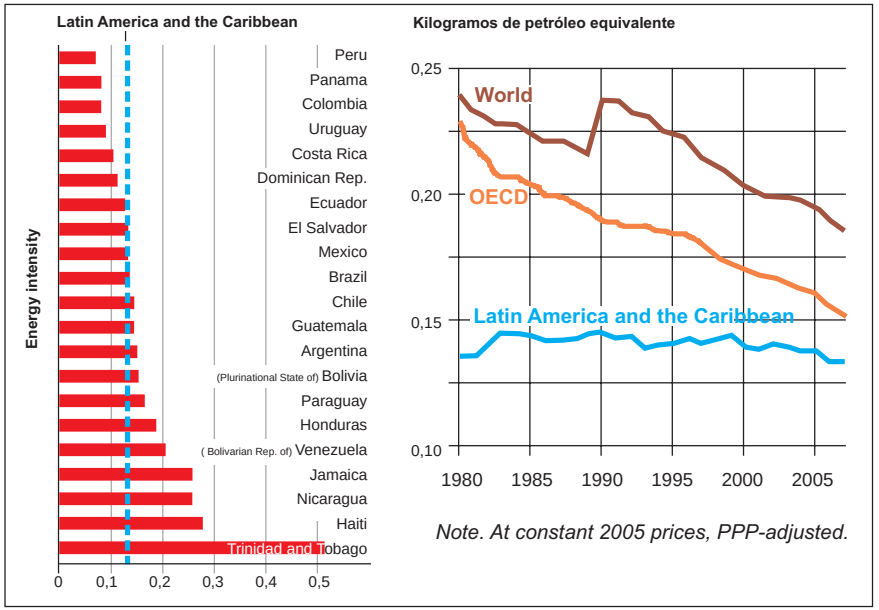
Indicative purpose 5.1.1 .... Increase the use of renewable energy in the region to at least 10% of total energy use by 2010.
Indicator 5.1.1.3 ..... Energy use per US$1,000 of gross domestic product (PPP).

This indicator shows the relation between the total amount of energy consumed and a country's gross domestic product (GDP). The variables involved in the calculation are the total consumption of energy in a given country (not including energy used to transform or produce energy) and real gross domestic product.

The indicator measures efficiency, linking economic growth with its effects on sustainability and the environment. It indicates the amount of energy required by a country's economy to produce all of its good and services. A reduction in the intensity of energy use indicates that less energy is being used per unit of economic production, which is reflected in less pressure on the environment and on non-renewable natural resources.

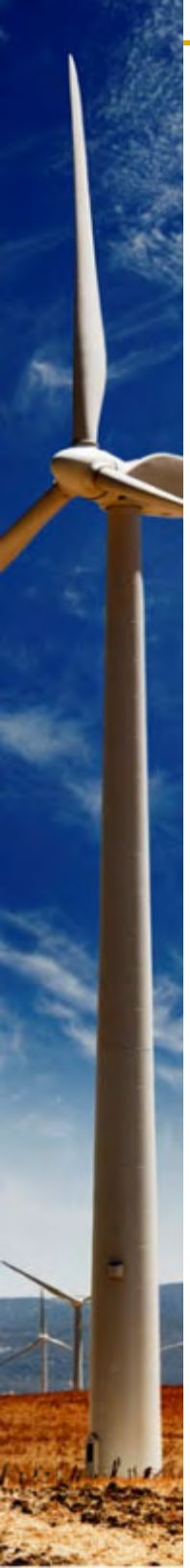
According to data from UNEP, ECLAC, and UNEP/GRID-Arendal, 2010, the energy intensity of Latin America and the Caribbean in 2007 was 134 kg of oil equivalent per US$1000 of GDP (at 2005 prices) – less than both the world average (186 kg) and the OECD average (152 kg). Levels of energy intensity vary within the region, with Peru, Panama, Colombia, Uruguay, Costa Rica, the Dominican Republic, Ecuador, El Salvador and Mexico having less energy-intense economies than the regional average (figure 27). These levels of energy intensity could in the future become a key factor in international competitiveness.

Figure 27. Latin America and the Caribbean: Energy intensity, 2007 (energy used per US$1000 dollars of output)

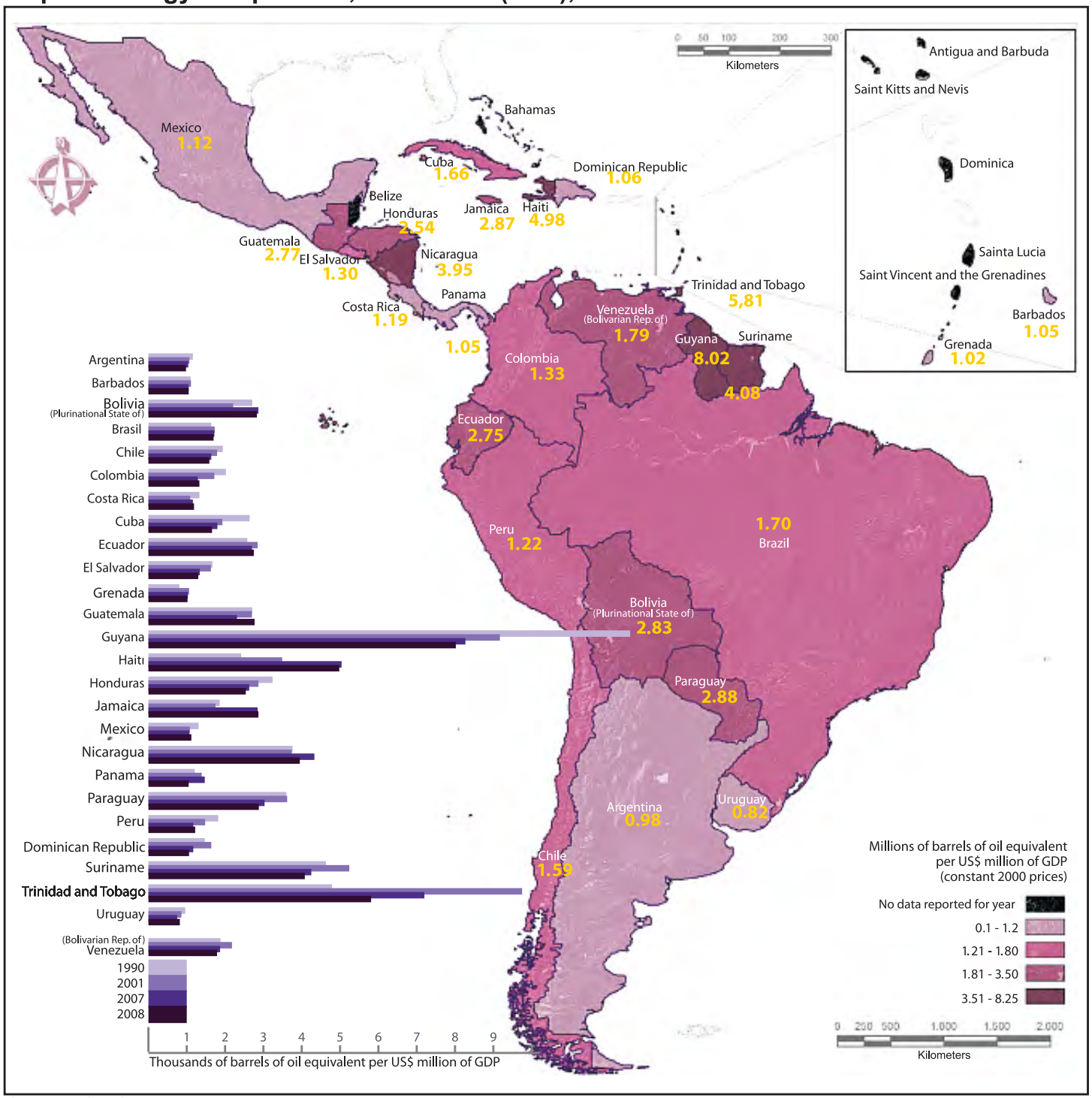


Note. At constant 2005 prices, PPP-adjusted.

Source: UNEP, ECLAC, and UNEP/GRID-Arendal, 2010.

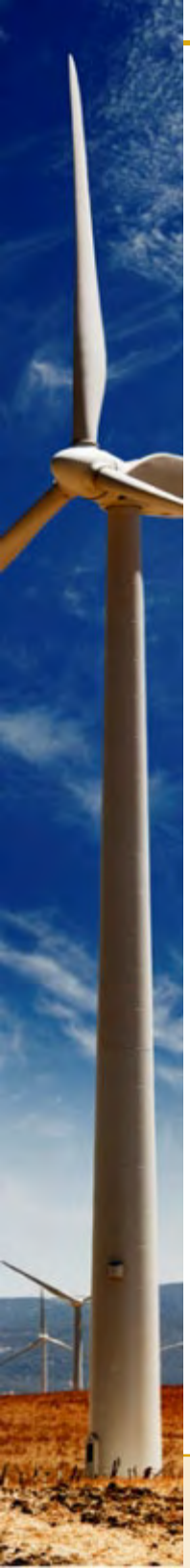


Map 14. Energy use per US1,000 of GDP (PPP), 2008.



Source: ECLAC. Accessed 1 December 2010.

Map 14 shows statistics for 2008, with Guyana and Trinidad and Tobago having the region's highest figures in the region, followed by Haiti, Suriname, Nicaragua, Jamaica and Paraguay, which range between 8.22 and 3.03 thousand barrels of oil equivalent per US$ million of GDP at constant prices. The remaining countries have figures of between 1 and 2.7, with Uruguay, at 0.8, having the lowest intensity.



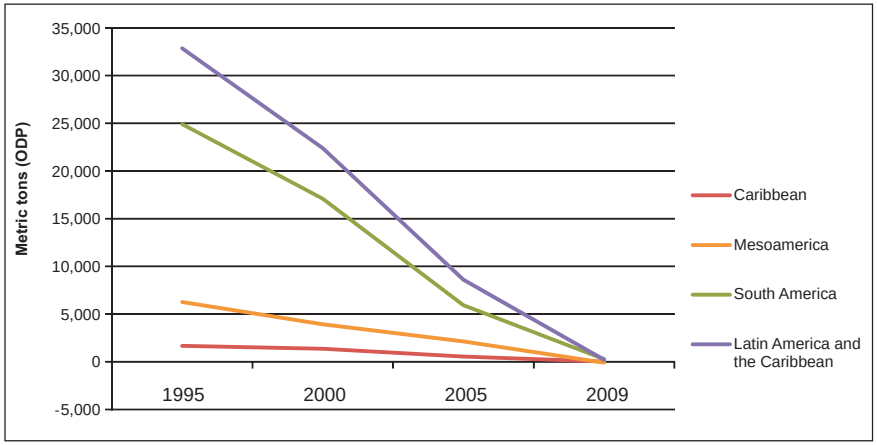
Goal 5.2 ..... Promote cleaner production.

Indicative purpose 5.2.1 .... Establish Cleaner Production Centres in all the countries of the region.
Indicator 5.2.1.1 ..... Consumption of ozone-depleting chlorofluorocarbons.

This indicator tracks the consumption of chlorofluorocarbons (CFCs), defined by the Montreal Protocol as "controlled substances" listed in annexes A and B of the Protocol. CFCs are inert, non-toxic chemicals that easily liquefy. They are used in refrigeration systems, air conditioners, canning and insulation, and also include solvents and aerosol propellants. Since they are not broken down in the lower layers of the atmosphere, they rise to the upper levels, where their chlorates damage the ozone.

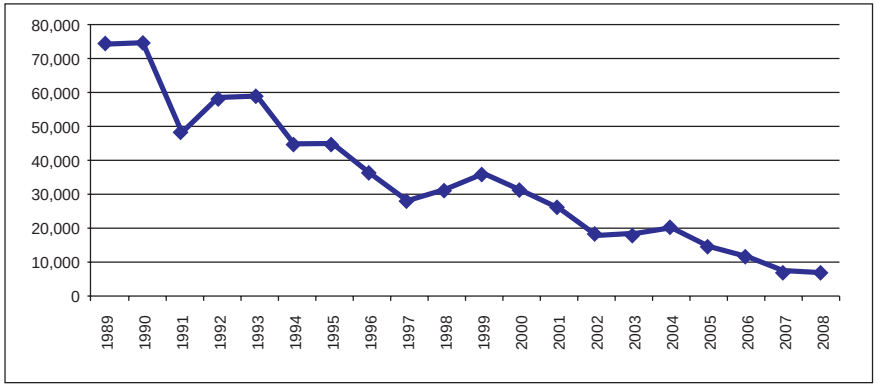
For developing countries (article 5), the baseline for measuring reductions in the consumption of CFCs was set at the average 1995-1997 level. The goal that was established was to reach zero consumption by 2010. Figure 28 clearly shows, by subregion, that there had been a steady reduction in consumption, reaching close to zero consumption in 2009 – earlier than the target date – while figure 29 shows changes in the consumption of substances that damage the ozone layer.

Figure 28. Consumption of ozone-depleting chlorofluorocarbons (CFCs), 1990-2009 (in metric tons of ozone depletion potential, or ODP).

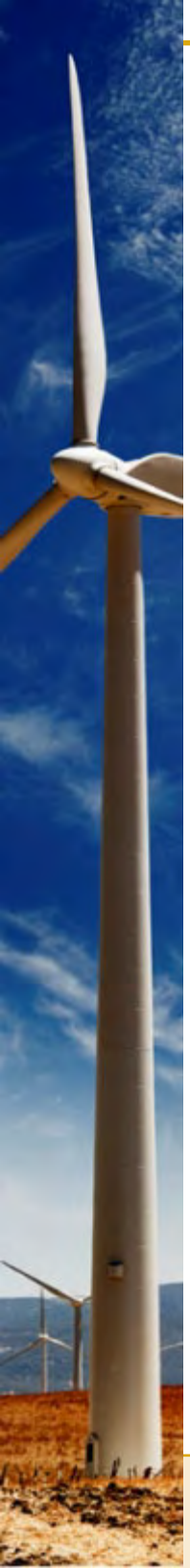


Source: UNEP, based on data (see http://geodata.grid.unep.ch/mod_download/download_file.php) from the United Nations Environment Programme's Ozone Secretariat, http://ozone.unep.org/Data_Reporting/Data_Access/

Figure 29. Change in consumption of ozone-depleting substances (ODS), 1989-2008 (in tons of ozone depleting potential, or ODP).



Source: United Nations, 2010.



Goal 5.2 ..... Promote cleaner production.

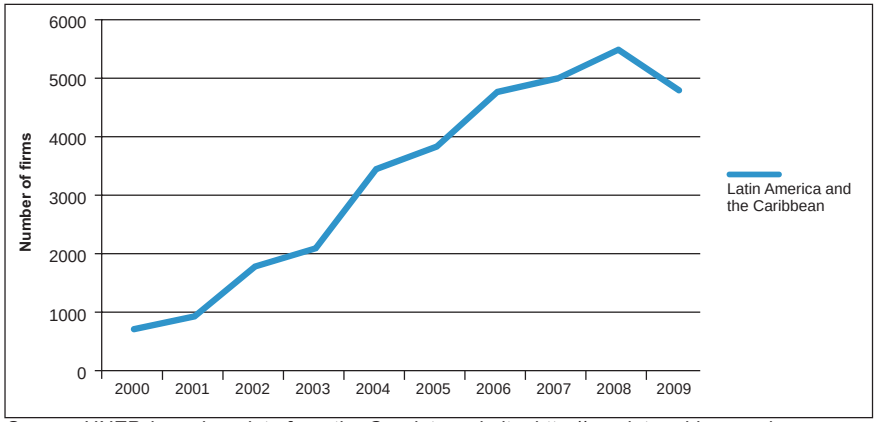
Indicative purpose 5.2.2 .... Incorporate the cleaner production concept in a significant percentage of major industries, with emphasis on small- and medium-sized industries.

Indicator 5.2.2.2 ..... Companies with ISO 14001 certification.

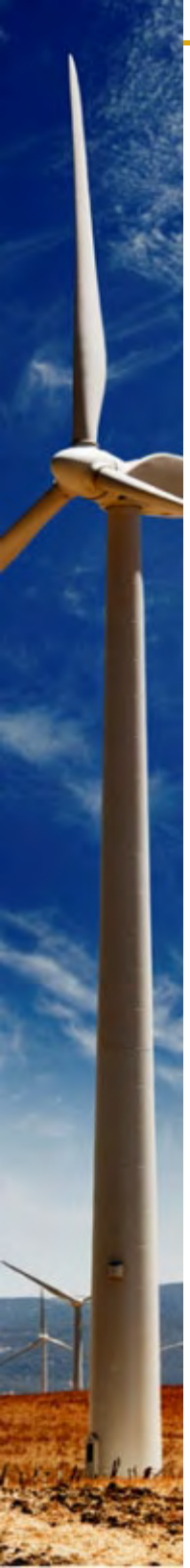
Incorporating the concept of cleaner production involves having industrial firms and firms in other economic sectors adopt productive and organizational processes that ensure proper environmental management. The ISO 14001 standards define what elements are needed in an environmental management system, as well as the requirements for ensuring adequate management of factors such as atmospheric emissions, effluent treatment, soil contamination, use of certain natural resources – actions that have environmental effects and can be controlled by firms and other service-providing entities.

The region has seen an increase in the number of firms and other entities that have ISO 14001 certification and have incorporated the standards as part of carrying out their normal activities (figure 30), with significant differences based on country size, economy, and level of development. Brazil has the largest number of firms that meet the criteria, followed by Argentina, Mexico and Chile, as shown in map 15.

Figure 30. Latin America and the Caribbean, change in number of firms with ISO 14001 certification.

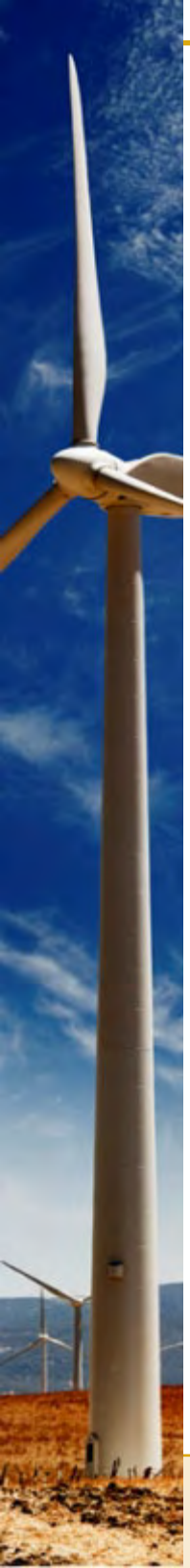


Source: UNEP, based on data from the Geodata website, http://geodata.grid.unep.ch. Accessed November 2010.



Map 15. Companies with ISO 14001 certification, 2007.

Source: ECLAC. Accessed 3 December 2010.



Goal 5.3 ..... Create beneficial economic instruments.

Indicative purpose 5.3.1 .... Establish an economic incentive system for productive and industrial processing projects that preserve natural and energy resources, and bring about a reduction in effluents released into water, land and air.

Indicator 5.3.1.1 ..... Existence of economic instruments implemented by the country.

With regard to Indicator 5.3.1.1, *Economic instruments applied in the country,* although it is one of the agreed indicators, its use in the region has been slow to take hold. Thus, it was not included in the ILAC Colombia (2007) or Peru (2008) reports.

ARGENTINA

In its ILAC 2006 report, Argentina states that "At the national level, there are examples of these economic instruments being applied to a variety of issues which are related to the sustainability of the local and global environment." For example, with regard to energy resources in 2004, Argentina's Secretariat of Energy (Resolution 415/2004) approved the Rational Energy Use Programme, which involves establishing incentives and surcharges for commercial and residential users as a means of regulating the consumption of natural gas and electricity. Also relevant is Law 25.422/01, the "Sheep Act", designed to revitalize the sheep-raising industry. It promotes "more efficient forms of sheep raising, in order to improve profitability and sustainability". Another chapter of the law states that "One policy that links local and global environmental protection is the Argentine Carbon Fund, launched in 2005 by the national government to address the problem of climate change".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BRAZIL

Brazil adopted a policy of *Economic instruments to conserve nature and/or promote sustainable environmental management*. These measures consist of mechanisms designed to give greater flexibility to the so-called command and control instruments. They are often applied for compensatory purposes, or to mitigate the environmental damage caused by investments in production. However, the use of economic instruments in environmental management is still in its early stages, since the process requires coordination and consensus between governments, private-sector initiatives and civil society. The main instruments include Law 9985, approved in 2000, which establishes the National System of Conservation Units, along with a compensation (payment) mechanism for cases involving environmental licensing of enterprises that have significant environmental impact. Under this arrangement, the entrepreneur commits to implementing and maintaining a conservation unit within the Integral Protection Group. Environmental criteria have also been adopted to transfer to the municipalities a portion of the financial resources collected by the states, in order to compensate them for abandoning certain productive activities and caring for protected areas, or for carrying out basic sanitation works


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COSTA RICA

In its ILAC 2005 report, Costa Rica stated that this indicator has yet to be established, although it recognizes that "the use of economic instruments in environmental management follows two broad approaches. The first seeks to provide monetary compensation (or to 'internalize' in the market) the benefits of actions favourable to the environment. The second, in contrast, internalizes the environmental cost of productive activities, charging for the use of natural resources, for example by levying fees for water use, whether for consumption or as an effluent."


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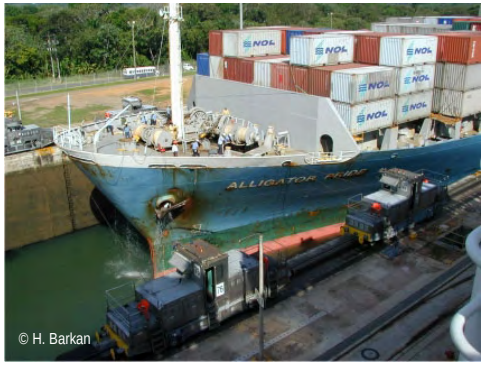
In the last 20 years, Costa Rica has made the most progress with regard to the first of these two approaches. During the last decade, a national programme was created to "pay for environmental services". It provides financial compensation for reforestation and for forest conservation and management. There has also been a growth in production that can be verified to be sustainable or organic, for both the foreign market and domestic consumption. The products produced in this way sell at a premium because of their environmental and health benefits. The last ten years have also seen the institutionalization and progressive intensification of the use of economic instruments to establish monetary fees that reflect, in an ecologically appropriate manner, the cost of producing resources such as water, as well as the cost of decontaminating both water and air. This approach has led to the recent approval of two legal mandates governing the use of water – one covering its use as a productive input, the other addressing contaminated discharges. Taxes on used imported vehicles have also been raised, in order to reflect the greater impact that these vehicles have on urban air quality.

PANAMA



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In Panama, according to that country's recent ILAC 2010 report, "economic instruments are enshrined in the principles and approaches of national environmental policy (Law 41 of 1998, General Environmental Act), which establishes priorities and emphasizes instruments and mechanisms to promote incentives for reengineering the productive system to make it more environmentally friendly. These principles call for requiring that private parties, as a condition for receiving rights to natural resources, provide ecological compensation for the natural resources they use. To this end, the principles also call for establishing the economic value of these resources so as to reflect their social cost and the cost of conserving them". Panama has approximately 15 economic instruments that promote environmental protection. Four are financial, seven are tax-related, and four are market instruments. They focus on forests, use and conservation of tributaries and reservoirs, enforcement of regulations by different sectors of the society, and protection and conservation of protected areas. They also offer new opportunities for communities and the private sector to generate income from activities involving the sustainable use of natural resources.

Thematic area 6. Institutional arrangements

Goal 6.1 ..... Improve environmental education.

Indicative purpose 6.2.1 ... Eradicate illiteracy and make enrolment in basic and secondary education universal.

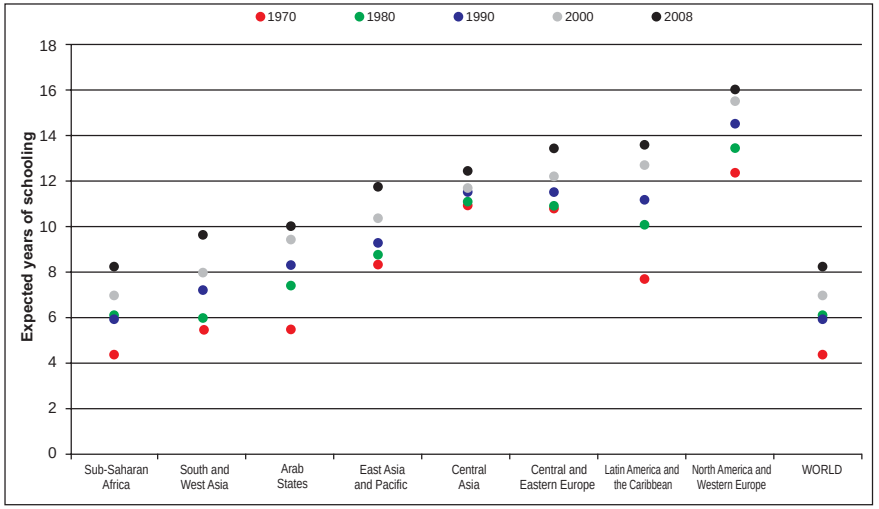
Indicator 6.2.1.1 ..... Net enrolment rate in primary school.

In 2008, 94% of the region's children had access to primary education.

The net primary school enrolment rate is the number of children of official school age who enrolled in primary school, as a proportion of the total population of children in the age bracket that the country defines as being of school age. This indicator makes it possible to monitor progress toward the objective of universal primary education.

Data from the United Nations MDG Report (2010) point to an increase in the net primary school enrolment rate for the region – from 85.8% in 1991 to 94.9% in 2008. According to data from UNESCO (2011), the years of schooling that a child can expect to receive as of 2008 (13.6) have increased from the 1999 figure (12.5), and are around the world average (figure 31). With regard to gender, the school life expectancy for women (13.9 years) is slightly higher than the figure for men (13.3 years), as is true in more developed regions.

Figure 31. School life expectancy, 1970-2008 (years of schooling).



Source: UNESCO, 2011.

Map 16. Net enrolment rate in primary school, 2007.

Source: UNESCO-UIS. Accessed 16 October 2010.

Map 16 shows UNESCO data for the region. On the whole, they indicate highly favourable results from the progress achieved by the countries, and from their efforts to increase educational coverage and infrastructure. Most of the countries have levels above 90%. Exceptions are the Plurinational State of Bolivia, Granada and the Dominican Republic.

Goal 6.3 ..... Implement evaluation measures and adopt indicators.

Indicative purpose 6.3.1 .... Develop and implement an evaluation process to monitor progress towards achieving sustainable development and meeting the goals set forth in the Johannesburg Plan of Action, adopting sustainability indicator systems at the national and regional levels that address the social, economic and political characteristics of the region.
Indicator 6.3.1.1 ..... Reports on the state of the environment.
Indicator 6.3.1.2 ..... Existence of an environmental statistics system.

This group of indicators is normative in nature and is specific to each country, indicating the degree of development achieved in the given areas. The indicators point to the frequency with which reports on the state of the environment are issued and the extent to which environmental statistics have been incorporated in a country's institutions. By highlighting improvements, setbacks and priorities, they can be useful in efforts to improve environmental management.

All of the region's countries have supported these measures by adopting relevant environmental legislation. The following table uses recently adopted laws as a proxy for these indicators. Most are framework laws, which nearly all of the region's

Table 11. General (framework) Laws on the Environment in Latin America and the Caribbean.

	Country	Title of law	Number	Date promulgated
1	Antigua and Barbuda	Environmental Management Bill		2003
2	Argentina	General Law on the Environment	Law 25.675	27/11/2002
3	Bahamas	Conservation and Protection of the Physical Landscape of the Bahamas (Amendment) Act		2000
4	Barbados	National Conservation Commission Act		1985
5	Belize	Environmental Protection Act		1992
6	Bolivia (Plur. State of)	General Law on the Environment	Law 1333	27/4/1992
7	Brazil	Law on National Environmental Policy	Law 6.938	31/8/1981
8	Chile	General Basic Environmental Law	Law 19.300	9/3/1994
9	Colombia	General Law on the Environment	Law 99	22/12/1993
10	Costa Rica	Organic Law on the Environment	Law 7554	4/10/1995
11	Cuba	Law on the Environment	Law 81	11/6/1997
12	Dominica	Physical Planning Act		2002
13	Ecuador	Consolidated Text of the Secondary Environmental Legislation	Presidential Decree 3516	31/3/2003
14	El Salvador	Law on the Environment	Decree 233	4/5/1998
15	Granada	Land Development (Control)	Act. 40	1961
16	Guatemala	Law on Environmental Protection and Improvement	Decree 68-86	5/12/1986
17	Guyana	Environment Protection Act	Act	
18	Haiti	Political Constitution Title IX	Decree 68-86	1987
19	Honduras	General Law on the Environment	Decree 104-93	8/6/1993
20	Jamaica	Natural Resources Conservation Authority	Act. 9	1991
21	Mexico	General Law on Ecological Balance and Environmental Protection		28/1/1988

	Country	Title of law	Number	Date promulgated
22	Nicaragua	General Law on the Environment and Natural Resources	Law 217	6/6/1996
23	Panama	General Law on the Environment of the Republic	Law 41	1/6/1998
24	Paraguay	*Has no general or framework law, but does have various regulations that serve the same purpose*		
25	Peru	General Law on the Environment	Law 28611	5/10/2005
26	Dominican Republic	General Law on the Environment and Natural Resources	Law 64-00	2000
27	Saint Kitts and Nevis	National Conservation and Environmental Protection Act		1987 (amended in 1996)
28	Saint Lucia	Environmental Protection Levy Act	Act 15	1999
29	Saint Vincent and the Grenadines	*Has no general or framework law, but does have various regulations that serve the same purpose*		
30	Suriname	Nature Conservation Act		1954
31	Trinidad and Tobago	Environmental Management Act		2000
32	Uruguay	General Law on Environmental Protection	Law 17.283	12/12/2000
33	Venezuela (Boliv. Rep. of)	Organic Law on the Environment		16/6/1976

Source: www.oas.org/usde/FIDA/laws/database.htm

In terms of reports on the state of the environment, a number of countries, since 1999, have developed comprehensive environmental assessments using UNEP's GEO methodology. Some have updated these reports in recent years, thus making it possible to monitor priority issues on their environmental agendas. Among the countries that have issued such reports are Argentina (2004), Barbados (2000), the Bahamas (2005), Belize (2010), Brazil (2002), Chile (1999, 2002, 2005), Costa Rica (2002), Cuba (2002, 2008), Ecuador (2008), El Salvador (2002), Guatemala (2003, 2009), Haiti (2010), Honduras (2005), Mexico (2004), Nicaragua (2001, 2003), Panama (1999, 2004, 2009), Peru (2000, 2004), the Dominican Republic (2010), Saint Lucia (2006), Uruguay (2008, 2009) and the Bolivarian Republic of Venezuela.

Goal 6.4 ..... Increase participation by the society.

Indicative purpose 6.4.1 .... Create and strengthen participation mechanisms in the area of sustainable development, with governmental and non-governmental representation and participation by the major groups in each of the region's countries.

Indicator 6.4.1.1 ..... Existence of national councils for sustainable development.

According to the definition included on this indicator's methodological sheet, a national sustainable development council is the institution or organization whose principles and work are designed to achieve and promote the country's sustainable development. It must also be officially designated by the country's authorized institutions as a national sustainable development council.

MEXICO

The National Advisory Council for Sustainable Development (CCNDS) is a consultative entity of the Secretariat of Environment and Natural Resources (SEMARNAT). Its purpose is to secure the co-responsible participation of all of the society's sectors in promoting the protection, conservation and restoration of ecosystems, natural resources and environmental goods and services, in order to increase their sustainable use and development.

Democratically elected representatives from the various sectors of society participate in this entity, along with representatives from the federal executive branch and the national congress.

The Council's main functions are to:

- Advise SEMARNAT on the formulation, application and monitoring of national strategies for protecting the environment and optimizing the use of natural resources
- Formulate recommendations on specific policies, programmes and actions, making them responsive to social needs and consistent with existing law
- Analyse specific issues or cases submitted to it by the Secretariat or by the councils themselves
- Evaluate the results of policies, programmes and actions
- Coordinate with national mechanisms for citizen participation and similar mechanisms of other countries, in order to share experiences

The CCNDS addresses issues that SEMARNAT defines as priorities, regional and sectoral priorities with national significance, urgent environmental and natural resource issues of national and international importance, and issues that are identified by the Council and approved by the plenary body.

Information available at: http://consejos.semarnat.gob.mx/nacional.html.

IV. CONCLUSIONS

Nearly ten years after the approval of the Latin American and Caribbean Initiative for Sustainable Development, the ILAC indicators have been established as reference values for the region as a whole. Seven national reports have been published, and the data they provide have served as a baseline in formulating various national projects, while also serving as reference documents for decision-makers on a range of environmental matters. These documents are the result of technical work shared by the environmental bodies and national statistics agencies of the various countries, which have identified and analysed data that previously were dispersed throughout the different national offices.

The ILAC set of indicators covers a wide spectrum of issues, thus making it possible to construct a regional overview of sustainable development. Table 12 shows regional data and trends for the indicators considered in the present publication. By 2010, two of the established goals had already been met: 23% of the energy produced by the region now comes from renewable sources (target = 10%). The region's countries have also met the Montreal Protocol targets and have eliminated the consumption of CFCs within the established timeframe.

Table 12. Summary of Regional Data for the Agreed ILAC Indicators

INDICATOR	TREND	VALUE
1.1.1.1 Proportion of land area covered by forest	Downward	46% of the region's surface area; 95,558 hectares as of 2008
1.2.1.1 Proportion of terrestrial and marine areas protected	Upward	19.3% of the region's surface area, 4,571,453 km^2 as of 2009
2.1.1.1 Proportion of total water resources used	Steady	1.4% of the water resources used in 2000
2.3.1.1 Amount of fish catches	Variable	15,245,990 metric tons extracted in 2007
2.4.1.2 Proportion of population using improved sanitation facilities	Upward	74.67 % of the population has sustainable access to improved sanitation services
3.2.1.1 Amount of area affected by degradation	Steady	22.3% of the region's surface area, 4,572,788 km^2, was affected by some form of degradation in 1981-2003
3.3.1.2 Amount of carbon dioxide emissions	Mixed	In 1990-2006, the region's CO_2 emissions increased in absolute terms, though they diminished slightly as a proportion of GDP
3.4.1.1 Proportion of population using an improved drinking water source	Upward	87.9% of the region's population has sustainable access to improved sources of drinking water
3.7.1.2 Occurrence of natural disasters, by type of event	Upward	The number of persons affected by extreme temperatures, forest fires, drought, storms and floods rose from 5 million in the 1970s to over 40 million in the most recent decade
4.1.1.1 HIV/AIDS prevalence in persons aged 15 to 49 years	Slightly upward	As of 2009, nearly 1.24 million of the region's inhabitants are living with HIV
4.3.1.1. Proportion of urban population living in precarious settlements	Downward	23.5% of the region's population, close to 111 million people, live in precarious settlements
4.3.1.2 Proportion of people living on less than US$1 (PPP) per day	Downward	33% of the population, nearly 180 million people, live on the equivalent of less than US$1 per day
4.3.3.1 Social expenditure as a percentage of gross domestic product	Upward	In 2007-2008, nearly 18.4% of the region's public spending consisted of social spending
5.1.1.2 Renewable energy use as a proportion of total energy used	Upward	23.1% of the region's energy came from renewable sources in 2008
5.1.1.3 Energy use per US$1,000 of gross domestic product (PPP)	-	The region's energy intensity in 2007 was 134 kg of oil equivalent per US$1,000 of GDP (at 2005 prices)
5.2.1.1 Consumption of ozone-depleting chlorofluorocarbons	Downward	In 2009, the region consumed only 218.4 metric tons of substances that damage the ozone layer
5.2.2.2 Companies with ISO 14001 certification	Upward	4,793 companies had been certified under ISO 9001 as of 2009.
6.2.1.1 Net enrolment rate in primary school	Upward	As of 2008, 94.9 % of the region's children had access to primary education

It is not yet possible, however, to measure precisely the region's progress toward sustainable development, principally because of the lack of numerical data and quantitative goals. For example, biodiversity indicators show that despite the increase in the proportion of protected areas, the loss of large forested areas continues; and although water resource management is one of the key issues for Latin America and the Caribbean, the corresponding thematic area only reports on the increase in the number of people with access to sanitation and the low use of water resources as a percentage of the Region's total supply.

With regard to vulnerability, human settlements and sustainable cities, although it is clear that the number of hydrometeorological events in the region has increased in recent decades, there is no means of establishing the number of persons in the region – one of the world's most urbanized – living in vulnerable areas within cities.

As to the fourth thematic area, social issues, while poverty levels have diminished, as has the percentage of people living in precarious settlements, the spending that the countries devote to people's social needs is increasing.

Although the region's countries account for only 8% of the world's emissions of greenhouse gases (GHGs), the region as a whole emits more $C0^2$ per US$ million of production than do the OECD countries.[13]

In terms of the sixth thematic area, institutional arrangements, it should be theoretically possible to plot the region's progress on environmental governance; however, there are no indicators in place to provide quantitative data on this at the regional level. The only quantitative measure that currently exists for the entire region is the one showing the increase in the percentage of the region's children enrolled in primary school.

Despite the fact that the ILAC indicators have gained considerable recognition as a regional tool, the set of indicators needs to be revised and consolidated to provide an overview of sustainable development in the region. For example, some of the proposed goals should be revised to include reference values, so that it is possible to measure the direction of the indicator's trend, while also establishing nominal values to be reached within defined timeframes. Such quantitative definitions would allow for the possibility of identifying and implementing specific actions to achieve the goals.

The group of indicators would thus be able to show not only the temporal continuity of the region's environmental trends, but could also serve as a vital tool for decision-makers, providing credible, up-to-date scientific information as a basis for formulating national and regional policy on sustainable development, as well as for enhancing effectiveness in the use of resources.

13- Vital Graphics, UNEP and others, 2010.

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VI. ANNEX

ANNEX I –TABLE: SUMMARY OF ILAC INDICATORS

THEMATIC AREA 1. Biological diversity

GOAL	INDICATIVE PURPOSE	INDICATOR	STATUS
1.1 Increase land area covered by forest	1.1.1 Ensure the sustainable management of the region's forest resources, significantly reducing the current rate of deforestation	**1.1.1.1 Proportion of land area covered by forest**	AGREED
1.2 Increase amount of protected areas	1.2.1 Significantly increase the amount of regional land under protection, including under this category transition zones and biological corridors	**1.2.1.1 Proportion of terrestrial and marine areas protected**	AGREED
1.3 Genetic resources – establish equitable distribution of benefits	1.3.1 Adopt regulatory frameworks for access to genetic resources, as well as fair and equitable participation in the benefits derived from their use, consistent with the Convention on Biological Diversity	**1.3.1.1 Existence of laws and/or decrees and national regulations relating to access to genetic resources and distribution of their benefits**	AGREED
1.4 Ensure marine diversity	1.4.1 Ensure the appropriate use and conservation of marine resources, particularly the coastal-marine ecosystems, in the countries of the Caribbean Watershed	**1.2.1.1 Proportion of terrestrial and marine areas protected**	AGREED

THEMATIC AREA 2. Water resource management

GOAL	INDICATIVE PURPOSE	INDICATOR	STATUS
2.1 Improve water supply	2.1.1 Improve technology to increase efficiency in water use in industry, agriculture and for domestic consumption	**2.1.1.1 Proportion of total water resources used**	AGREED
2.1 Improve water supply	2.1.1 Improve technology to increase efficiency in water use in industry, agriculture and for domestic consumption	**2.1.1.2 Domestic water consumption per household or dwelling**	UNDER DEVELOPMENT
2.1 Improve water supply	2.1.2 Introduce modern technologies to desalinate sea water	**2.1.2.1 Amount of water desalinated**	EMERGING
2.1 Improve water supply	2.1.3 Integrate management of coastal aquifers to prevent the incursion of salt water	**2.1.3.1 Existence of Regulatory framework for the management of ground water**	EMERGING
2.2 Improve watershed management	2.2.1 Improve and strengthen institutional capacity for the integrated management of watersheds and aquifers, through, inter alia, the establishment of watershed committees, the participation of all governments at the sub-national level, civil society, the private sector and all concerned stakeholders	**2.2.1.1 Proportion of watersheds with management committees**	AGREED
2.3 Improve mgnt of coastal-marine areas and their resources	2.3.1 Implement action plans for the integrated management of coastal and ecosystem resources, with particular attention to the small island developing states	**2.3.1.1 Amount of fish catches**	AGREED
2.3 Improve mgnt of coastal-marine areas and their resources	2.3.2 Adopt a comprehensive and integrated approach to management of the Caribbean Sea, by developing a comprehensive protection and management strategy	**2.3.2.1 Projects or amount of money directed towards improving the management of the Caribbean Sea and coastal areas**	EMERGING
2.4 Improve the quality of inland waters	2.4.1 Improve the quality of effluents and reduce the discharge of contaminants into surface and underground bodies of water and into coastal waters	**2.4.1.1 Percentage of effluent that is collected and treated**	EMERGING
2.4 Improve the quality of inland waters	2.4.1 Improve the quality of effluents and reduce the discharge of contaminants into surface and underground bodies of water and into coastal waters	**2.4.1.2 Proportion of population using improved sanitation facilities**	AGREED

THEMATIC AREA 3. Vulnerability, human settlements and sustainable cities

GOAL	INDICATIVE PURPOSE	INDICATOR	STATUS
3.1 Improve land-use planning	3.1.1 Implement land-use plans and policies, from the perspective of sustainable development	**3.1.1.1 Proportion of national territory with land use plans**	AGREED
3.1 Improve land-use planning	3.1.2 Incorporate instruments for risk management in land-use planning	**3.1.2.1 Annual change in land use**	AGREED
3.2 Reduce amount of area affected by degradation	3.2.1 Significantly reduce the regional land area prone to erosion, salinity and other soil degradation processes	**3.2.1.1 Amount of area affected by degradation**	AGREED
3.3 Reduce air pollution	3.3.1 Reduce the concentration of polluting emissions in the air	**3.3.1.2 Amount of carbon dioxide emissions**	AGREED
3.4 Reduce water pollution	3.4.1 Expand the coverage of drinking water services and the treatment of waste water	**3.4.1.1 Proportion of population using an improved drinking water source**	AGREED
3.4 Reduce water pollution	3.4.1 Expand the coverage of drinking water services and the treatment of waste water	**3.4.1.2 Proportion of population using improved sanitation facilities**	AGREED
3.5 Reduce generation of solid waste	3.5.1 Significantly reduce the generation of solid waste (domestic and industrial) and promote measures such as recycling and reuse	**3.5.1.1 Proportion of population with access to garbage collection services**	AGREED
3.5 Reduce generation of solid waste	3.5.2 Implement integrated solid waste management, including treatment and appropriate final disposal	**3.5.2.1 Collection and appropriate disposal of urban solid waste**	AGREED
3.6 Reduce vulnerability to disasters caused by natural phenomena or human activity	3.6.1 Implement and strengthen regional cooperation mechanisms for risk management and mitigation of anthropogenic disasters and those caused by natural phenomena, including the establishment of a regional early-warning system and the formation of rapid-response teams	**3.6.1.1 Existence of National Emergency Commissions and rapid-response teams**	AGREED
3.7 Reduce vulnerability and improve risk management	3.7.1 Refine and implement vulnerability indicators	**3.7.1.1 Proportion of population living in high-risk areas**	EMERGING
3.7 Reduce vulnerability and improve risk management	3.7.1 Refine and implement vulnerability indicators	**3.7.1.2 Occurrence of natural disasters, by type of event**	AGREED
3.7 Reduce vulnerability and improve risk management	3.7.2 I Incorporate indicators in the national development plans	**3.7.2.1 To be determined**	————

THEMATIC AREA 4. Social issues, including health, inequality and poverty.

GOAL	INDICATIVE PURPOSE	INDICATOR	STATUS
4.1 Improve health and reduce environmental risks to health	4.1.1 Implement comprehensive measures to control and reduce the spread of the AIDS virus, including the development of a coordinated approach to research, education, treatment and access to retroviral drugs	**4.1.1.1 HIV/AIDS prevalence in persons aged 15 to 49 years**	AGREED
4.1 Improve health and reduce environmental risks to health	4.1.2 Implement policies and plans to reduce the risk of harmful environmental effects on health, particularly waterborne diseases, vectors, atmospheric pollution and exposure to chemical substances	**4.1.2.1. Rate of morbidity attributable to acute respiratory diseases**	AGREED
4.1 Improve health and reduce environmental risks to health	4.1.2 Implement policies and plans to reduce the risk of harmful environmental effects on health, particularly waterborne diseases, vectors, atmospheric pollution and exposure to chemical substances	**4.1.2.2 Rate of morbidity attributable to waterborne diseases**	AGREED
4.1 Improve health and reduce environmental risks to health	4.1.3 Increase the number of green and safe areas per capita	**4.1.3.1 Hectares of green urban areas in relation to size of urban population**	UNDER DEVELOPMENT
4.2 Promote environmental policies and job creation	4.2.1 Promote the formulation and implementation of sustainable development programmes and projects that help create jobs and prevent migration and uprooting	**4.2 1.1 Sustainable development projects or programmes and total number of persons involved in these projects**	EMERGING
4.2 Promote environmental policies and job creation	4.2.1 Promote the formulation and implementation of sustainable development programmes and projects that help create jobs and prevent migration and uprooting	**4.2.1.2 Creation of jobs in sustainable development programmes**	EMERGING
4.3 Reduce poverty and inequality	4.3.1 Drastically reduce poverty levels in the region's countries	**4.3.1.1. Proportion of urban population living in precarious settlements**	AGREED
4.3 Reduce poverty and inequality	4.3.1 Drastically reduce poverty levels in the region's countries	**4.3.1.2 Proportion of people living on less than US$1 (PPP) per day**	AGREED
4.3 Reduce poverty and inequality	4.3.2 Create ways to live sustainably, through the development of microenterprises	**4.3.2.1 Rate of growth in the number of small enterprises**	EMERGING
4.3 Reduce poverty and inequality	4.3.3 Formulate and implement strategies for women, youth, indigenous people, Afro-descendant communities and other minority groups of the region, based on fundamental human rights and freedoms	**4.3.3.1 Social expenditure as a percentage of gross domestic product**	AGREED

THEMATIC AREA 5. Economic issues, including competitiveness, trade, and production and consumption patterns.

GOAL	INDICATIVE PURPOSE	INDICATOR	STATUS
5.1 Increase use of renewable energy	5.1.1 Increase the use of renewable energy in the region to at least 10% of total energy use by 2010	**5.1.1.1 Proportion of population using solid fuel**	EMERGING
5.1 Increase use of renewable energy	5.1.1 Increase the use of renewable energy in the region to at least 10% of total energy use by 2010	**5.1.1.2 Renewable energy use as a proportion of total energy used**	AGREED
5.1 Increase use of renewable energy	5.1.1 Increase the use of renewable energy in the region to at least 10% of total energy use by 2010	**5.1.1.3 Energy use per US$1,000 of gross domestic product (PPP)**	AGREED
5.2 Promote cleaner production	5.2.1 Establish Cleaner Production Centres in all the countries of the region	**5.2.1.1 Consumption of ozone-depleting chlorofluorocarbons**	AGREED
5.2 Promote cleaner production	5.2.2 Incorporate the cleaner production concept in a significant percentage of major industries, with emphasis on small- and medium-sized industries	**5.2.2.2 Companies with ISO 14001 certification**	AGREED
5.3 Create beneficial economic instruments	5.3.1 Establish an economic incentive system for productive and industrial processing projects that preserve natural and energy resources, and bring about a reduction in effluents released into water, land and air	**5.3.1.1 Existence of economic instruments implemented by the country**	AGREED

THEMATIC AREA 6. Institutional arrangements.

GOAL	INDICATIVE PURPOSE	INDICATOR	STATUS
6.1 Improve environmental education	6.1.1 Improve and strengthen incorporation of the environmental dimension in formal and informal education, in the economy and in the society	**6.1.1.1 Existence of environmental education programmes in schools**	EMERGING
6.2 Educate and train human resources	6.2.1 Eradicate illiteracy and make enrolment in basic and secondary education universal	**6.2.1.1 Net enrolment rate in primary school**	AGREED
6.2 Educate and train human resources	6.2.2 Develop capacities to deal with vulnerability in the region	**6.2.2.1 National Emergency Commissions on Disaster Prevention, by province, canton and district**	EMERGING
6.2 Educate and train human resources	6.2.3 Establish programmes for the creation of capacities in sustainable development management, for the public and private sector, and at the community levels	**6.2.3.1 Hours of instruction in environmental science in primary schools**	EMERGING
6.3 Implement evaluation measures and adopt indicators	6.3.1 Develop and implement an evaluation process to monitor progress towards achieving sustainable development and meeting the goals set forth in the Johannesburg Plan of Action, adopting sustainability indicator systems at the national and regional levels that address the social, economic and political characteristics of the region	**6.3.1.1 Reports on the state of the environment**	AGREED
6.3 Implement evaluation measures and adopt indicators	6.3.1 Develop and implement an evaluation process to monitor progress towards achieving sustainable development and meeting the goals set forth in the Johannesburg Plan of Action, adopting sustainability indicator systems at the national and regional levels that address the social, economic and political characteristics of the region	**6.3.1.2 Existence of an environmental statistics system**	AGREED
6.4 Increase participation by the society	6.4.1 Create and strengthen participation mechanisms in the areas of sustainable development, with governmental and non-governmental representation and participation by the major groups in each of the region's countries	**6.4.1.1 Existence of national councils for sustainable development**	AGREED

The Latin American and Caribbean Initiative for Sustainable Development (known by its Spanish acronym ILAC) was approved in 2002 during the First Extraordinary Meeting of the Forum of Environment Ministers of Latin America and the Caribbean, held in the framework of the World Summit on Environment and Sustainable Development in Johannesburg.

ILAC includes a comprehensive group of indicators covering topics related with biodiversity, human development, human settlements, institutional responses and consumption and production patterns, among others.

This publication presents the progress of Latin America and the Caribbean in terms of sustainable development and also shows environmental trends on which urgent attention should be paid.

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