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Images from space enhance UN efforts to promote sustainable development on Earth



Soil erosion and deforestation shown in the mountains of Guatemala's Quiche province

14 December 2010 – From shrinking glaciers and forests to the ravages of mining and urban sprawl, the United Nations is using satellites in space to help chart a course for sustainable development on Earth with an ecological map of the world's most biologically diverse region, Latin America and the Caribbean.

The map, "Latin America and the Caribbean – Atlas of our changing environment," released today by the UN Environment Programme ([UNEP](#)), combines over 200 precise and striking satellite images with analysis based on rigorous data in the first effort to examine changes taking place in the region's environment.

"The Atlas is an indispensable tool in formulating the future actions and public policies needed to achieve more sustainable development in the region," UNEP said in a [news release](#).

It is the latest in a series coordinated by UNEP, and the agency's Executive Director Achim Steiner stressed that "the stark reality they portray" can catalyze action on the ground, citing the impact of the African atlas in Mali, where a project to restore the lost Lake Faguibine is now underway.

“It is hoped that this new addition to the growing UNEP stable of atlases can have a strong and positive impact in terms of catalyzing a more sustainable future development path in Latin America and the Caribbean, and in the life of its people,” he writes in a forward to the new map.

The images show that the region’s richness of environments, ecosystems, species and landscapes is under considerable pressure from economic development models that, while leading to growth, have also produced significant social and environmental changes – from rapid urbanisation, often without adequate planning, in San José in Costa Rica and San Salvador in El Salvador to deforestation in Brazil, Bolivia, Mexico, Guatemala and Haiti.

The effects of climate change are evident in satellite images of glaciers in Chilean and Argentine Patagonia, and the impact of mining is illustrated through pictures of La Guajira in Colombia and Cerro de Pasco in Peru. High-resolution images show the impact of January’s earthquake in Haiti, as well as changes in land use, loss of biodiversity and degradation of coastal areas throughout the region.

Among its key findings, the Atlas notes that the absence of proper urban and land-use planning has created major problems in cities, which are the most compact in the world with the highest-density urban centres and present challenges such as waste management and waste water treatment.

Although the region still has areas of lush vegetation, land degradation such as desertification and the erosion of soils and coastlines is evident throughout the continent. Desertification currently affects more than 600 million hectares in arid, semiarid and sub-humid areas, equivalent to more than two thirds the size of Brazil, the region’s largest country.

In other profound changes, major food crops such as potatoes, cassava, rice and wheat have decreased on a per capita basis, while there has been an increase in crops used for industry, fuel and animal feed.

The region accounts for more than 30 per cent of all available fresh water on the planet and nearly 40 per cent of its water resources are renewable, but the pressure exerted by agricultural use has increased steadily since mid-1990; total irrigated area doubled between 1961 and 1990.

A large percentage of the region’s population and economic activities are concentrated in coastal areas, and tourism, unplanned urban sprawl, urban and industrial waste water, and aquaculture are among the factors responsible for the degradation of coastal ecosystems such as mangroves, wetlands and coral reefs.

As for deforestation, the region lost some 43,500 square kilometres each year between 2000 and 2005, equivalent to an annual loss greater than the surface of Switzerland, according to the UN Food and Agriculture Organization ([FAO](#)), with the most severe incidence in the Brazilian Amazon, although recent efforts have reduced the annual rate loss there.

The number of people affected by floods, droughts and other meteorological events has also increased since 2000, with some 20 million people affected between 1995 and 2006, particularly by hurricanes.

“While this Atlas shows the stark realities of how our region has changed over the past few decades, we should also be inspired to discover creative solutions to problems of resource use,” says Emilio Sempris, Director of Water Center for the Humid Tropics of Latin America and the Caribbean, an international organization set up in 1992 to promote sustainable development, which joined UNEP in developing the survey.

“In considering those challenges, it is promising to note that the governments of Latin America and the Caribbean are by and large very much engaged in the major environmental conventions which emerged from the 1992 Earth Summit held in this very region (in Rio de Janeiro),” he adds in a preface to the Atlas.

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