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The Permanent Mission of Brazil to the United Nations presents its compliments to the Office of the Secretary-General and the Department of Economic and Social Affairs and has the pleasure to submit herewith Brazil's inputs to the Secretary-General's Report on the importance of protecting coral reefs and related ecosystems for sustainable livelihoods and development, including an analysis of the economic, social and development benefits of protecting coral reefs, in the context of the themes and objectives of the 2012 United Nations Conference on Sustainable Development, to be considered during the sixty-sixth session of the United Nations General Assembly.

The Permanent Mission of Brazil avails itself of this opportunity to renew to the Office of the Secretary-General and the Department of Economic and Social Affairs assurances of its highest consideration.

New York, 5 August 2011.



Brazil's contribution to the Secretary-General's Report on the importance of protecting coral reefs and related ecosystems for sustainable livelihoods and development

August 5, 2011

Brazil has the only reef environments of the entire South Atlantic. They are present along 3,000 km of the northeastern coast, and are an important source of food, tourist potential and income, in addition to protecting the coastal areas in the region.

Most of the coral species that make up these reefs are endemic to Brazilian waters, where they contribute to the formation of structures that are not found anywhere else in the world. Of the more than 350 existing coral species in the world, at least twenty of them are found in Brazil, and eight are endemic. This fact lends Brazil's reefs the highest proportion of coral endemism of the planet.

Among the various impacts that threaten the Brazilian reefs are sedimentation from the rivers that are becoming increasingly silted, with growing burning and felling of its ciliary forests, chemical and organic pollution, predatory fishing activities and even unplanned tourism.

Considering the importance of these environments and the vulnerability to the various anthropic impacts occurring on the coastal zone, the Directorate of the National Protected Areas Program (DAP) began, in 1999, to implement the program "Coral Reef Protection in Brazil".

The program's first initiative was the development of the project "Studies of the Brazilian coral reefs: training and application of remote sensing mapping techniques". This project was developed together with the National Institute for Space Research- INPE- and the Coastal Reefs Project to map reefs existing within the limits of the various conservation units in the Brazilian Northeast. To do so, the support of Wetlands for the Future, a financing initiative of the Ramsar Convention was essential. This activity led to the capacity building of managers and technical personnel from the conservation units using remote sensing and georeferencing tools for mapping and management of coralline areas.

National Institute for Space Research (INPE)

The Directorate of Protected Areas from the Ministry of the Environment (DAP/MMA) has been making an effort to map Brazilian reefs. INPE, through researchers of the HIDRO Program Marine Ecosystems Research Area, of the Remote Sensing Division (DSR/OBT), and the Image Processing Division (DPI/OBT), acting in partnership with the Directorate for Protected Areas of the Ministry of Environment (DAP/MMA), has

assisted in the efforts of mapping Brazilian Reefs using geotechnologies. In particular, it contributed to the training and capacity building of managers of conservation units in the use of orbital images and geographical information systems for mapping coastal and oceanic reefs in Brazil. In addition to disseminating remote sensing techniques and products, the project contributes to increasing knowledge of the localization and distribution of reef formations in the Brazilian territorial sea.

There remains the possibility of generating more information based on the use of the potential provided by geotechnologies and especially by the program for processing images and SPRING (DPI/OBT-INPE), an open-source geographical information systems made available for public distribution at no cost. Only the basic interfaces for digital processing of images were used in this study, much still needs to be explored in terms of improving conditions of visual interpretation. We can mention, for example, the technique of panchromatic band fusion, with greater spectral resolution, of the ETM+ sensor onboard the Landsat-7 satellite. The strategic vision of the HIDRO Program for the short and long term foresees the development of spatial models for environmental diagnosis, with potential for using it to quantify the modifications of the coastal landscape that could influence the ecological integrity of the reef communities.

The Coastal Reefs Project

The "Integrated Management Initiative for Coastal Reefs"- the 'Coastal Reefs Project'- began in February 1998 with an expected duration of four years. One of its objectives was the provision of a scientific foundation and of technical assistance to develop a management plan for the Environmental Protection Area (EPA) of Costa dos Corais, and thus promote the conservation of the marine and coastal biodiversity and the sustainability of economic activities that depend on the coastal resources of this area and, consequently, improve the living conditions of local populations. The project is the result of a joint effort of the Federal University of Pernambuco (UFPE) Oceanography Department, the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the Manatee Center, the EPA of Costa dos Corais, and the area's thirteen local governments.

The various interdisciplinary activities required and foreseen during the development of the Project are divided into three components: development of local management structures; generation of scientific information for drafting the management plan of the Environmental Protection Area; and community capacity building and environmental education.

Furthermore, the Coastal reefs Project has supported, through partnerships, the various initiatives developed by the Ministry of the Environment, in order to extend conservation activities developed within the EPA of Costa dos Corais to other Brazilian units.

Program for Monitoring Brazilian Reefs

Until 2002, when the second "Status of Coral Reefs of the World: 2000" (Wilkinson, 2000) was published, Brazil had not yet established a national coral reef monitoring network. Although several impacts are well known, particularly on the coastal reefs, and that there is installed capacity in several cases, the absence of a global monitoring program compromises the evaluation of the state of conservation of Brazilian reefs, particularly with regard to global climate change, as well as the dissemination of their importance.

Reversal of this situation began in 2002 with the approval of the "Monitoring of Brazilian Coral Reefs" subproject, coordinated by the Department of Oceanography of the Federal University of Pernambuco with the support of the Coastal Reefs Project and the Center for Research and Management of Fishery Resources of the Northeast Littoral (CEPENE)/IBAMA. The objective of the project, which has the participation of several researchers from other institutions, is to establish the foundation for implementing a national monitoring program for coral reefs in Brazil and also to coordinate and involve the conservation units existing in these environment in establishing a national monitoring program.

The methodology selected by the Project for the Conservation and Sustainable Use of Brazilian Biological Diversity (PROBIO) for the pilot monitoring program was Reef Check, due to its voluntary and participatory nature. The Global Coral Reef Monitoring Network (GCRMN) recommends that the monitoring data be applicable to management strategies and that the community be involved in the process, since the act of collecting information and observing trends is a powerful tool for disseminating the importance of management and conservation of ecosystems.

Conservation Units

Currently, nine conservation units of this ecosystem have been created in Brazil, including municipal, state and federal units. The State Marine Park of Parcel de Manuel Luiz in the state of Maranhão was designated as a Ramsar site in 2000. In 2001, the Biological Reserve of Atol das Rocas and the National Marine Park of Fernando de Noronha were recognized as Natural World Heritage Sites.

In Brazil, the establishment of specially protected land areas in all the states of the country is the constitutional responsibility of the government. This responsibility was strengthened with the enactment of Law No. 9,985 dated July 18 2000, instituting the National System of Conservation Units, which brought together all existing instruments and regulations on the issue, constituting a framework for the creation, implementation, consolidation and management of these units. With the integration of the various units, the Federal Government joins state and local governments in providing better protection of the environment in Brazil.

Conservation units are distributed along the entire Brazilian coastline and include nearly all the country's oceanic islands, representing a broad system, with different management categories at the three levels of government.