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International Cooperation on World Heritage
Reinforcing management and protection of the world heritage sites

Better information for better management

Following the thirtieth anniversary of the World Heritage Convention, Belgium entered a fascinating decade of collaboration with the Unesco World Heritage Centre. The aim was to make Belgian expertise available to assist the signatories with the development of the necessary capacity to manage world heritage sites through the use of innovative technologies (remote sensing, GIS and GPS, 3D modelling) to support the conservation of cultural and natural sites. The Belgian Science Policy Office and the World Heritage Centre signed an agreement to that end in November 2002.

During the past decade interdisciplinary teams composed of Belgian research institutions and private companies collaborated with various international and local bodies and the World Heritage Centre in following domains: the mapping and monitoring of remote, endangered natural world heritage sites that were difficult to access (Congo), the development of an advanced information system for a "mixed" world heritage site (site of exceptional cultural and natural value) in Mexico, the establishment of a multi-lingual system for collecting and managing documentation to prepare the nomination of a cross-border site for the World Heritage List (the Central Asian part of the South Route).

The Science Policy Office funds demonstration projects at a regional level as well as the World Heritage Centre. These efforts are backed by initiatives within the frame of the national programme for remote sensing, STEREO (KABAR and UNESCO-WATCH projects, Satellites and World Heritage exhibition). Attention was paid in particular to promoting world heritage to the public, more specifically to young people.

Guarding tropical rainforests

The Unesco World Heritage Committee not only decides on inscribing nominated sites on the World Heritage List. It must also monitor the situation of the world heritage sites, identify possible threats (urban or agricultural development, conflict, natural disaster or the effects of global warming) and propose counteractive measures.

Tropical forests often span vast areas and are difficult to access. Consequently, it is difficult to monitor their situation and assess how well they have been conserved. In 2009 this had been done for just over 15% of the 97 registered forest world heritage sites.

A semi-automatic tool is required to detect changes in order to enable Unesco to improve managing this natural world heritage. Scientists of the UC Louvain used funding provided by the STEREO programme of the Belgian Science Policy Office to develop a system founded satellite images and expert knowledge.

The scientists selected 15 tropical forests of different types (from mangroves to mountain forests), size (from less than 150,000 ha to over 5,000,000 ha) and location (the entire tropical forest belt is represented). An exceptional biodiversity distinguishes the sites selected and it is often the case that they accommodate unique animal species, such as the giant panda in Sichuan, the jaguar in Calakmul or the gorilla in Virunga.

The UNESCO-WATCH project was started from an extensive collection of 850 satellite images which were taken in three periods (1990, 2000 and 2010) by various sensors. Tropical forests are often shrouded in mist, which means a complete overview of the territory can only be obtained by combining a large number of images.

The challenge is to develop a system which, despite the variety of the sites and the fact that the data are generated by different sources, enables

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↑ *Giant panda reserve in Sichuan.*

one to make maps at regular times, in order to show what has changed in the forests. With this system, Unesco and the local managers have at their disposal a tool that reflects the in situ situation in an objective way, so that a relevant policy can be elaborated.

The system that has been developed can also serve other purposes. For example, it can benefit the REDD+ initiative, which is aimed at putting a stop to deforestation and at increasing the capacity to store carbon dioxide by rewarding those countries that preserve their forests and practice sustainable forestry. A sound monitoring of the changes in and around the forests is of great importance for this purpose in view of proper management and efficient measures.

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