LES ACTIONS DE LA DGCD — DE ACTIVITEITEN VAN DE DGOS

DGCD'S ACTIVITIES — LAS ACTIVIDADES DEL DGCD

# DEVELOPMENT CO-OPERATION PRIZE

The Development Cooperation Prize is annual incentive prize - financed by the Belgian Development Cooperation (DGDC) and organized by the Royal Museum for Central Africa - for students and young researchers, from Belgium or developing countries, whatever their discipline. The prize is awarded to scientific works that contribute significantly to knowledge that can be applied to development in the South. Sustainable development is to be their principal aim and poverty alleviation a priority. The prizes are attributed to Bachelor's and Master's theses, postgraduate papers, Ph.D. theses, or publications in scientific journals.

In the course of the years of the prize existence, the fields represented among the participants has remained more or less stable: the majority of files represent the exact sciences - with a very large share originating from the agricultural and applied biological sciences, followed by the human sciences and biomedical and veterinary sciences.

The prize is granted to maximum 14 students and 6 researchers and consists of an award of 1.250 € for students and 2.500 € for young researchers. Since 1998 the awards have been handed over by the Minister for Development Cooperation during a ceremony in the Royal Museum for Central Africa. The laureates from abroad are invited to Belgium especially for this occasion. Many use their stay in Belgium to establish or renew contacts with the Belgian academia in thier fields of interest.

Two abstracts regarding the accomplishment of laureates from Uganda and Bolivia awarded in 2005 are presented below.

## 'Land Evaluation around Lake Victoria: Environmental Implications of Land Use Change'

Moses Isabirye*

Lake Victoria is the largest lake in Africa, located on the borders of Kenya, Tanzania and Uganda – three of the world's lowest ranking countries in terms of economic development. The sites studied in this D.Sc. thesis are located to the north (Mayuge District) and northwest (Rakai District) of the lake, and are inhabited by poor farmers and fishermen (monthly family expenditure about € 54), more than half of whom are under the age of 15. In this context, typical of Uganda and other developing countries, Dr. Isabirye's doctoral research contributed to the knowledge about the eutrophication phenomenon in Lake Victoria, with particular attention to interaction between agricultural systems and the lake.

This doctoral study is highly relevant to the development, as evidenced by the fact that it was carried out within the context of the Lake Victoria Environmental Management Project. This regional project, in which the three countries concerned join forces, covers a broad range of elements relevant to the local environment and to the development of the local inhabitants: reforestation, management of natural, industrial and municipal land use, water (eco)system management, water quality monitoring, control of the invasive water hyacinth, fisheries research and management, small development projects for the local population and support for the universities located around Lake Victoria. The contribution from Dr. Isabirye, an employee himself of the National Agricultural Research Organization and the Kawanda Agricultural Research Institute, focuses on land use in Uganda. He not only diagnosed the environmental risks posed to the lake by small farms, but also created a scientific basis for land use management with the lowest possible risk of polluting the lake.

*Ugandees, Bachelor of Agricultural Sciences, Makerere University, Kampala, Uganda.
Master of Soil Science, International Institute for Aerospace Survey and Earth Sciences, Enschede, Netherlands, 1997.
Doctor of Applied Bioscience, Katholieke Universiteit Leuven, Belgium, 2005.
isabiryemoses@yahoo.com

In general, the author's assessment is that the areas studied are under pressure to produce crops, fuel and wood for the rural populations and that this pressure is unlikely to diminish. On the other hand, the author believes that farming is highly unlikely to contribute to eutrophication and changes in the lake, in terms of agrochemicals (rarely used), herbicides (low retention time in soil and water) and erosion (inhibited by mulching or by the structure of the agricultural fields and wetland vegetation). Certain aspects require further research, however, and Dr. Isabirye proposes a series of themes relevant to development for scientific research and policy.
The only remaining task for the author is to publish his scientific results in peer-reviewed journals, in order to vouch for the high quality of this study.

## 'Trophic Relations and Nutrient Recycling in a Tropical Floodplain Lake'

Danny Rejas Alurralde*

A great deal is already known about the ecological function of lakes, rivers and alluvial tributaries in our moderate climatic zone. However, when it comes to such systems in tropical environments, our knowledge is far more limited and occasionally even non-existent. Nevertheless it is very important for us to have a better understanding of how the food web works in tropical aquatic systems in order to organize fishing in a sustainable way. Fish are an essential part of the daily nutrients required in tropical regions.
This is why Danny Rejas Alurralde decided to study the ecosystem and in particular the food pyramid in Laguna Bufeos in the alluvial plains of the River Ichilo in Bolivia for his Ph.D. Laguna Bufeos is an oxbow lake created when a bend in the river was cut off following a natural or anthropogenic straightening of the river bed. The food pyramid in a small lake like Laguna Bufeos comprises the classical transfer of nutrients of phytoplankton (algae) to zooplankton, to herbivorous fish (plant-eaters) and predatory fish (fish-eaters) on the one hand, and on the other the microbiological loop that works in the opposite way: instead of converting organic matter into a higher level organism, dead plankton and possibly organic material from outside are transformed into a solution of inorganic nutrient substances.
Since there is a high level of fish production in Laguna Bufeos (about 11 g carbon per sq. m. per year) this must be based on a high level of plankton and/or microbial production. However, neither contribute very much towards the production of fish (only 0.82 g carbon per sq. m. per year).
Measurements and experiments led Danny Rejas Alurralde to conclude that most organic substances are transferred from the bottom to the top of the food web by way of short chains. About 90% of the transfer fluxes in the food web at Laguna Bufeos appear to move directly from the detritus to the fish. This detritus is a mixture of coarse organic waste that includes dead phytoplankton, bacteria and plants.

*Bolivian, Licenciate in biology, Universidad Mayor de San Simón, Cochabamba, Bolivia, 1997.
Master in Biology, Katholieke Universiteit Leuven, Belgium, 1999.
Ph.D. in Biology, Katholieke Universiteit Leuven, Belgium, 2004.
drejas@supernet.com.bo