

LES ACTIONS DE LA DGCD

DE ACTIVITEITEN VAN DE DGOS

DGDC'S ACTIVITIES

LAS ACTIVIDADES DEL DGCD

Prize of the Belgian Development Cooperation

The Prize of the Belgian Development Cooperation Prize is an 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. 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 Master's theses, Ph D theses, or publications in scientific journals.

From the edition 2010 onwards, the Prize is organized around a central theme. For 2010 this theme was "Biodiversity and Environment for Improved Livelihoods".

The prize consists of a line of credit which can be used for the continuation of research activities or for career development (participation in seminars, training, ...) and amounts per laureate to:

1. EURO 5.000 in the category of the students linked to a Belgian university
2. EURO 5.000 in the category of the students linked to a university from a partner country
3. EURO 15.000 in the category of the young researchers linked to a university/research institute in a partner country

The prize is granted to maximum 3 laureates (1 per category).

In the framework of this year's Prize, the works of 4 Belgians and 6 students and researchers from the South have been nominated among a large number of applications. The nominees from the South were invited to Belgium on this occasion. All nominees had to present their work orally in front of a jury, who then selected one prize-winner in each category.

The prize-winners for 2010 are:

- in the category of the students linked to a Belgian university: Sarah Haesaert, with her Master's thesis "Applied ethnobotany: identification, use and the socio-economic importance of wild edible plants among the Turumbu (Democratic Republic of Congo, Tshopo district)
- in the category of the students linked to a university of a partner country: Joseph Macharia, with his Master's thesis, "Status and the potential of stingless bees (*Apidae: Meliponinae*) for forest conservation and income generation: case study of Kakamega forest"
- in the category of the researchers linked to a university/research institute in a partner country: Mohamed Omar Said Mohamed, with his Ph D thesis « Are peri-urban mangrove forests viable? Effects of sewage pollution and wood exploitation on the structure and development of the mangroves of Mombasa (Kenya)".

Three abstracts regarding the accomplishment of the laureates from Benin, Kenya and Belgium awarded in 2010 are presented below.

"Importance socio-économique et étude de la variabilité écologique, morphologique, génétique et biochimique du baobab (*Adansonia digitata* L.) au Bénin"

The social and Economic Importance of the Baobab (*Adansonia digitata* L.) and a Study of its Ecological, Morphological, Genetic, and Biochemical Variability in Benin

Achille Ephrem Assogbadjo

This doctoral thesis fits into the overall framework of the conservation and sustainable management of Africa's multipurpose woody species. The study is an analysis of the productivity and morphological, ecological, genetic,

and biochemical variability of one of the woody resources found in Benin: the African baobab (*Adansonia digitata*), an idolized, sacred tree whose roots, bark, flowers, fruit pulp, seeds, and leaves are used by the native population. The baobab has many nutritional and therapeutic uses, and is an integral part of traditional agroforestry systems. Baobab products are sold regionally, thus providing income for the local population. The morphological features and biological behavior of the species vary with the tree population and its distribution in Benin's different climatic zones, thus making it possible to establish correlations between environmental parameters and some botanical, physiological, and agricultural features of the baobab. Genetic studies, based primarily on molecular characteristics, show pools of genes grouped according to the region of origin, although variations are greatest within a same group rather than between different tree populations. Some morphological features such as the height of the tree and the number of branches are correlated with the genetic diversity of the individuals examined. The biochemical composition of the tree's organs does not depend on the area in which it grows. Conversely, the physicochemical soil characteristics may significantly affect the mineral, vitamin, carbohydrate, protein and fat content of leaves, pulp and seeds. Proper germination requires that seeds be kept less than three months and be scarified before sowing.

The results of this study form a most useful contribution to the domestication of this woody species and to maintenance of its diversity in its natural environment as well as to the development of new methods of baobab management within traditional agroforestry systems in savanna regions. This research will also help to derive fuller benefits from this species' many properties, thanks to the ethnobotanical information collected from rural communities.

This study may serve as a model of an integrated approach to the management of a multipurpose plant resource, valid for other woody species present in the same habitat as the baobab, and may be extrapolated to other ecologically similar West African countries.

“Status and the Potential of Stingless Bees (Apidae: Meliponinae) for Forest Conservation and Income Generation: Case Study of Kakamega Forest”

Joseph Macharia

As pollinators bees play an invaluable role in protecting biodiversity and in the cultivation of many types of crop. The Kakamega forest, an important habitat for the stingless bee in Kenya, is under threat from human activity (which includes logging for firewood and construction, hunting, etc.). Despite policy measures to protect the forest, these activities continue, not least because the local population has few other means of livelihood.

The main objective of Joseph Kimunge Macharia's study was to show, by means of a case study, how conservation areas can be better managed in collaboration with the local community, based on the economic advantages that conservation gives them. He explains clearly how protecting biodiversity goes hand in hand with poverty alleviation and economic development in rural areas. He examines the conservation status and characteristics of the stingless bee in the Kakamega forest, the composition and antibacterial activity of the honey, and searches for methods that would facilitate the domestication of these bees. He focuses on the medicinal use of their honey, since as yet no international quality standards have been developed for stingless bee honey as a food product. This requires further research into the properties of the honey. In the meantime a honey database has been set up to further the study of the composition of honey produced by Kenya's various types of stingless bee.

Throughout his thesis Macharia makes constant reference to the knowledge and experience of the local community and the possibilities for economic diversification that meliponiculture would offer them. This is vital if sustainable methods of stingless beekeeping are to be developed, for ultimately it is the local community who must be involved in the daily conservation of the forest and the bee.

Macharia's study is not only a significant initiative in potentializing meliponiculture but also contributes to the protection of these insects, which play a crucial part in the pollination of agricultural crops and native plants. And in so doing, it also contributes indirectly to a better conservation of the forest in the studied area.

“Toegepaste etnobotanie: identificatie, gebruik en socio-economisch belang van wilde eetbare planten bij de Turumbu (DR Congo, district Tshopo)”

Applied Ethnobotany: Identification, Use and Socio-Economic Importance of Wild Edible Plants Among the Turumbu (Democratic Republic of Congo, Tshopo District)

Sarah Haesaert

The 1987 Brundtland Commission Report defines ‘sustainable development’ as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’. Sustainability addresses the depletion of resources through which prosperity is created both now and in the future. The sustainable use of forest or of fishing grounds means that no more wood or fish can be extracted than are replaced by natural growth.

Sustainable development strives for balance between ecological, economic and social concerns. This project involved a thorough study of the identification, use and socio-economic importance of wild edible plants among the Turumbu in the Democratic Republic of Congo. The main activity of the Turumbu is farming. To provide additional food and income they also collect wild edible plants, mushrooms, caterpillars and honey, and also hunt, fish and breed cattle.

This was a participatory project, which means that the selection of wild edible plants was made together with the community, for it is in the first instance the villagers who know which plants are important to them. Three villages in the Turumbu territory were chosen, sufficiently far apart, consisting of a sufficient number of households and with a community unmixed with other ethnic groups. At the start of the project much effort was made to gain the villagers’ trust and local customs and sensibilities were specifically taken into account. This was achieved by way of closely framed questionnaires that sounded out the family’s socio-economic circumstances and farming activity. Plants were collected using simple means and always with the help of a number of villagers.

Further taxonomic identification and processing of the results were carried out according to ethnobotanical research methodology. The research showed that the relationship between wild edible plants ‘for personal consumption’ and ‘for sale’ not only depends on the village (distance from Kisangani) but also on the household’s total income and whether or not they hunt.

In the context of ‘biodiversity and environment for a better life’ this research has shown that the Turumbu are prepared to domesticate wild edible plants that are in the top ten for auto-consumption and sale. Therefore these plants will no longer be collected on a large scale in the forest. One such economically important plant is the vegetable *Gnetum africanum*. Its overexploitation leads to a rapid degradation of the forest. Its domestication will reduce the pressure on the forest and increase economic possibilities and food security. An important factor here is that only a relatively small acreage is required – finding the right balance remains an important exercise. The experience gained in this project will also be used to devise analogous approaches among other ethnic groups (provisionally still within the area around Kisangani) to whom other plants may be more important. The close collaboration with the local population contributes to the further sustainable development of ethnic groups with respect for their own socio-cultural identity.

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