

LES ACTIONS DE LA DGCD  
DGCD'S ACTIVITIES

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## DEVELOPMENT CO-OPERATION PRIZE

The *Development Cooperation Prize* is an annual incentive prize - financed by the Belgian Development Cooperation 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 their fields of interest.

Four abstracts regarding the accomplishments of laureates from Ethiopia, Burkina Faso, Ivory Coast and Belgium awarded in 2004 are presented in this edition of Tropicultura.

## 'Impact of Technology on Wheat Production in Bale Highlands, Ethiopia: The Case of Smallholder Farmers'

Mengistu Ketema Aredo\*

This study is a M.Sc. thesis written at Alemaya University in Ethiopia. Ethiopia is a country contending with great poverty and periodic famine. It regularly receives great quantities of food aid. It is essential that food production in Ethiopia itself increases and becomes much more stable.

After an extensive and valuable study of the literature Mengistu Ketema Aredo has collected the data in his thesis from 60 farmers who cultivate the old varieties of wheat and 62 farmers who grow the new improved varieties in the Bale Highlands. A thorough econometric analysis is applied to this dataset, with an estimate of Cobb-Douglas production functions. This gives the total variation in productivity in its determining components. It shows that 55% of the difference in productivity can be attributed to the new varieties of wheat (24%) and the associated inputs (31%) – mainly herbicides and fertilizers (15,5% and 11%). With the new varieties and inputs the farmers produce on average 925 kg more wheat per hectare – not so much at first sight but very significant in Ethiopia, given that this also means a saving of Birr 279 (28 euros) per hectare.

With the new varieties without the associated inputs, 400 kg more wheat is still produced. This demonstrates the importance of agricultural research.

In his thesis, Mr Ketema Aredo also attaches great importance to the institutional factors that limit agricultural production, the prices of wheat and inputs, and the lack of improved seed for sowing and fertilizers. He concludes with important policy recommendations and emphasizes that improved farming technology and institutions are the keys to food security and the fight against poverty in Ethiopia.

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## **‘Cycle annuel de la cécidomyie africaine du riz *Orseolia oryzivora* Harris et Gagné (Diptera: Cecidomyiidae) en relation avec ses plantes hôtes, ses parasitoïdes et certaines pratiques culturales au Sud-Ouest du Burkina Faso’**

Malick Baniango\*

(Annual cycle of the African rice gall midge *Orseolia oryzivora* Harris and Gagné (Diptera: Cecidomyiidae) in relation to its host plants, parasitoids, and some farming practices in South-West Burkina-Faso)

This doctoral dissertation contributes significantly to the bio-ecology of the African rice gall midge. In Africa, and in south-west Burkina Faso in particular, this rice gall midge causes damage to the rice crop, which results in the loss of more than half the potential yield. Besides socio-economic and climatological factors this plague is responsible for the low rice production in this region of Burkina Faso, forcing the country to rely on imported rice. This study addresses various topics such as agri-technological, biological and applied chemical treatments, whose integration is the basis for an integrated approach. Importantly, the practical application of the research is within reach of the local small-scale farmer/rice grower. Among other things the study reveals that the dreaded rice gall midge survives between two rice harvests on a wild rice species (*Oryza longistaminata*), and that good cultivation hygiene such as the clearing of this wild rice species as a reservoir plant is a crucial step in an integrated approach. Insight is gained into how certain plants such as *Paspalum* function as host plants for a gall midge that harbours the same parasites as those that live on the rice gall midge, which is important information as regards potential biological control. Moreover, the study shows that *neem* extract, as an insecticide of biological origin, can be used very efficiently against the gall midge, sparing the natural parasites of the rice gall midge in the process. Conclusion: not only because of the fundamental scientific approach to the biology of the rice gall midge but also because of the implementation of these research results in practice, this study substantially contributes to a guaranteed rice production for the small-scale farmer/rice grower in south-west Burkina Faso.

## **‘Dynamique sociale et mutations dans le système de gestion du foncier en zone de savane. Une réflexion à partir des villages baoulé d’Allokro, Kouakro, Mandéké et Sahounty (Côte d’Ivoire)’**

Alfred Babo\*\*

(Social Dynamics and Changes in the Land Management System in the Savannah Region. Observations Based on Findings in the Baoule Villages of Allokro, Kouakro, Mandéké and Sahounty (Ivory Coast))

Mr Babo’s thesis deals with how traditions related to land and property management methods have developed in the wake of the socio-economic changes that have occurred in Ivory Coast communities. He tackles the two fundamental issues of improving the knowledge regarding the methods of management of natural resources used by the rural populations and participating in the development of methods of intervention in rural areas which will meet the needs of the population without undermining the initial equilibrium. Rather than covering the entire country, the study focuses on a carefully chosen region. It reveals how traditions have evolved, particularly in relation to the management and appropriation of land, and shows the role the younger generations play in the management of rural land when traditionally they had no decision-making rights on this land. It also shows the impact of development projects on the evolution of property

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customs and practices and the consequences of the socio-economic changes on the communities studied. This thesis is highly relevant to development, in that it uses the experience gained in the field over a long period of time as a basis on which to evaluate the impact of rural development on the day-to-day life of a given population. And although this study is descriptive, it allows a comparison to be made between the academic theories on development and the reaction of the African populations. The new approach to land-ownership will bring about changes in the demographic structure, a greater role for the younger generations in the decision-making process, and a crisis in traditional land management methods, all of which are changes that are necessary and useful to development.

## **‘Interaction between Water Supply and Demand in Two Collective Irrigation Schemes in North-East Brazil’**

Erwin De Nys\*

This thesis is an original analysis of two collective irrigation schemes operating in the valley of the São Francisco River (Bahia, Brazil). Thanks to substantial field work (1998-2002), Mr Erwin De Nys was able to pursue two complementary objectives in this work:

- analysing the operation of these irrigation schemes and in particular assessing the interaction between the managers and agricultural producers;

- and, on the basis of this analysis, devising a simulation model with which different future scenarios can be visualized for these irrigation schemes and which will be used to support arguments in discussions between the different partners.

Three key issues are focused on in this study: the organization of the interaction between water supply and demand, the effect of different types of management on the salinization of the soil and the choice of a water tariff system. The originality of this work lies in the development and use of a simple and transparent simulation tool, which meant that a participative approach could be adopted by the different partners in the projects studied. Given the adequately universal nature of the models developed, the recommendations given should be transferable to other irrigation schemes in Brazil or elsewhere.

This work is a good example of the implementation of an integrated approach in the management of water resources; it takes into account the different technical, financial, socio-economic and environmental aspects that play a vital role in the development of sustainable development projects.

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