

NOTES TECHNIQUES

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The Belgian Soil Science Project at the University Centre of Dschang in Cameroon.

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Summary

The University Centre of Dschang in Cameroon, under the administrative authority of the Ministry of Higher Education, Computer Services and Scientific Research, has three main objectives: (1) the initial formation of staff assisting rural development; (2) carrying out scientific and technical research related to the problems encountered in the rural environment; and (3) the support of operations which aim at an increase of the agricultural production within the framework of the development of the country. For the development of some of its technical structures (departments), the University Centre of Dschang benefits from the cooperation of donor countries. In this way the Soil Science Department is technically and financially supported by a project of the Belgian Technical University Cooperation (General Administration for Development Cooperation). This technical note describes the activities and interventions of the Belgian Soil Science Project helping to fulfil the premised objectives in the field of soil science.

Résumé

Placé sous la tutelle du Ministère de l'Enseignement Supérieur, de l'Informatique et de la Recherche Scientifique, le Centre Universitaire de Dschang au Cameroun a pour mission: (1) la formation initiale des cadres du développement rural; (2) la recherche scientifique et technique en rapport avec les problèmes du monde rural; et (3) l'appui aux opérations visant l'augmentation de la production agricole en vue du développement du pays. Pour le développement de certaines de ses structures techniques (départements), le Centre Universitaire de Dschang bénéficie du concours des pays amis. C'est ainsi que le Département des Sciences du Sol est appuyé techniquement et financièrement par un projet de Coopération Technique Universitaire Belge (Administration Générale de la Coopération au Développement). Cette note technique décrit les activités et les prestations du Projet Belge des Sciences du Sol qui aident à accomplir la mission dans le domaine de la pédologie.

Introduction

Nestled in the western highlands of Cameroon, the University Centre of Dschang (UDC) is a residence university of higher education, offering degree programs in disciplines related to agricultural and rural development. This bilingual institution (French and English) established in 1977 by Presidential decree and administered under the Ministry of Higher Education, Computer Services and Scientific Research has three main objectives: teaching, research and extension for the development of the rural sector. These statutory activities are organized within scientific departments, experimental farms and off-campus stations or antennae located in different ecological zones of the country.

For the development of these technical structures, the University Centre of Dschang needs aid and support through the cooperation with donor countries. In this context, the Soil Science Department is technically and financially supported by a project of the Belgian Technical University Cooperation (General Administration for Development Cooperation) co-

ordinated by the University of Ghent (Laboratory for Regional Pedology and Land Evaluation). This bilateral project started its activities after the first agreement signed in July 1974. It was previously localized in Nkolbisson (Yaounde) at the National Advanced School of Agriculture (formerly under the direction of the University of Yaounde) and has been transferred to Dschang in September 1985.

Objectives of the project

The Soil Science Project, through the assistance of long-term experts, has the following objectives:

- (1) creation of an infrastructure, facilities and services, that can be used by the Cameroonian faculty staff and students to enhance teaching, research and extension programmes. The infrastructure includes a number of laboratories (soil chemistry, soil cartography, soil physics and soil mineralogy) with equipment, teaching aids and computer facilities;
- (2) formation and upgrading of staff (faculty members, laboratory technicians and administration personnel) through in-

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service training provided by the Belgian assistance team and through training in Belgium of faculty members to the level of M.Sc. and Ph.D. and of technicians in operating specific equipment;

(3) assisting the Cameroonian Government and other public and private enterprises in the planning of land use and agricultural development projects through support service activities; and

(4) maintaining strong ties with national and foreign institutions to promote the exchange of professional, scientific and technical expertise.

Training program and structure of the Soil Science Department

Although the Soil Science Project had fulfilled its principal tasks (teaching, research and support service) and trained faculty staff and technicians in a laboratory, equipped to carry out major routine analysis, the transfer to Dschang could be considered as a new start because a number of staff members resigned and a complete new laboratory had to be set up.

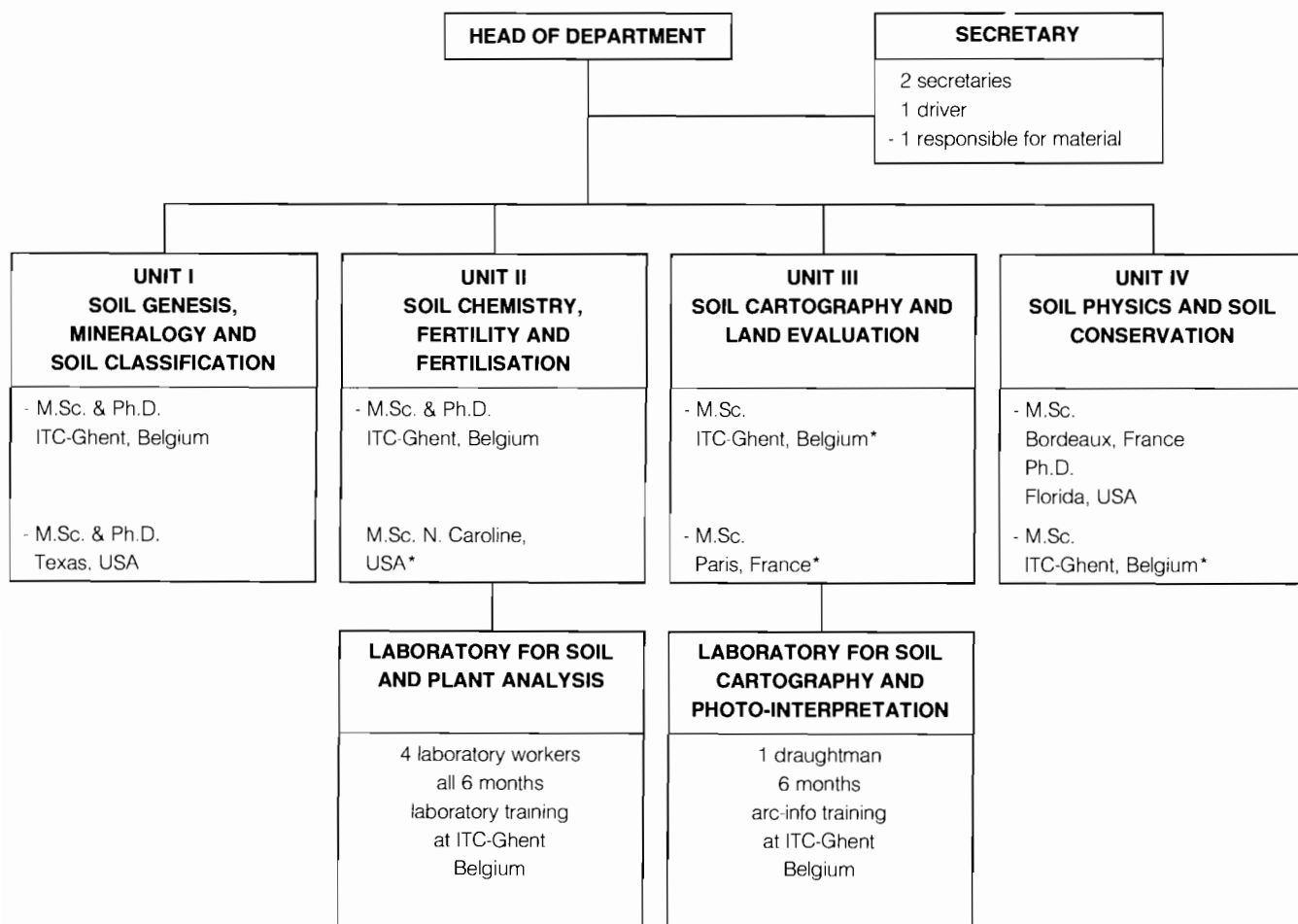
In 1985, the year of the transfer, the staff of the Soil Science on campus was limited to 4 scientific members (1 Cameroonian, 1 Indian, 1 American and 1 Belgian experts) and 2 laboratory workers. At that time, 4 Cameroonians were involved in graduate degree training abroad.

In Dschang, the Belgian assistance team was re-enforced with 2 supplementary experts, and new faculty and technical staff members were recruited and trained in service and in Belgium. The structure of the reorganized Soil Science Department and the training program of Cameroonian staff members is presented in the following diagram (only Cameroonian staff is represented).

Infrastructure and facilities

Besides the planning of the construction of a new building (technical plans ready), including offices, a library and laboratories, financed by the Belgian Government, the Belgian Cooperation through the Soil Science Project made it possible to install a complete new laboratory for soil and plant analysis, as well as a laboratory for cartography and aerial photo-interpretation on campus in Dschang.

The Soil and Plant Laboratory of the Soil Science Department is actually well equipped (electromechanical, electrochemical and spectrometric apparatus) and has the facilities to handle conveniently large numbers of samples (1,500 samples are analysed on a year basis for different purposes: soil characterization, fertility studies and quality control). All analysis (physical, physico-chemical and chemical) are executed according to the methods recommended by FAO and/or USDA. The quality control of fertilizers and water samples are



* Preparation of Ph.D. under supervision of ITC-faculty members with scholarships of the Belgian Cooperation.
ITC: International Training Centre for Post-Graduate Soil Scientists at the University of Ghent.

carried out according to international standard procedures.

This laboratory is principally acting as a service laboratory for agro-pedological, physico-chemical, chemical and physical analysis. Besides analysis, carried out for student memoirs and research projects, the laboratory also offers its analytical services to Government Institutions, Research Institutes, Rural Development Projects, Statutory Institutions and Private Organizations and individuals throughout Cameroon.

The laboratory for Soil Cartography and Aerial Photo-interpretation disposes of field equipment, a stereopret, stereoscopes, map reproduction apparatus and a computer installation for instruction and service support. Besides training and student memoirs, this laboratory has actually the facilities of rendering services in soil survey and mapping, in land evaluation (land suitability, yield prediction and determination of the optimal planting or sowing time) and concerning soil management.

Teaching activities

Education remains a primary function of the Soil Science Department. Teaching programmes in soil science have been restructured and modified under the supervision of Belgian experts and with the advice of visiting-professors invited annually to Dschang by the soil science project. The new programmes are designed to integrate theoretical instruction with practical, applied training of students.

Research activities

Research has been given high priority at the Soil Science Department, because it is an effective means of providing course content with current, state-of-the-art information in the field of soil science, and involves participation of young faculty members and students.

A departmental research programme is developed, in which all departmental units have to participate, sometimes in collaboration with researchers in other disciplines and/or researchers affiliated with other institutions, like the National Centre for Soils. This programme is designed to support the instructional programme of the Department, to contribute to faculty development and students training and to generate useful knowledge related to the problem of food production in Cameroon.

Research projects are sponsored by the Cameroonian Government through the University Centre of Dschang or financed with benefits made by the support service activities. Efforts are undertaken and linkages created with International Agencies and Institutions to finance research projects. In this way, a research project is financed by the International Science Foundation in Sweden.

The research activities of the Soil Science Department are mainly focused on detailed soil characterization and the study

of specific soil properties, evaluation of suitability for specific crops, computer models used in evaluation studies, fertility, soil management and soil erosion. With the participation of students, through their memoir programme, a soil map of Cameroon at a scale 1:500,000 using criteria of Soil Taxonomy was established. Evaluation studies for specific crops (cocoa, Robusta coffee, rubber, sugarcane etc.) were carried out. Fertilizer recommendations for maize, peanuts and beans on specific soils were established through field and pot experiments.

Support service activities

The support of the agricultural production in the framework of Cameroons' developmental policies is one of the most important tasks of the University Centre of Dschang. Although the major activities of the Soil Science Department concern training and fundamental research, an important part of them are related to the practical application of soil science, directed towards the inventorization of the soil resources of the country, their best and optimal utilization and the conservation and improvement of their agricultural potential. Whereas the training and research activities are exercised «intra mural», the support of production on the field is realized upon the request of a variety of public and private organizations.

With the assistance of Belgian experts and due to its infrastructural, scientific and technical capabilities, the Soil Science Department occupies a leading position in carrying out support services.

With regard to these support activities, the following objectives can be mentioned:

- (1) direct participation of scientific and technical personnel in soil survey and mapping exercises, physical and chemical soil and plant analysis, regional soil reclamation, etc...;
- (2) gain a better knowledge of the physical environment which constitutes an essential attribute for a proper pedagogic activity of the teaching staff; and
- (3) increase the resources of the University Centre of Dschang in general and of the Soil Science Department in particular, in order to achieve financial selfreliance.

Since the beginning of the project, the Soil Science Department has been requested to accomplish important studies among which we can mention complete studies of soils and their assessment for different private and government institutions and national, international and foreign aid organizations.

To these main achievements of national interest, we can add numerous analyses that were carried out in the laboratory and the interventions or advice given on several occasions for public and private organizations and for small-holders. These activities are completed by the organization of or the participation in seminars and conferences of pedological and agronomic interest.