



UNU-INRA/OU/CM

Presentation of UNU-INRA-OU/CM

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**International Conference on Sustainable Development of Natural
Resources in Africa**



Plan

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BACKGROUND

- From 1998 to 2002, UNU-INRA and the CS Department of UYI FS collaborated to offer specialized short-courses in Computer Applications for Natural Resource Management to more than 39 African researchers, scientists, policy-makers and postgraduate students from more than 13 different countries.
- Positive feedbacks suggested the creation of a UNU-INRA Operating Unit in Cameroon (UNU-INRA-OU/CM) with MOU in 2002 signed by the Rector of UNU and the Government of Cameroon represented by the Minister of Higher Education and the Minister of Scientific and Technical Research.
- The approval of the ToF produced by the UNDP (Yaoundé) led in April 2004 to the appointment by the Rector of UNU, of the first coordinator of UNU-INRA-OU/CM as a part time UNU-INRA consultant.
- In November 2004 texts governing the functioning of the unit were signed.



GENERAL AND SECIFIC OBJECTIVES

- Areas covered by the Unit include capacity building for research, training and consultancy in the application of computer technology for:
 - Improving agricultural land use, land capability and productivity assessment for food security.
 - Biodiversity monitoring, conservation and effective utilization
 - Environmental management



TARGET POPULATION

- University Faculties, GOs and NGOs dealing with aspects of Natural Resources in pure and applied sciences that need computer technology to produce and use data. Two main areas are concerned:
 - Life and Physical Sciences (Bio-chemical, Bio physical, Forestry, Agriculture, Crop Science, Wildlife, Animal Science, Fisheries, Food and Nutrition Science, Soil/Science, Geology)
 - and Spatial Sciences / Geoinformation (Geomatics containing (Digital Topographic Data, Digital Cadastral Data), G I S (Geographic Information System) Applications (Earth Sciences, Social Sciences, Development Technology, Range Ecology, Agriculture, Wildlife, Forestry))



OPERATIONAL ACTIVITIES

Research Activities

- Primary data capture (survey or observations /experiments yielding the raw data)
- Processing and interpreting the raw data into meaningful information
- Structuring the data into appropriated database formats
- Problem Solving Application of the Database



OPERATIONAL ACTIVITIES

Research Activities: Knowledge Base System on African Traditional Medicine⁽¹⁾

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- The project "Knowledge base on African traditional medicine" is a novel approach to document for posterity, information on detailed practices of alternative medicine by African traditional healers.
 - A software program on African traditional Medicine (ATM) is designed to store and analyze data on the various aspect of this complementary medicine.
 - The system may also be used to increase awareness of ATM and provide credibility to the whole subject.
 - A multimedia knowledge base system generator software on traditional medicine which can be used to easily create personal multimedia knowledge base.



OPERATIONAL ACTIVITIES

Research Activities: Knowledge Base System on African Traditional Medicine⁽²⁾

- The system is distinctly different from previous efforts in this domain, which provide restrictive information, confined to plant sources of bioactive therapeutic agents.
- In most of existing systems, the traditional healer's expertise is not dealt with as knowledge. Images and sounds are not treated as structural information related to medicinal materials.
- In our system, photographs of plants, sound effects and video scenes of treatment healing processes are combined to capture 'virtual reality' of African traditional healing process in all its colorful and mystique-associated forms, and to alert users when dealing with toxic species.



OPERATIONAL ACTIVITIES

Research Activities: Knowledge Base System on African Traditional Medicine⁽³⁾

- The multimedia knowledge base system generator software is fully operational
- Has been used to implement a multimedia knowledge base system on African traditional medicine at BDCP (Bioresources Development and Conservation Programme) in Nsukka (Nigeria).
- 8 MASTER Thesis defended
- 1 PhD thesis to be defended early 2012
- Acknowledgement: UNU-IIST (Macau), AUF, Local Representative of WHO in Cameroon, French Mission of Cooperation, IRD of France, Ministry of Higher Education of Cameroon and the University of Yaoundé I.



OPERATIONAL ACTIVITIES

Research Activities: Knowledge Base System on African Traditional Medicine⁽⁴⁾

- The system can provide answers to questions such as:
 - Complete composition of traditional herbal medicine with relevant information on ingredients used and therapeutic indications;
 - How diagnostic approaches differ among traditional practitioners?
 - How do traditional practitioners conceive diseases?
 - What are the major differences between the concept of disease by the African practitioner and his colleague in western medicine?

OPERATIONAL ACTIVITIES

Research Activities: Knowledge Base System on African Traditional Medicine⁽⁵⁾

MLDITRA Software Organ > Microbiology Information | 3 | User na...

File Open Save Research Generate Print Help

Start: 01/01/2002 End: 11/01/2003

My plant extract used

Organs	Plant extract used	Type of Screening	Solvent System	Les
Chemistry information	Picramnia nitida	neurosis	na	na
Laboratory information	Picramnia nitida	antimicrobial	methylene chloride	Sta
Animal soil information	Gonolobus nitida	fringe shrimp	methanol	

Organs

- Chemistry information
- Laboratory information
- Animal soil information
- Mineral soil information
- Plant soil information
- Geographical information
- Phytochemistry information
- Microbiology information
- Locality
- Museums-Herbarium

Drugs

Disease

Management

Korup



OPERATIONAL ACTIVITIES

Research Activities: Multimedia database with spatial references for agro-system management

- This is a multidisciplinary project involving
 - Agricultural information system,
 - Geographical information system
 - Computer science.
- A team of five experts in these domains is put in place since November 15, 2011 to supervise five MASTER theses deliverable in June 2012
- Expected product = Generic Multimedia database with spatial references for agro-system management

OPERATIONAL ACTIVITIES

Training Activities : Tactical training

Graph Theory Algorithms and applications (September 7-11, 2009)

- Under the supervision of Prof Jay Bagga of Ballstate University at Muncie (USA)
- Five days workshop for the faculty staffs, Doctorate and Master students of Cameroonian Universities.
- More than 40 applications ; 17 selected and all attended.





OPERATIONAL ACTIVITIES

Training Activities : Capability Building⁽¹⁾

- Since 2003, UNU-INRA-OU/CM runs a biennial training program in capacity building in digital technology for a better management of natural resources.
- Program is carried on every two years during the summer (August-September) with the language of communication alternating from English to French.
- Program brings together scientists, in the domain of natural resources, from African countries universities or research Institutes for three weeks intensive (120 hours) Training Program in capacity building in digital technology. Trainers may come from as far as the United State of America



OPERATIONAL ACTIVITIES

Training Activities : Capability Building₍₂₎

● Training comprises:

- *Data management tools*
- *Images processing tools*
- *GIS*
- *Remote Sensing*
- *Spatial Analysis*
- *GPS or Global Positioning System*
- *Digital Mapping*
- *Practical work*

● Certificates of participation signed by the UNU-INRA Director are given to trainees

OPERATIONAL ACTIVITIES

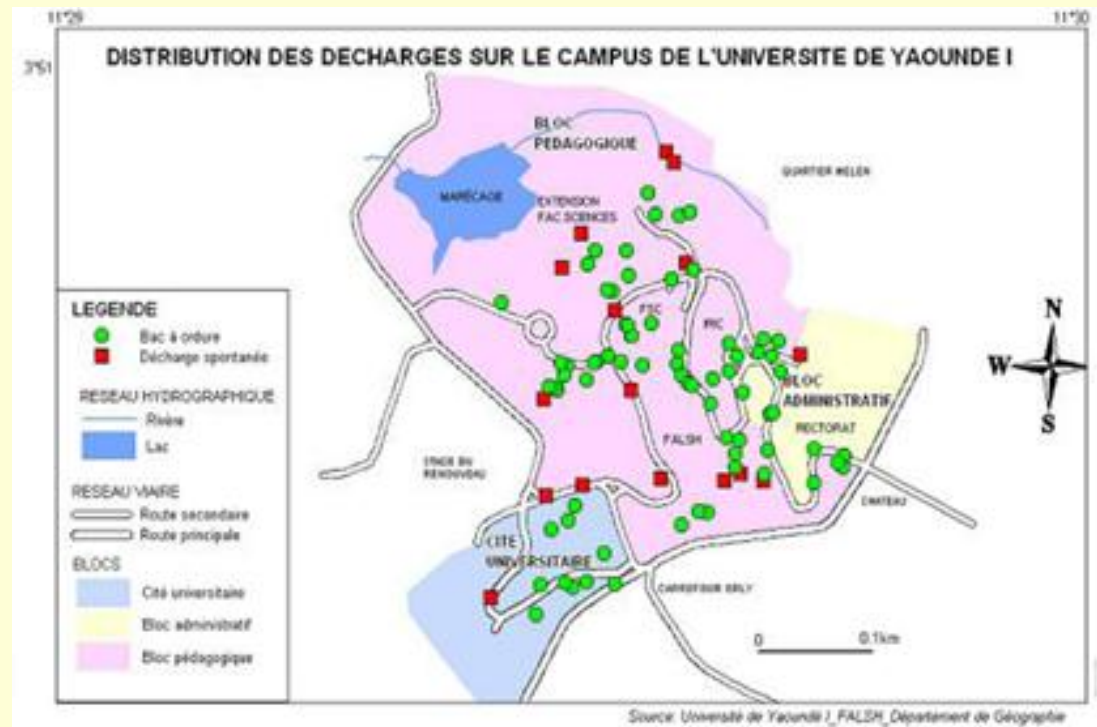
Training Activities : Capability Building⁽³⁾

IT2003 (July 1-24, 2003)

• French version of the first capacity building activity of the new born Operating Unit.

• 65 candidates from Chad, Gabon, Cameroon, Morocco, Niger, Republic of Congo, Senegal and Tunisia

• 15 trainees coming from Chad, Gabon, Cameroon, Republic of Congo, and Senegal.



OPERATIONAL ACTIVITIES

Training Activities : Capability Building₍₄₎

IT2005 (August 22 - September 9, 2005)

- First English version with the collaboration of:
 - Business Intelligent Services Inc, Atlanta USA
 - National Institute of Cartography
 - Institute of Medicinal Plant and Medicine Ministry of Higher Education
 - University of Yaoundé I
- 46 candidatures from Burkina Faso(1), Cameroon(28), Chad Republic (1), Kenya (5), Nigeria(5), Uganda(2)
- 15 trainees from Cameroon (8), Chad Republic (1), Kenya (2), Nigeria(3), and Uganda(1)



OPERATIONAL ACTIVITIES

Training Activities : Capability Building⁽⁵⁾

IT2007 (August 20 - September 07, 2007)

- Second French version and third version of the biennial training
- 38 candidatures: from Benin(1), Cameroon(30), Niger(1), Senegal(3), Chad(3).
- 15 trainees: Benin(1), Cameroon(12), Senegal(2), Chad(2).



OPERATIONAL ACTIVITIES

Training Activities : Capability Building₍₆₎

IT2009 (August 24 - September 11, 2009)

- Second English version of the biennial International Training Program
- 50 candidatures from 39 from Cameroon(39), Kenya(3), Nigeria(5), Senegal(3) and Uganda(1).
- 19 trainees : Cameroonians(12), 01 Kenyan(1), 02 Nigerian(2) and Senegalese(1).



OPERATIONAL ACTIVITIES

Training Activities : Capability Building₍₇₎

It2011 (October 10-22, 2011)

- Third French version of the program.
- Executed at the eve of the presidential election in Cameroon
- Foreign participants had problem entering the territory
- 54 applications from Benin (2), Burkina Faso (3), Chad (4), Cameroon(40), RCA (1), Republic of Congo (2), Senegal (3)
- 14 trainees from Chad(2), Cameroon (11) and Burkina Faso (1)



OPERATIONAL ACTIVITIES

EMPOWERMENT OF WOMEN IN SCIENCE₍₁₎

● Scientists generally and women in science in particular need tools for treatment and analysis of their data. UNU-INRA-OU / CM has developed these tools and proposes training to scientists.





OPERATIONAL ACTIVITIES

EMPOWERMENT OF WOMEN IN SCIENCE(2)

- General objective : promote scientific women by giving knowledge for a better management of experimental data.
- Two modules:
 - data management
 - Statistical analysis.
- Module one introduced the tasks of conception, implementation and handling of relational Databases with a simple database management system (DBMS) such as ACCESS of Microsoft).
- Second module introduced techniques of descriptive statistics, estimation, statistical tests, analysis of variance and regression with SPSS

OPERATIONAL ACTIVITIES

EMPOWERMENT OF WOMEN IN SCIENCE(3)

PROMOFS2006 (July 24-28, 2006)

• To mark the 2006 international week of the woman celebrated in Cameroon during the first week of March each year, UNU-INRA-OU / CM, the sub- regional Office of UNESCO in Central Africa (Cameroon, RCA and Chad) UNESCO and the University of Yaoundé I collaborated to train 15 ladies of the highest Cameroonian scientific cream on techniques of data management and analysis with tools such as ACCESS and SPSS.



OPERATIONAL ACTIVITIES

EMPOWERMENT OF WOMEN IN SCIENCE(4)

PROMOFS2007 (July 23-27, 2007)

- Duplicate of PROMOFS2006 motivated by the strong demand from the scientific community of women in Science of Cameroon.
- Second version of the training on Data Management and Data Analysis
- Also jointly organized by: Sub Regional Office of UNESCO (For Chad, Cameroon and Republic of Central Africa), the University of Yaoundé and UNU-INRA-OU/CM



OPERATIONAL ACTIVITIES

INSTITUTIONAL SUPPORT

Student Records Management System at UYI

- In 2006 the UNU-INRA-OU/CM received a mandate from UYI to coordinate the project “Student Records Management System”.
- The Unit had to develop, implement, install and maintain system.
- Application developers were MASTER students of the CS Department of UYI
- Project successfully delivered in July 2008.





 Thank you for your attention

