

FACT SHEET



PhD Soil and Water Management

Rationale

Following wide range consultations within the Eastern, Southern and Central African region (ESCA) that were conducted during the period 2004-2005 it was concluded that there exists deficiency in highly qualified human resource in the Agricultural sector. Accordingly, in 2006 the Vice Chancellors of the RUFORUM member universities agreed to launch joint regional PhD training programmes in critical gap areas including soil and water management. The decision aimed at developing the required human resource capacity in order to address the development challenges in the region. In particular, the Soil and Water Management PhD Programme aims at producing competent graduates with the capability of managing soil and water which are key natural resources. Importantly, this initiative aims at building capacity to support the Comprehensive African Agricultural Development Programme, more specifically increasing access to sustainable land management and reliable water control systems and overall, addresses the improvement of agricultural research, technology dissemination and adoption.

Graduate Profile

Graduates of this programme will;

- a) be knowledgeable and skillful in soil and water sciences,
- b) have the ability to influence, formulate and advocate policies concerning soil and water management issues,
- c) be innovative with entrepreneurship skills in their field of specialization,
- d) have the ability to design, manage and coordinate research and developmental projects in soil and water management,
- e) have the ability to dialogue and communicate effectively with a wide range of stakeholders,
- f) have the ability to mentor and motivate young scientists in soil and water management,
- g) be conversant with the application of ICT in soil and water related programmes.

Programme Goal

Develop and strengthen regional human resources and institutional capacity in impact-oriented training and research in soil and water management as an entry point towards sustainable agricultural production in the ESCA region.

Specific objectives

- 1) Impart in depth and broad knowledge, skills and scientific orientation to create the ability to characterize, monitor, and predict changes in the quality of soil and water resources and their interactions with environmental factors in specific agro-ecological zones in the tropics and sub tropics.
- 2) Create synergic effect among candidates and professionals with different background, and link with academic and research initiatives cutting across other fields of agricultural science. This is to provide the technical know-how that will address problems related to agriculture and management of natural resources so as to alleviate food insecurity and improve livelihoods, and economic situation of the smallholder farming community in ESCA.
- 3) Develop frontier actors in advancement of knowledge and innovations in soil and water sciences and management.
- 4) Promote partnership with regional and international institutions and cultivate interest with other stakeholders in regional collaboration and resource sharing and mobilization for training, research and outreach in soil and water management programmes.

Host Institution

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Program duration

It is a four-year PhD programme that consists of one year coursework, and research phase that leads to a dissertation. However, a candidate is allowed to graduate in three years upon meeting all the degree requirements. Full time students are allowed to prolong studies to a maximum of 5 years, provided there are compelling reasons for the extension and a proof of meeting the corresponding costs.

Curriculum structure and content

The coursework is conducted in the first two semesters of study. Students opt for any of the following areas of specialization:

A Common Core Courses

Ante	Course Title	Cr hr*	Semester
SS 801	Research Methodologies in Agriculture	1.5	I
SS 802	Scientific Writing and Presentation Skills	1.5	I
SS 803	Land Resources of the Tropics and Sub-tropics	1.5	I
AE 801	Climate Change Mitigation and Adaptation in Agriculture	1.5	I
EE 801	Communication and Leadership for Development	1.0	I
SS/AE 800	PhD Dissertation Proposal Development		I
	Total credit hours	7.0	

B. Core Courses in Areas of Specialization

a) Integrated Soil Fertility Management

Ante	Course Title	Cr hr	Semester
SS 805	Soil Fertility Challenges	1.0	I
SS 806	Soil Fertility Management for Sustainable Agriculture	2.0	II
SS 807	Plant Nutrition and Crop Productivity	1.0	II
SS 808	Soil Health	1.5	II
CS 801	Advances in Agronomy	1.5	II
SS/AE 800	PhD Dissertation Proposal Development		II
	Total credit hours	7.0	

b) Soil-Water Management

Ante	Course Title	Cr hr	Semester
AE 802/SS 812	Soil-Water Management in the Tropics	2.0	I
AE 803	Applied Soil-Water-Crop Modeling	1.5	II
AE 804	Irrigation and Water Resources Management	2.0	II
AE 805	Integrated Watershed Management	1.5	II
SS/AE 800	PhD Dissertation Proposal Development		II
	Total credit hours	7.0	

c) Agricultural Land Resources Planning

Ante	Course Title	Cr hr	Semester
LU 801/SS 810	GIS and Remote Sensing Applications	2.0	I
LU 802/SS 811	Land Resource Planning for Agriculture	2.0	II
LU 803	Integrated Land Use Management	1.5	II
SS 804	Impact Assessment of Agricultural Land Uses	1.5	II
SS/AE 800	PhD Dissertation Proposal Development		II
	Total credit hours	7.0	

d) Elective Courses

Ante	Course Title	Cr hr	Semester
EE 802	Participatory Approaches and Development	1.5	I
AEA 801	Entrepreneurship and Business Management	1.5	II
SS 812	Advances in Soil Plant Water Relations	1.5	II
SS 809	Tropical Soil Organic Matter Dynamics and Management	1.5	II
SS 813	Conservation Agriculture	1.0	I
	Total credit hours	7.0	

At SUA, 1 Credit hour is equal to 30 Contact hours in lectures, or 60 practical hours of laboratory work or seminars preparations and presentations.

Note: Students specializing in any of the three areas of specialization may take any course from other areas of specialization as elective course after seeking advice from the student's supervisory committee.

Mode of delivery

This comprises of:

- Course work – All courses have strong theory and practical components to achieve the objectives of graduating skills that are able to apply their learning to the real world.
- The Candidates field work which leads to the development of the thesis

Method(s) of assessment

Coursework

Students sit coursework examinations on semester basis, and are expected to pass all end-of semester examinations in core courses and respective elective courses, to qualify to proceed to do their research. The university uses External Examiners as part of quality assurance. At the end of the course/module, the Head of Department administers a questionnaire for each lecturer for evaluation by students.

Thesis

The research Phase is examined by written thesis and oral presentation. Student's thesis is examined by two internal (within the university) examiners and one external examiner. At this stage the candidate may:

- i) pass without corrections, or
- ii) pass with minor corrections or
- iii) required to re-write the thesis and re-submit for re examination, or
- iv) thesis may be rejected and the candidate is discontinued from studies.

When the candidate passes the thesis with or without minor corrections, then this is followed by oral presentation/examination (viva voce) at the Faculty where the student is registered, and this is assessed on fail or pass basis by a panel of academicians constituted by the Dean of the Faculty. The candidates who fail their research thesis work are allowed for re-submission and then discontinued after a fail in the second submission.

Implementation progress and achievements

The Soil and Water Programme was launched in 2010 with enrollment of the 1st cohort of 17 students. The 1st cohort students are currently doing their PhD research work in their home countries. Subsequent cohort of 11 students reported in June 2012; and they have completed one year course work and commenced research .

Student numbers

Tables 1 and 2 below gives a summary of student statistics, including the numbers that applied for the programme per intake

Table 1: Number of students who applied for the PhD Soil and Water Management (2010-2013)

Year of Intake	Number of applicants (% females in brackets)	Number of students qualified for admission (% females in brackets)	Number of students registered (% females in brackets)	No. of qualified applicants not registered because of lack of scholarship	Countries of origin of the students (applicants)
Cohort 1 (2010)	87 (20%)	46 (28%)	17 (24%)	29	Burundi, Uganda, Ethiopia, Zambia, Zimbabwe, Lesotho, Tanzania, Malawi, Kenya and Rwanda
Cohort 2 (2011)	48 (15%)	26 (18%)	11 (36%)	15	Uganda, Ethiopia, Zambia, Tanzania, Malawi, Kenya
Total	135	72	28	44	

Table 2: Number of students enrolled (registered) for the PhD Soil and Water Management (2010-2013)

Year of Intake	Student Numbers (% females)	Current status of Students	Countries of origin of the students
Cohort 1 (2010)	17 (24%)	Students have gone back to their home countries having completed course work. The candidates are now conducting research for their thesis to be submitted later for external examination	Ethiopia, Kenya, Malawi, Rwanda and Tanzania
Cohort 2 (2011)	11 (36%)	Students have completed their coursework at SUA. They started their PhD research work in their	Ethiopia, Kenya, Malawi, Tanzania, Uganda and Zam-
Total	28		

Staff exchanges / visiting lecturers

	National	Regional	International
Cohort 1 (2010)	2	0	1 (from the USA)
Cohort 2 (2012)	2	0	4 (from Wageningen-Netherlands)

Outputs from the program so far

Publications and manuscripts:

Publications by students in peer reviewed journals are expected during the 2nd and 3rd year of students PhD research work.

- 5 conference proceedings from students so far
- Approved Curriculum for PhD (Soil and Water

Management) with course work

Positive Outcomes

- The programme attracted funding to the tune of US\$ 1,867,000 from Alliance for a Green Revolution in Africa (AGRA) to sponsor 20 PhD students from Eastern and Southern Africa with full scholarships (\$. 60,000 per scholarship), rehabilitation of laboratory facilities (\$.32 million), upgrading of internet facilities (\$6,000), stabilization of power supply by purchasing a generator (\$.30,000) and rehabilitation of green houses in the Faculty of Agriculture (\$.10,000).
- The profile and visibility of the University has been enhanced at international level, with partnerships getting attracted from e.g. Wageningen University, Millennium Villages Project, and World Agro-forestry Centre.
- The Programme attracted additional funding to sponsor research for ten (10) students from the International Development Research Centre (IDRC) Doctoral Grants Research Programme.