

## Building interdisciplinary research capacity within the nexus of agriculture and environment for early career researchers in Africa

### A Sentinel PhD research orientation workshop at the RUFORUM AGM

#### Concept note

**Date:** 2-6 December 2019

**Venue:** University of Cape Coast, Ghana

**Contact:** Dr. Anthony Egeru ([a.egeru@ruforum.org](mailto:a.egeru@ruforum.org))

#### Background

The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) is part of a consortium of 10 African and UK institutions implementing a four (4) year project entitled “Social and Environmental Tradeoffs in African Agriculture” or Sentinel project<sup>1</sup> led by IIED in the UK. The project addresses the challenge of achieving Sustainable Development Goal (SDG) 2 (zero hunger), SDG 10 (reduced inequalities), and SDG 15 (ecosystem conservation) in Sub-Saharan Africa by conducting high quality interdisciplinary research while engaging research users in the process. RUFORUM is co-leading the capacity-building component of the project that forms an integral part of the Sentinel project with a particular emphasis on developing individual and organisational capacity of the core team (partner institutions from the UK and Africa) including staff and students within the RUFORUM network.

RUFORUM implements five broad activities in the project including: 1) Identify specific staff of member universities interested in participating in the programme, with institutional endorsement: 2) Identify 27 PhD students (staff of African universities) equally from each project sub-region (East, West and Southern Africa) who are working on topics related to the programme: 3) identify what specific skills and knowledge they need that the proposed programme can contribute to: 4) design a focused training and mentoring programme for these students and additional researchers, to help them gain these ‘new’ (for them) skills and knowledge they need that the proposed programme can contribute to: and 5) organise three write shops to support staff and PhD students to develop research proposals for submission to donors (possibly including but not limited to, UK donors).

In the recent call for PhD proposals, RUFORUM awarded 20 PhD research scholarships for students to conduct research within three research focus areas that are relevant to the Sentinel project. This is a follow up on the first call for proposals that awarded Seven (7) research scholarships. The Students are expected to conduct their research in the following thematic areas or research clusters of the project;

- a) Understanding agricultural expansion

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<sup>1</sup> For more information about the Sentinel Project, visit: <https://www.sentinel-gcrf.org/>

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- b) Understanding socio-economic and environmental impacts of agricultural expansion
- c) Understanding trade-offs between and within socio-economic and environmental dimensions of different agricultural development pathways.

The selection of the 20 successful candidates was a rigorous process involving three (3) independent reviewers contracted by RUFORUM and Sentinel country leads from Africa and UK researchers who provided comments on the quality and research focus of the PhD proposals. They noted that the proposals were aligned to the Sentinel project research areas but were of poor quality. It was noted with great concern during the first call for proposals that the GTA students selected had topics that were completely not aligned to the Sentinel project and this made them irrelevant to addressing the Sentinel research objectives. Following the meeting of Sentinel Co-PIs and the Work package 3 team on capacity building in the UK, they agreed that RUFORUM organise a research orientation week for the second cohort of students to sharpen their proposals. To this note, a short questionnaire was sent out to Sentinel PhD students to ascertain among other things their research capacity needs.

A synthesis of key research needs shows that students have capacity needs in the following areas:

- Ecosystem models such Invest model/GIS software such as LASlite30 Lansat TM and GIS software (ERDAS, ArcGIS).
- Political economy and sustainable livelihood analysis
- Geo-statistics and Geospatial analysis
- Ecosystem services evaluation approaches and trade-off analysis as well as climate change analysis
- Scenario building
- Choice experiment modelling, connectivity and fragmentation analysis.
- Livestock system/biodiversity components and Carbon stock potentials.
- Academic writing and research methodology

The specific objectives of the research orientation week are;

1. To develop student competencies in proposal writing
2. To develop student' research capacity in applying key research approaches/methodologies relevant to Sentinel thematic areas.
3. To create a community of practice to strengthen networking and sharing of best practices in Sentinel thematic areas and interdisciplinary research.

### Approach:

The research orientation week will be held at the University of Cape Coast from 2-6 December 2019 at the side lines of the 15<sup>th</sup> RUFORUM Annual General Meeting (AGM). The training will be highly interactive by using case studies from research encompassing various research needs. This workshop will focus on proposal writing and general research methodology, writing for publication, biodiversity and ecosystem

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evaluation modelling, geospatial techniques including GIS software and analysis and scenario building. Prof. Majaliwa Mwanjalolo (Makerere University), Dr. Geoffrey Griffiths (University of Reading) and Dr. Adam Devenish (Imperial College London) will facilitate the training with support from Mr. David Ekepu (RUFORUM). The draft programme is attached in annex 1.

## Expected outcomes of the workshop

- Well aligned PhD proposals/theses according to the Sentinel research thematic areas
- Updated research methodologies agreed upon by PhD students.
- A community of Practice established to strengthen networking and sharing of best practices in Sentinel thematic areas and interdisciplinary research.

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## Annex1: Workshop programme

### Tutors/Facilitators:

1. Dr. Adam Devenish (AD)
2. Dr. Geoff Hugh Griffiths (GHG)
3. Prof. Majaliwa Mwanjalolo (MM)

**Session Contact (RUFORUM):** Mr. David Ekepu (DE)

Time	Activity	Responsible Person(s)
<b>DAY 1: Proposal Writing &amp; Research Methodology</b>		
8:30-8:45	Registration	DE
8:45-9:15	Introductions	DE
9:15-9:25	Outline of the programme and expectations	DE
9:25-9:30	Ways of working	AD, GHG & MM
9:30-10:00	<b>Student presentations:</b> 'flash talks' on their topics: 2 minutes with 2 minutes for questions (no slides) <sup>2</sup>	All students
10:00-10:20	<b>Health Break</b>	
10:20-12:00	<b>Student presentations:</b> 'flash talks' on their topics: 2 minutes with 2 minutes for questions (no slides)....	All students
12:00-12:15	Facilitator feedback	AD, GHG & MM
12:15-13:00	<b>Student practical:</b> students given 10 pre-prepared fictitious 'problems' (approx. 3 or 4 from each tutor). For example, 'You are required to explore the relationship between farming system and environmental impacts. Design a project to achieve this and summarise the main points'. Groups to present to each other	All students
13:00-14:00	<b>Lunch Break</b>	

<sup>2</sup> Slides will take too long unless we pre-load onto data projector?

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14:00-14:30	<b>Tutor presentation:</b> summarizing the criteria that make for a good research proposal including aims & objectives, experimental design, sampling in space etc. The session would present a pre-prepared problem taken from the morning exercise for students to explore in more detail as part of the next practical	GHG
14:30-16:40	<b>Student practical:</b> write a full proposal (groups of 3 or 4) ensuring that all of the critical criteria for a high quality proposal are included. Each group to present their proposal using a flipchart	All students
16:40-17:00	Facilitator feedback including Q & A session	AD, GHG & MM
<b>DAY 2: Biodiversity and Trade-off Analysis &amp; Spatial Analysis</b>		
8:45-9:00	Registration	DE
9:00-9:15	Recap of day one by facilitators	AD, GHG & MM
09:15-10:00	Facilitator presentation- The measurement of biodiversity	AD
10:00-10:20	<b>Health Break</b>	
10:20-13:00	<b>Student practical</b> - use of simple R scripts for analyzing and visualizing biodiversity data	All students
13:00-14:00	<b>Lunch Break</b>	
14:00-14:40	<b>Facilitator presentation</b> - Introduction to mapping & spatial analysis using GIS	GHG & MM
14:40-16:00	Student practical – Introduction to ILWIS	MM
16:00-17:00	Student practical - Introduction to QGIS for visualizing and interrogating biodiversity data	GHG
<b>DAY 3: Scenario building</b>		
8:45-9:00	Registration & Recap of day 2	DE, AD, GHG & MM
09:00-10:00	<b>Facilitator presentation</b> – Scenario building	
10:00-10:20	<b>Health Break</b>	



10:20-13:00	<b>Student practical<sup>3</sup></b> – Scenario building based on a fictitious scenario. Student groups to identify key direct/indirect drivers and develop a short presentation	AD, GHG & MM
13:00-14:00	<b>Lunch Break</b>	
14:00-17:00	Student Practical continued...	AD, GHG & MM
<b>DAY 4: Posters, Scientific Sessions and Official Opening Ceremony of the AGM</b>		
9:00-13:00	Posters and Scientific Sessions	All students
13:00-14:00	<b>Lunch Break</b>	
14:00-15:00	Posters	All students
15:00-18:00	Official Opening of the RUFORUM AGM	All delegates
19:00-22:00	Evening function by Government of Ghana-Cocktail	All delegates
<b>DAY 5: Writing for publication and mentorship session for emerging scientists</b>		
8:45-9:00	Registration and recap of the week	DE, GHG & MM
9:00-10:00	Facilitator presentation: Writing for publication	GHG & MM
10:00-10:20	<b>Health Break</b>	
10:20-13:00	<b>Student practical:</b> critique of published papers(s) on a Sentinel related theme	GHG & MM
13:00-14:00	<b>Lunch Break</b>	
14:00-14:30	Wrap up including Q & A session with facilitators	GHG & MM
14:30-17:00	Interactive Session for Selected Leaders with emerging Scientists	FAWoVC facilitators
17:00-19:30	Free space	
19:30-22:30	Gala Dinner	All delegates

<sup>3</sup> AD to draft, based on RUFORUM Biennial Scenarios Training in Nairobi 2018

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