



UNU-INRA Sparkle

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Enhancing Capacity for Managing Africa's Natural Resources

In this Issue

Feature Article on: Use of Remote Sensing and GIS in Natural Resources Management

Director Calls on Norwegian Ambassador

UNU-INRA Consults Stakeholders on Short-Term Training Courses

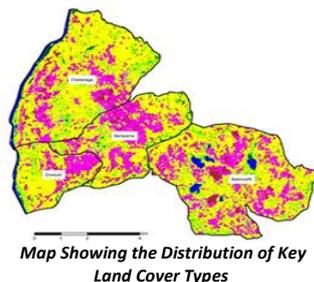
Dr Ayuk Chairs Climate Change Conference

Special Feature on UNU-INRA Driver

Zambia OU Hosts Green Economy Workshop

Our New Visiting Scholars

Use of Remote Sensing and GIS in Natural Resources Management



Geographical Information Systems and Remote Sensing are very important tools in the management of natural resources.

In line with this, the United Nations University Institute for Natural Resources in Africa (UNU-INRA) has established a GIS laboratory to help address the gap in the use of spatial technologies and data in natural resources management in Africa. Since the introduction of the laboratory, UNU-INRA has been organising quarterly GIS training to enhance the capacity of natural resources managers, researchers and students, in the deployment of geospatial applications in natural resources research, planning and management in Africa.

Natural resources undoubtedly play a critical role in the development of every nation. This is because they provide

revenue, offer employment opportunities, and serve as a source of raw materials for industrial development. They also provide food, income, medicine and energy for economic growth. However, these resources have come under increasing pressure, especially in Africa, due to rising population. The depletion of natural resources is said to be contributing to several unfavourable phenomena including climate change, which are impacting negatively on livelihoods and development. This therefore calls for the need to manage natural resources in a way that promotes equity in resources use and sustainable development.

Advancement in the field of Geospatial technologies such as GIS, Global Positioning System (GPS) and Remote Sensing technologies is thus facilitating information generation and decision support outputs for the management of natural resources at varying scales.

Remote Sensing provides managers with a synoptic view of natural resources, information about inaccessible locations and allows the assessment of the resources overtime. Whilst GIS allows integration of different spatial data types, location-based analysis and scenario building and analysis, GPS provides real-time location information, distances measurements and location identification capabilities. The key outputs of these tools are tables, graphs and different map types, making inferences based on geographical locations.

These technologies have unlimited application areas in all natural resource types. To mention few examples, GIS is instrumental in land resource zoning, suitability analysis and waste dumps and landscape fragmentation in landscape management. Remote sensing is also used as a stand-alone or complement of GIS to monitor floods and droughts as well as their effects. The geospatial tools also assist park managers in the identification of suitable habitats for specific species of animals and the creation of conservation corridors for movement of animals. Geospatial tools have also proven their worth in critical areas including watershed and coastal resources management, biodiversity management, environmental impact assessment, pollutant tracing and mines establishment and management.

It is in light of these important roles that, UNU-INRA believes that its GIS training will equip African researchers and other individuals to best manage the continent's natural resources for development.

Director Calls on Norwegian Ambassador

The Director of UNU-INRA, Dr Elias T. Ayuk has paid a courtesy call on the Norwegian Ambassador to Ghana, Her Excellency, Ms Hege Hertzberg. The aim of the meeting was to enhance UNU-INRA's working relationship with the Embassy of Norway for mutual benefits.

Dr Ayuk seized the opportunity to brief the Ambassador and her team on UNU-INRA's work. On her part, Ms Hertzberg also briefed the UNU-INRA team on the Embassy's mandate of carrying out equal partnership activities, with a particular focus on oil for development programmes in Ghana.

The two organisations have therefore pledged to collaborate on projects of interest in the near future.

UNU-INRA Consults Stakeholders on Short-Term Training Courses

UNU-INRA brought together various institutions, associations and organisations on July 17, 2014 to discuss four (4) short term training courses that the Institute intends to run. These include training on *Governing Extractive Industries*; *Environmental Journalism*; *Environmental Leadership* and *Sustainability of Urban Africa*.



The Extractive Industry Group discussing their Course Modules

The aim of the meeting was to share ideas with the key stakeholders on the course modules to ensure that they reflect the most pressing issues that need to be addressed in Africa. The session also aimed at discussing possible collaboration with the stakeholders in running the courses.

Among key organisations present at the meeting were representatives from the Ghana Journalists Association (GJA), School of Communications of the University of Ghana, the Environmental Protections Agency, the

Ministry of Food and Agriculture (Ghana), the Ghana Chamber of Mines, and UN agencies.

As part of its key mandate to contribute to the sustainable development of Africa's natural resources through capacity strengthening, UNU-INRA hopes that these short term training courses will enhance the capacity of journalists, personnel working in the extractive industries, business leaders and urban planners.

Dr Ayuk Chairs Climate Change Conference

Dr Elias T. Ayuk, Director of UNU-INRA chaired the keynote session of a three-day international conference on Climate Change, held in Tamale, Ghana on August 6-8, 2014. The Conference was held under the Project "*Enhancing Resilience to Climate and Ecosystem Changes in Semi-Arid Africa: An Integrated Approach*", dubbed CECAR Africa Project; which is a five-year project being sponsored by the Japanese International Cooperation Agency (JICA) and the Japanese Science and Technology Agency (JST).



Dr Elias T. Ayuk, Director of UNU-INRA (left sited on the table) chairing the keynote session at the conference. Delivering a keynote address is Prof Wisdom Akpalu of UNU-WIDER.

The conference, which was under the theme "*Adaptation strategies for mitigating impacts of climate and ecosystem changes on developing societies*" looked at adaptation strategies for mitigating the effects of climate and ecosystem changes on developing countries.

Also present at the conference were two of UNU-INRA Research Fellows, Dr Effiom Oku, Senior Research Fellow for Land and Water Resources and Mr Kwabena O. Asubonteng, Geographical Information System (GIS) Fellow.

Dr Oku presented a paper on "*Green Farming Practice for Climate Change Mitigation and Adaptation: Experience with Usual Practice and Vetiver Technology*". The paper was based on research findings which underscore the importance of vetiver grass which allowed farmers to derive maximum benefit from every millimetre of rain in drought stricken areas in Nigeria.

On his part, Mr Asubonteng, together with Mr Seyram Kofi Loh of CECAR Africa Project / Geography Department of the University of Ghana made a poster presentation on “*Understanding Extreme Climatic Events in Northern Ghana: an Application of DPSIR Framework*”. This was based on a study that analysed anthropogenically triggered environmental change and its contribution to human vulnerability to extreme events in the Wa –west District in Northern Ghana. In response to the changes in climate, the study found that farmers are practicing early planting, valley farming during droughts, upland farming in raining season, change in consumption patterns and soil and water conservation methods.

In a different poster presentation entitled “*Estimation of USLE’s C-Factor from Vegetation Indices for Soil Erosion Modelling in Lake Bosumtwi Basin*”, Mr Asubonteng and Mr Loh compared the capabilities of Normalized Difference Vegetation Index (NDVI) and Enhanced Vegetation Index (EVI) in mapping land cover types for cover and management factor (the Universal Loss Equation: C-factor estimation), in order to estimate the erosion hazard in the Lake Bosumtwi basin. The study revealed that EVI is better at separating land cover types than the NDVI.

The CECAR Africa conference attracted over 150 participants from Africa, Asia and Europe.

The Growth of UNU-INRA Motivates Me to Work – William



Mr William Briandt behind the wheel

It is often said that the price of success is determination and hard work. So is the story of Mr William Briandt, of UNU-INRA. He rose from the position of a Driver to become a Liaison Clerk. This is because, with hard work and dedication, his role has gone beyond just manning the wheel to providing logistical and administrative support to the Institute. Mr Briandt has become a symbol

of commitment in UNU-INRA whose dedication to work motivates everyone. Having worked at UNU-INRA for 20 years, he reveals to “**SPARKLE**” the secret behind his unflinching passion for work.

I started working with UNU-INRA in May, 1994. I was the first staff of the Institute. I am privileged to have worked with all the Directors of the Institute till date, starting from the first Director, Prof Bede Okigbo, the second, Prof A. Uzo Mokwunye, the third, Prof Karl Harmsen and the current Director, Dr Elias T. Ayuk.

We were only three staff working with Prof Okigbo and none of us were researchers but administrative staff. When I started working, the Institute had no cars and most of my errands were run using taxis. The Institute later bought a motor bike, which I was using for dispatch duties but driving the Institute’s branded car now does not only facilitate my work, but also makes me contribute to increasing UNU-INRA’s visibility since people usually stop me on the way to inquire about our work.

I see a vast improvement in UNU-INRA; having witnessed how the Institute started in Ghana from scratch after it was moved to Accra from Nairobi in 1992. Today, UNU-INRA has a lot of staff including visiting scholars. The Institute have now published several books, working papers, policy briefs and journal articles and its work is being visible in Africa and beyond. This indeed, motivates me to work. I believe that my little efforts will contribute to the Institute’s development and that is why I just love to do what I am supposed to do.

What is paramount to me is the safety of staff. I do not just drive but my desire is to ensure the safety of staff at all times. One day, some staff members were going to Nigeria but missed their flight. I was privileged to have driven them all the way to Nigeria and the fact that we all arrived safe and sound made me very happy. So far, of all my 20 years of driving at UNU-INRA, I have a 100% safety record and I thank God for that.

For me, I see UNU-INRA’s mandate to be very important to Africa’s development since the continent is endowed with rich natural resources that need to be well managed. Our role in conducting research on issues affecting natural resources management on the continent and offering policy advice is very critical to Africa’s development. If UNU-INRA was not established, I think Africa will have been missing something very important because we need African knowledge in managing Africa’s natural resources.

So, improving on our visibility is key to our development. More people need to know about what we do. We need to continue to disseminate our research findings for the benefit of Africa as a whole.

My word of encouragement to everyone is that brighten up the corner where you work, and you will make a difference.

UNU-INRA Zambia OU Hosts Green Economy Workshop

UNU-INRA's Operating Unit (OU) in Zambia hosted the Institute's training workshop on green business in Lusaka, from the 22nd to 26th September, 2014. The workshop, which was under the theme *Greening Business through Biodiversity and Ecosystem Services* brought together 23 participants from different African countries including Zambia, Malawi, Egypt, Swaziland, Uganda, Ghana, Nigeria, Kenya, Tunisia, Cameroun and Tanzania.

At the end of the workshop, the participants received training on green economy theories, and the link between business and biodiversity and ecosystem services

Our New Visiting Scholars



Dr Fatai Abiola Sowunmi

Dr Sowunmi is a Lecturer from the University of Ibadan, Nigeria. He holds a PhD in Agricultural Economics.

His areas of specialisation are Development Economics and Applied Spatial Econometrics.



Dr Agbola Peter Oluwafemi

A Senior Lecturer from Osun States University, Nigeria, Dr. Oluwafemi also holds a PhD in Agricultural Economics.

His area of specialisation is Agriculture Development and Innovation Systems.



Dr Jonathan Hogarh

Dr Hogarh holds a PhD in Risk Management and Environmental Sciences. His research areas include Environmental Pollution, Water Treatment and Waste Management. He is a Lecturer from the Kwame Nkrumah University of Science and Technology, Ghana.

Upcoming Events

- ❖ **GIS Training for Professionals in Natural Resources Management**
 - **Date:** December 15-19, 2014
 - **Registration:** Contact: 0244-669048 / email asubonteng@inra.unu.edu
- ❖ **Environmental Journalism Training Course**
 - **Target:** African Journalists
 - **Date:** To be Announced



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About UNU-INRA

UNU-INRA enhances the capacity of African researchers to conduct research on natural resources management issues to inform policy formulation and implementation.

Although UNU-INRA is an institute of the United Nation University (UNU) system, it was an African concept developed by some committed top African scientists. Its establishment is supported by the Assembly of Heads of States and Governments of the Organization of African Union (OAU). On this strong political and moral support, UNU-INRA was established in 1986.

Sparkle is a quarterly newsletter of UNU-INRA.

Sparkle means Sustainability through Partnership in Africa where Resources are optimally utilized using Knowledge that is holistic, Leadership that is inclusive and Economy that is green