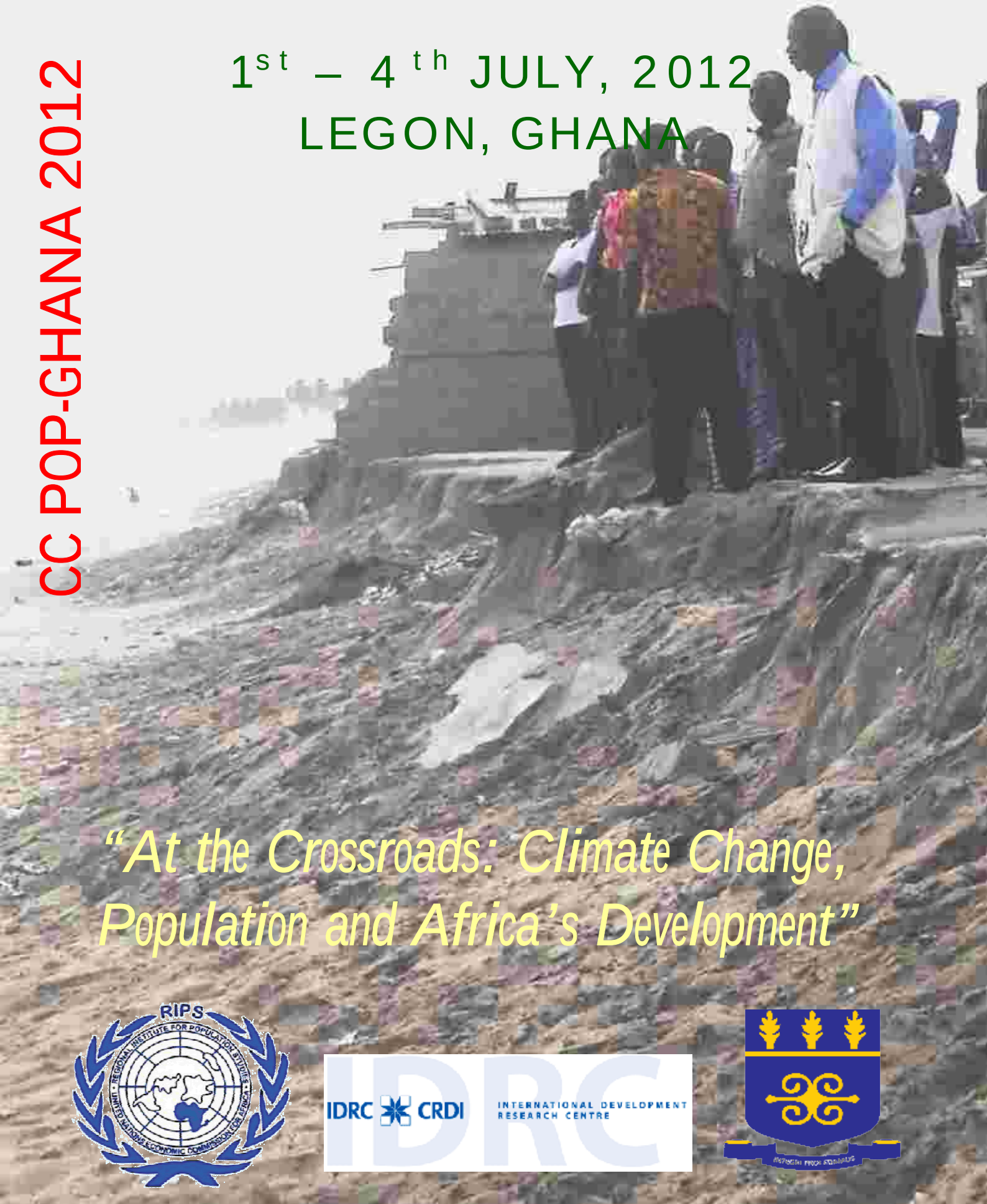
CLIMATE CHANGE AND POPULATION CONFERENCE ON AFRICA

1st – 4th JULY, 2012

LEGON, GHANA

CC POP-GHANA 2012



"At the Crossroads: Climate Change, Population and Africa's Development"

RIPS

IDRC CRDI

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CLIMATE CHANGE AND POPULATION CONFERENCE ON AFRICA

CC POP - GHANA 2012

Regional Institute for Population Studies
University of Ghana

Theme:

"At the Crossroads: Climate Change, Population and Africa's Development"

IDRC CRDI

Scientific Programme & Abstracts

THE REGIONAL INSTITUTE FOR POPULATION STUDIES

HISTORY

The Regional Institute for Population Studies (RIPS) was established in February 1972 by the United Nations and hence carried the name United Nations Regional Institute for Population Studies for a period. RIPS came into being in response to the growing demand for regional facilities for population research and training in Africa. This followed a recommendation made by the United Nations Economic Commission for Africa (UNECA) at its Ninth Session in 1968 and subsequent support given by African governments at the first meeting of the Conference of Ministers of UNECA in February 1971.

ACADEMIC PROGRAMMES

The Institute offers MA, MPhil and PhD degree courses. The Institute organizes seminars, workshops, ad hoc courses of study and in-service training in Demography and related fields at the request of governments and institutions mainly in English-speaking African Countries.

SCHOLARSHIP ON CLIMATE CHANGE

RIPS has emerged as one of the leading centres of excellence in climate change research for the past Six years through its multi-disciplinary Population, Environment and Development programme. Thus RIPS research on climate change focuses on a multidisciplinary approach and emphasising the role of population as an underlying cause of environmental change. We currently are running projects and training students for MPhil and PhD in areas of:

Climate Change and Health;

Climate Change and Food Security;

Climate Change and Reproductive Health;

Climate Change and Coastal Zone Management;

Climate Change and Disaster Risk Communication.

Email: rips@ug.edu.gh

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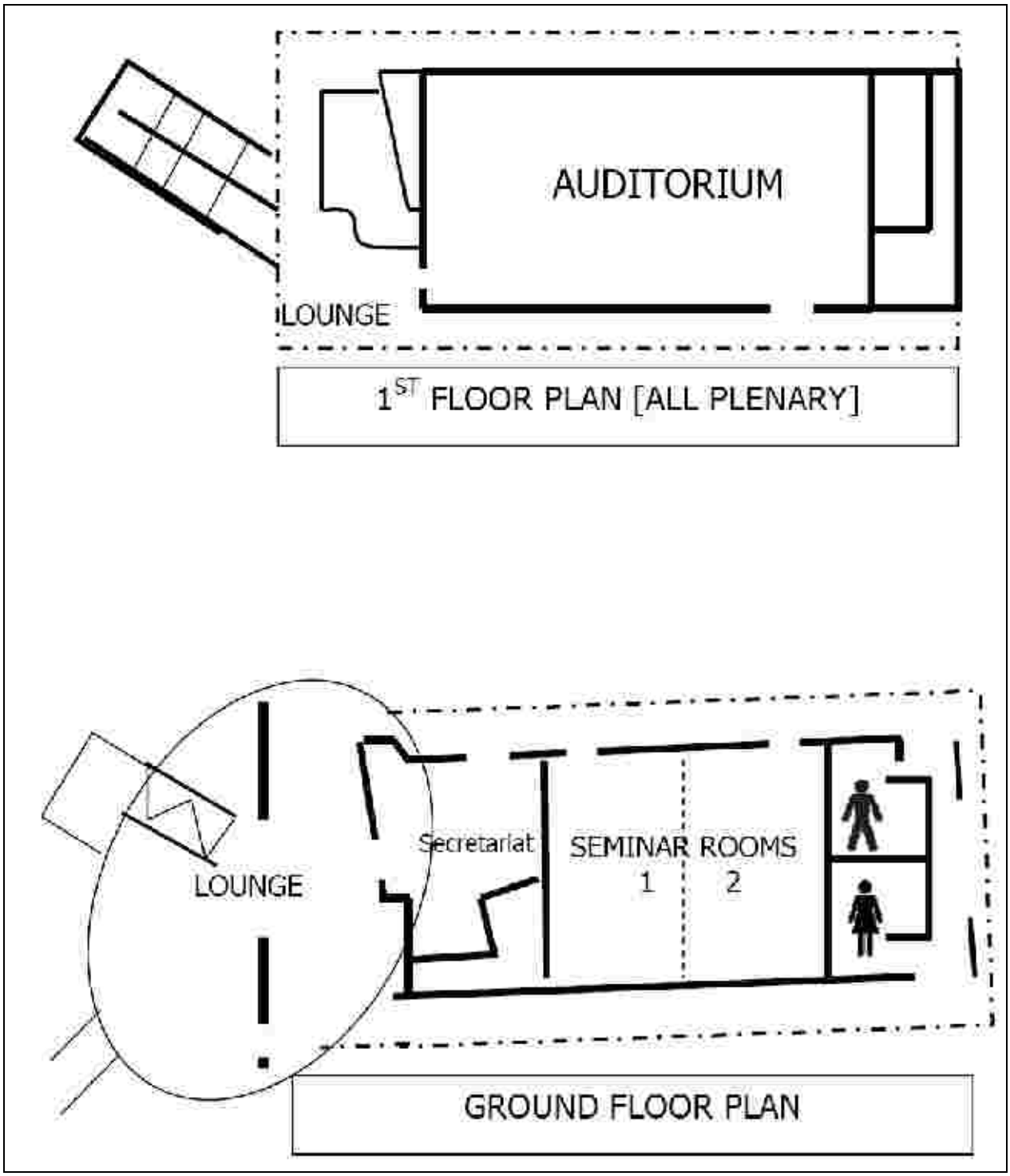
VENUE MAP / FLOOR PLANS



MESSAGES FROM THE HOST

The Vice Chancellor, University of Ghana, Legon, Ghana

Professor Ernest Aryeetey

The University of Ghana can attest to its leadership to mitigate and adapt to climate change through excellent research and knowledge transfer in the area of soil and water conservation, land use and cover change, population and human health, climate risk insurance and communication, and awareness creation. Some teaching and research units of the University have also introduced topics on climate change, and these are being harnessed into full academic programmes which can lead to Degree Qualifications. Some notable projects are:

1. Food Security and Adaptation to Climate Change in the Afram Plains of Ghana
2. Climate Change Collective Learning and Observatory Network in Ghana
3. Climate Change and Human Health in Accra
4. Building Capacity of the Climate Change Challenge
5. Integrating Climate Change Adaptation and Mitigation in Development Planning,
6. African Adaptation Research Centre of Excellence Initiative,
7. A Climate Change Risk Communication Framework for Coastal Urban Development Policy, etc.
8. Additionally we have been privileged to be part of the African Climate Change Fellowship Program (ACCFP) and hosting Post-Doctoral Fellows through Climate Change Adaptation in Africa (CCAA) Programme funded by IDRC Canada and UK Dept for International Development (DFID).

Thus the University of Ghana is committed to institutional adaptation to climate change, exhibited also by this conference of which we are all proud to be part. Again, the conference emerges as an important outcome of our recent call to reach out to the rest of the World on our quality stake in Tertiary Education as a World Class University. We also see climate change as opportunity for research and teaching to develop products that lead us to technological appropriateness and advancement towards Clean Development and Green Economies.

I have the pleasure to specially welcome you to this environment of excellence.

Director, Regional Institute for Population Studies

Professor Francis Dodoo

It is my distinct pleasure to welcome you to this event being organised by the Regional Institute for Population Studies (RIPS) at the University of Ghana and what makes it very significant is that it coincides with our 40th year of existence, and also for the fact that the 2012 World Population Day is just few days away (July 11). Our raison d'etre at RIPS is twofold: to be at the cutting edge of research on critical population related issues that affect African society, and to use the research platform as a basis to train the next generation of scientists.

RIPS, then, strives to remain the preeminent centre of excellence for population training and research on the continent. At RIPS, the proper training of Africa's young scholars is considered our "core business", and very high standards prevail to create an environment conducive for academic excellence. Towards these ends, RIPS offers a portfolio of training programmes and multi-disciplinary research opportunities that encourage personal growth, and challenge students and academics by exposing them to vigorous research environments.

We are privileged to have a cohort of academics and researchers as members of our faculty, who collectively posses a wealth of experience in various population related fields. Our open door policies create a platform for mentoring where students interact freely with faculty members and administrative staff. In addition to this, some funding and internship/employment opportunities are generally available for qualified students who wish to pursue careers in research and/or academia. Similarly, from time to time, there have been some international learning opportunities for our best students.

The event you are witnessing and attending is one of numerous academic excellence that RIPS exhibits. I encourage you to spend some time exploring the details of the opportunities at RIPS through our website, and interaction with academic staff and we will be very happy to arrange a tour of our facilities.

We look forward to welcoming you at RIPS and enjoying your company in the next couple of days.

MESSAGES FROM THE HOST

From the Conference Co-Chairpersons & Scientific Steering Committee

Delali Dovie*, Samuel Codjoe*, Samuel Adiku**
* Regional Institute for Population Studies, University of Ghana, Legon
**Soil Science Department, College of Agriculture & Consumer Sciences, University of Ghana, Legon

Africa's population growth rate averaging 3% is considered one of the highest globally and a cause of concern for development planners and governments in the face of high inequity in wealth across the continent. Thus Africa's increasing population will bring with it additional burden on the natural environment through increased consumption and access to resources whilst enhancing carbon footprints on the continent. It is expected that previously unopened areas of the environment would become highly accessible not only from industrial investments but also by populations at risk of poverty. The high population also implies that the population at risk from climate change and variability will be high and making adaptation more costly notwithstanding the general lack of capacity and resources to respond to climate uncertainty and complexity.

At different gatherings of world leaders since the year 2008, including the UN General Assembly, the Conference of Commonwealth Heads of States and Governments Meeting and the Africa Development Summits, Africa regional leaders have raised and emphasised climate change concerns. However, the concerns often ended in the quest for external interventions to deal with the impacts of climate change and variability on the continent, which is partly the result of the limited yet untapped capacity on the continent. This therefore called for an African perspective to re-examine the challenges that climate change pose to the population and how to approach it from Africa's point of view a and origin, hence motivating the call for this conference from the Regional Institute for Population Studies, University of Ghana, to mobilise the rest of the continent to act now. The conference is expected to achieve the following objectives:

1. Appraise knowledge on the development wide impacts of climate change and variability.
2. Deepen scientific understanding of climate change events and contribute to relevant capacity.
3. Define long-term research and development capacity building priorities.
4. Promote science – policy debates to manage global climate change impacts in Africa.
5. Strengthen relevant risk communication and management strategies among stakeholders.

That is why presentations at this conference and related activities will emphasise lessons and benefits to the continent in terms of development, policy, science and capacity, and thus contributing to adaptation on the continent. We are glad to be your servants and expect that you will leave behind a long lasting impression.

On behalf of the Scientific Steering Committee, We wish to Thank You for your Presence and Expected Contributions to Grace "CC POP - Ghana 2012!"

SCIENTIFIC STEERING & LOCAL ORGANISING COMMITTEES

Scientific Steering Committee

Name	Affiliation	Designation
Dr. Delali Benjamin Dovie	Regional Institute for Population Studies, University of Ghana, Legon	Co-Chair, Science-Policy Interface
Prof. Samuel Nii Ardey Codjoe	Regional Institute for Population Studies, University of Ghana, Legon	Co-Chair, Humanities
Prof. Samuel Adiku	Soil Science Department, University of Ghana, Legon	Co-Chair, Biophysical Sciences
Dr. Ama Aikins	Regional Institute for Population Studies, University of Ghana, Legon	Member, Media & Communication
Dr. Margaret Delali Badasu	Regional Institute for Population Studies, University of Ghana, Legon	Member, Population & Demography
Dr. Erasmus Owusu	Department for Animal Biology & Conservation Science, University of Ghana, Legon	Member, Biodiversity & Forestry
Dr. Elaine Tweneboah-Lawson	Institute for Environment and Sanitation Studies, University of Ghana, Legon	Member, Gender Mainstreaming
Dr. Leonard Amekudzi	Department of Physics, Kwame Nkrumah University of Science & Technology, Kumasi	Member, Climatology
Dr. Kwadwo Owusu	Dept of Geography & Resource Development, University of Ghana, Legon	Mitigation and Climate Modelling
Dr. Ama Essel	Physician Specialist / Consultant, Korle-Bu Teaching Hospital, Accra	Member, Health
Dr. Louis Atsiatorme	Independent Consultant, Accra	Member, Education & Awareness
Dr. Barnabas Amisigo	Water Research Institute, CSIR, Accra	Member, Water Resources Management
Dr. Michael Miyittah Kporgbe	Department of Environmental Science, University of Cape Coast, Cape Coast	Member, Environmental Risk Management
Dr. Francis Obeng	Faculty of Agriculture, University for Development Studies, Nyankpala, Tamale	Member, Agriculture & Food Security

Local Organising Committee

Convener
Delali Benjamin Dovie

Conference Project Manager
Christelle Onissah

Academic / Scientific Programme
Delali Benjamin Dovie
Samuel Nii Ardey Codjoe

Conference Venue, Residential, Security and Public relations
Margaret Appiah
Mary Twum Barima
Raphael Baffour Awuah
Phidelia Doegah
Fidelia Dake
Ruby Mensah
Abudulai Abubakar

Finances, Fundraising, Travel Grants and Awards
Ernest Afrifa
Gwendolene Asare-Konadu,
Antonia Meisuh
David Okutu
Franklin Lartey
Samuel Quaye
Sandra Boatemaa
Sanuade Olutobi Adekunle

Registration and related logistics
Norris Ayeh-Hanson
Ernest Afrifa
Gifty Konamah
Hetty Antwi-Boasiakoh
Beatrice Richardson
Gwendolene Asare-Konadu

SCIENTIFIC STEERING & LOCAL ORGANISING COMMITTEES

Antonia Meisuh
Samuel A. Quaye

Venue ICT Logistics, Web Management and Technical Assistance
Frema Owusu
Foli Edwin
John Korang
Reuben Larbi
Ernest Afrifa
Mike Philips
Elvis Coffie
Winfred Simpri

Special Projects [Carbon Neutral / Offset]
Delali Badasu
Eno Anwana
Henry Tagoe
Delali Benjamin Dovie
Abudulai Abubakar
Emmanuel Addae

Special / Side Events Committee
Christelle Onissah
Dorcas Ewoodzie
Fidelia Dake
Aaron Kobina Christian
Henry Tagoe
Nanaa Yaa Boakye
Mawuli Kushitor
Akua Darko

Conference Liaison
Christelle Onissah
Prisclla Dede
Felix Nyamedor
Samuel Afuduo
Samuel Quaye
Winfred Simpiri
Emmanuel Addae

Volunteer and student services
Akua Darko
Ophelia Sarkodie
Franklin Lartey
Lionel Sakyi
Issah Aminu Danaa
Adu-Ntim Julius
Prince Manu- Barfo
Afornorpe Eric Kofi

The Registry and Great Hall Views of University of Ghana
www.ug.edu.gh

GENERAL CONFERENCE INFORMATION & LOGISTICS

Accommodation

The two main accommodations to be used by meeting participants are the University Guest House and the African Studies Chalets. They are easy to find once you get to the University Ghana Campus. You may also inquire from the security post at the main entrance of the university. Note that certain taxis / cars may not be allowed in so let them know that you are attending the Climate Change Conference at Noguchi organised by RIPS. You may call the following number for attention: +233 (0)273975639

Restaurants

There are several eating places on campus ranging from traditional restaurants "chop bars" to sophisticated settings. The campus accommodations have their own restaurants and bars from which both local and European dishes are available and reasonably priced. Amounts from $3 - $10 should give you an excellent meal around the meeting venue but you must be prepared to spend more for a buffet or extras. You will also find eating places in all the residences on campus, the closest to the meeting venue is the Night Market close to the International Students Hostel. You do not have to go outside the campus to find food. There is also a restaurant bordering the meeting venue.

Transportation

Taxicabs are all over and plying between the University of Ghana Campus and the Legon Lorry Park / bus stop (although just a walking distance), from where you can connect to Accra CBD and other suburbs. In most of the cases, you do not have to hire a taxi. Mini and big buses are also available, again on the University of Ghana campus and the bus stops outside the main University entrance. When in central Accra, you can join any bus or taxi heading towards Madina, Adenta, Atomic, and Ashale Botwe, and get off at the Okponglo, Legon Bus Stop or Police Station opposite the main university entrance.

Shops

There are various forms of shops in Accra, ranging from table top to kiosks, tuck shops and supermarkets and shopping malls. On campus, you will find smaller shops and tuck shops. There is a supermarket around the university basic schools, central cafeteria & the international students' hostel, a walking distance from everywhere on campus. You may also visit the halls and the central cafeteria around the athletic oval (refer to map). The closest shopping mall is the Accra Mall (about 3 km from the University Campus on your way to the CBD). Get off at the Tetteh-Quarshie interchange and cross left to the Spintex Road.

Pharmacies, drug stores and clinic

These are also available on campus and within some of the halls (e.g. Legon Hall Annex B) where you can purchase simple medications. There is a campus clinic located within the Central Cafeteria. The university hospital is behind the Police Station, opposite the main University entrance which is ready to assist with all cases.

Laundry

The two major laundries on campus are found in the Legon Hall (main) and opposite the Faculty of Arts building on your way to the University Guest Centre. The other is at the Akuafo Hall car park and opposite Crops Science Department. Guest Centres, Lodges / Hotels also offer such service.

Security

Although security is not a serious issue in Ghana, and only involving petty stealing, be alert and call for help. Keep all valuables with you (e.g. credit card, cameras, passports, money, laptop). Do not leave valuables in your hotel rooms.

Telephone

The campus is full of telephone machines belonging to different telephone operators. Card telephones work on the Vodafone Network whilst MTN operates other forms of services. For international calls, dial 00 followed by the country code and the number. The various gsm / cell phone providers are Tigo, Vodafone, MTN, Expresso, and Zain, all that you need is a chip that costs around $0.50, and registration and you are connected to the rest of the world. Vendors are easily located.

Volunteers and other contacts

Please make use of the Volunteers at the meeting venue, whose name tags are clearly marked "VOLUNTEERS". The language of the Ghanaian is courtesy and not always about rights so observe that and you will not want.

Conference Secretariat Phones:
+233 (0)302500274 / +233 (0)273975639

CC POP – GHANA 2012 Conference Time Table At A Glance

MONDAY 25TH – SATURDAY 30TH JUNE 2012:
Pre-Conference Events / Training Programmes and Field Trips

SUNDAY 1ST JULY 2012:
5:00 pm – 8:00 pm: Participants' Welcome Reception and Sponsors' Night at YIRI Lodge (African Studies Chalets), University of Ghana

Time	MONDAY 2ND	TUESDAY 3RD	WEDNESDAY 4TH
07:30-08:30	REGISTRATION	REGISTRATION	REGISTRATION
08:30-10:00	OFFICIAL OPENING [VC, University of Ghana; Minister, MEST; UNDP Resident Rep; Canadian HC; African Union Rep; IDRC Canada Rep]	PLENARY 3: Prof. Naana Opoku-Agyemang, Vice Chancellor, University of Cape Coast, Cape Coast, Ghana PLENARY 4: Dr. Joyce Rosalind Aryee, Salt & Light Ministry, Accra, Ghana	PLENARY 5: Emerita Prof. Elizabeth Ardayfio Schandorf, University of Ghana, Legon, Ghana PLENARY 6: Dr. Moges Semu, Institute of Technology, Addis-Ababa, Ethiopia
10:00-10:30	BREAK 1	BREAK 1	BREAK 1
10:30-12:00	PLENARY 1: Dr. Johnson Boanuh, Economic Community of West African States, Abuja, Nigeria PLENARY 2: H.E. Ms Irene Vida GALA, Brazilian Ambassador to Ghana Robert Tippmann, CLIMATEKOS	PARALLEL SESSION 5: Symposium 1 - Managing water in the urban-rural interface for climate resilient cities PARALLEL SESSION 6: Climate Change and Human Security	PARALLEL SESSION 11: Roundtable - African Young Scientists Initiative On Climate Change And Indigenous Knowledge Systems PARALLEL SESSION 12: Climate variability and natural resources governance
12:00-13:30	LUNCH	LUNCH	LUNCH
13:30-15:00	PARALLEL SESSION 1: IDRC - RIPS Policy Roundtable 1 PARALLEL SESSION 2: Climate variability and change, vulnerability and food security	PARALLEL SESSION 7: Population, environmental change and development PARALLEL SESSION 8: Climate variability, water resources and livelihoods	PARALLEL SESSION 13: Applied Modelling, climate change and resource development PARALLEL SESSION 14: Public Lecture
15:00-15:30	BREAK 2	BREAK 2	BREAK 2
15:30-17:00	PARALLEL SESSION 3: IDRC - RIPS Policy Roundtable 2 PARALLEL SESSION 4: Environment, Energy and Land Use	PARALLEL SESSION 9: Knowledge Systems and Climate Change in Ghana PARALLEL SESSION 10: Climate Change Vulnerability, Health, Poverty and Gender	Closing Ceremony
17:00-21:00	ADAPTATION FINANCE DIALOGUE / RECEPTION	EVENING EVENT	CLOSING EVENT / DINNER / AWARDS NIGHT

TWO POST CONFERENCE WORKSHOPS [THURSDAY 5TH – SATURDAY 7TH JULY 2012: FOR JOURNALISTS, STUDENTS & RESEARCHERS]

PRE-CONFERENCE EVENTS

SCIENTIFIC WRITING WORKSHOP INFORMATION & APPLICATION

Venue:
Computer Laboratory, Regional Institute for Population Studies, University of Ghana
Dates: 27th – 30th June, 2012

This training workshop is being held under the African Adaptation Research Centre of Excellence [AARC] initiative of The Regional Institute for Population Studies (RIPS) as part of an IDRC, Canada funded project under the Climate Change Adaptation Research and Training Capacity for Development (CCARTCD) Programme of the IDRC.

The workshop targets active researchers or those with under training working for:

- ☐ Universities (Junior or Assistant Lecturers);
- ☐ Research institutes;
- ☐ NGOs with a research component in their work;
- ☐ Research and monitoring units of protected areas (parks and reserves); and
- ☐ Government departments that are involved in research.

Participants will gain skills in preparing quality papers for publication in journals and other media where research results can be easily accessed by the wider community. Much of the teaching will be based on practical exercises mainly based on participants' own work, while talks and case studies will illustrate steps in structuring scientific papers and how the publication process works. The workshop will provide follow-up support designed to ensure participants continue to apply their new skills afterwards.

Aim: The workshop will teach skills in preparing and submitting papers for publication. Specifically, the workshop will ● strengthen participants' understanding of the publication process ● develop skills in writing good science, including how to effectively present scientific results, both written and spoken ● build an understanding of working with journals' requirements ● build institutional capacity as new skills are transferred after the workshop.

FIELD TRIPS

THE RIVER VOLTA, WETLANDS AND COASTAL VIEW AT ADA-FOAH
SATURDAY 30TH JUNE 2012

TOUR OF THE CITY OF ACCRA
SUNDAY 1ST JULY, 2012

FOR DETAILS, VISIT http://www.ug.edu.gh/climateconference/index1.php?linkid=1237

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Climate Change & Population Conference on Africa

SIDE EVENT

Climatekos

IDRC CRDI INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

Expert Dialogue with Reception
FREE - REGISTER ONLINE TO ATTEND
http://www.ug.edu.gh/climateconference/index1.php?linkid=1249

2 July 2012, 17.00-18.30,
Conference Room, Yiri Lodge (African Studies Chalets), University of Ghana

'Accessing and Benefiting from Adaptation Finance – Identification of Approaches and Development of Strategies to Overcome Investment Barriers in Africa'

Background

This side event is part of a study to assess the barriers and solutions in bridging sources of finance from development banks and/or adaptation funding sources with adaptation projects and research in Africa, conducted by Climatekos, successor to EcoSecurities Consulting, on behalf of International Development and Research Centre (IDRC). The overall aim of the study is to provide guidance and recommendations to research efforts and approaches on the development and implementation of adaptation activities in Africa – focusing on bridging the gap between adaption research and the generation of viable business plans that can be supported by organizations providing adaptation funding to African project promoters.

Overall approach and this event

The main question to ask about development and implementation adaptation activities in Africa from a finance point of view is twofold:

- What does it take to develop feasible and viable adaptation projects or programs in Africa?
- What does it take to increase their attractiveness to adaptation funding sources and investors?

Aim

We aim to gain a better understanding of the underlying issues around financing adaptation projects in Africa, providing insights into the set of problems and generating ideas and/or hypotheses for research whilst assisting practitioners with their immediate funding needs. As part of the stakeholder engagement process we would like to initiate a consultation process and invite local African adaptation experts, researchers, project promoters and institutions providing finance to this side event. We aim to gather first-hand data and experiences during the study.

Why should you attend?

- Receive latest information on adaptation finance and on accessing adaptation finance.
- Meet senior experts from Climatekos, successor to EcoSecurities Consulting, an international specialist climate change consultancy with a focus on climate finance and development for over 15 years and representatives from IDRC.
- Exchange views on accessing and benefiting from climate and adaptation finance and getting involved in cutting edge research on the subject matter.

RIPS

ocp

vcccar

POST-CONFERENCE EVENTS

CLIMATE CHANGE SHORT COURSE FOR MEDIA PERSONNEL AND JOURNALISTS

Date: 5th – 7th July 2012

Venue: YIRI LODGE [AFRICAN STUDIES CHALETS] CONFERENCE ROOM, UNIVERSITY OF GHANA

BACKGROUND

The challenges posed by global warming and related climate changes are no longer merely potential threats but inevitable reality. As a result of global warming, the climate in Africa is predicted to become more variable, and extreme weather events are expected to be more frequent and severe. These include increasing risks of droughts and flooding and inundation due to sea-level rise in the continent's coastal areas with the potential to reduce economic prospects and national development. Climate – sensitive sectors such as agriculture and fisheries, forestry, tourism; coastal destruction from sea-level rise; variable water resources and changes in energy expenditures constitute severe market impacts. Additionally there are other several sectors that will be affected and because they are difficult to monetise they are often omitted in national accounting, covering the effects of temperature increase on health, ecosystems (e.g. loss of biodiversity), and human settlements. The development challenge of climate change is not merely attributable to the impacts it will have on development variables and life support systems. Also it is because most developing countries especially in Africa will be highly sensitive from existing developmental challenges which must be communicated timely and appropriately in the context of climate change as a public knowledge for which the United Nations Framework Convention on climate Change (UNFCCC) identifies the coupled challenges as:

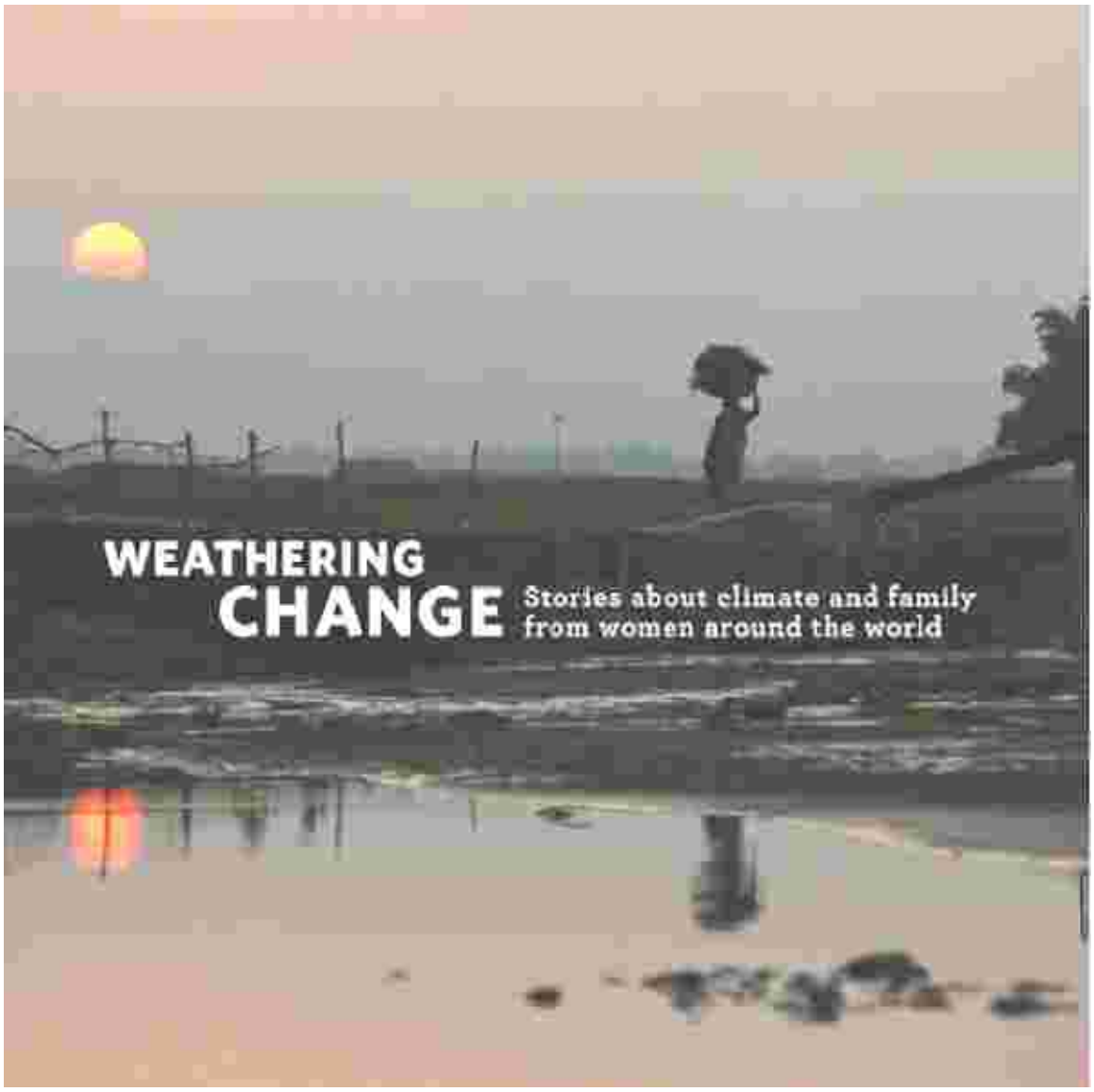
- low GDP per capita
- widespread, endemic poverty
- weak institutions
- low levels of education
- low levels of primary health care
- little consideration of women and gender balance in policy planning
- limited access to capital, including markets, infrastructure and technology
- ecosystems degradation
- complex disasters
- conflicts

AIM

The 3 – day course is targeted at media personnel and journalists wishing to take up careers in environmental issues and thus equipping them with the foundations of climate change science, associated risks to human population and linkages with development sectors and how to accurately communicate the issues.

A CLIMATE CHANGE FILM

Weathering Change takes us to Ethiopia, Nepal and Peru to hear the stories of women as they struggle to care for their families, while enduring crop failures and water scarcity. The film shows how women and families are already adapting to the climate change challenges that threaten their health and their livelihoods.



Population Action
INTERNATIONAL
HEALTHY FAMILIES HEALTHY PLANET

MONDAY 2ND JULY 2012

Official Opening & Day 1 Scientific Time Table At A Glance

07:30-08:30
PARTICIPANTS' REGISTRATION CONFIRMATION

08:30-10:00
OFFICIAL OPENING
[Vice Chancellor, University of Ghana; Minister, Ministry of Environment Science & Technology, Ghana; UNDP Resident Coordinator; Canadian High Commissioner; African Union Representative; IDRC Canada Representative, Other Invited Guests]

10:00-10:30
SNACK BREAK 1

10:30-12:00

PLENARY 1: Dr. Johnson BOANUH, Economic Community of West African States, Abuja, Nigeria.
PLENARY 2A: H.E. Ambassador Irene Vida GALA, The Brazilian Ambassador to Ghana
PLENARY 2B: Robert TIPPMANN and Team from CLIMATEKOS

12:00-13:30
LUNCH

13:30-15:00
PARALLEL SESSION 1: RIPS - IDRC Policy Roundtable 1
PARALLEL SESSION 2: Climate variability and change, vulnerability and food security

15:00-15:30
SNACK BREAK 2

15:30-17:00
PARALLEL SESSION 3: RIPS - IDRC Policy Roundtable 2
PARALLEL SESSION 4: Environment, Energy and Land Use

17:00-20:00 ADAPTATION FINANCE EXPERT DIALOGUE & RECEPTION

MONDAY 2ND JULY 2012

PLENARY 01

Title : ECOWAS REGIONAL APPROACH TO ADDRESSING CLIMATE CHANGE VULNERABILITY IN THE WEST AFRICAN REGION
Presenter : Dr. Johnson BOANUH, Economic Community of West African States, Abuja, Nigeria
Chair : Delali Benjamin DOVIE, Conference Co-Chair
Venue : Auditorium Time: 10:30 – 11:10 Hrs

Abstract

Climate Change is currently one of the most serious challenges to Sub-Saharan Africa, particularly the West African sub-region. In response, the Economic Community of West African States (ECOWAS Commission), in collaboration with relevant sub-regional partners and institutions, has since 2008 undertaken studies that confirmed the 4th Inter-Governmental Panel on Climate Change (IPCC) Report. The IPCC report cites the West African sub-region as one of the most vulnerable to extreme impacts of climate change in the world. Temperatures in the region have increased steadily over the years from 0.2 to 0.8 degrees, particularly since 1978; rainfall has decreased sharply, particularly in the Sahel region; there is clear evidence of a southward movement of the rainfall isohyets to about 200 kilometres in the Sahel from 1960 to 1990. These changes have resulted in severe droughts that have adverse impacts on water availability for agriculture, livestock, forests and other sectors like energy, health, eco-tourism, trade and transport services. The impacts have contributed to the worsening of the poverty situation in the region. Unpredictable rainstorms and accompanying floods have increasingly become more frequent, destroying infrastructure, crops and human lives. Most vulnerable groups identified include small scale peasant farmers, fishermen, coastal area residents, women, children & the aged. Subsequently, an Action Programme for Adaptation to Climate Change Vulnerability in West Africa has been developed with the overall objective "to develop and strengthen the resilience and adaptability of the sub-region to climate change and extreme weather events". The Action Programme has been adopted since 2010 by a Specialized Environment Sector Ministerial Committee of ECOWAS on Agriculture, Environment and Water Resources and requiring over US$ 500,000,000 (Five hundred million dollars) for implementation. Collaboration with the Swedish International Development Cooperation Agency (SIDA) will lead to the support of initial activities to establish a Climate Change Unit in ECOWAS to implement the programme and other climate mitigation activities.

PLENARY 02A

Presenter : H.E. Ambassador Irene Vida GALA, The Brazilian Ambassador to Ghana
Chair : Delali Benjamin DOVIE, Conference Co-Chair
Venue : Auditorium Time: 11:10 – 11:40 Hrs

PLENARY 02B

Title : ASSESSING THE BARRIERS AND SOLUTIONS IN BRIDGING CLIMATE FINANCE WITH ADAPTATION PROJECTS AND RESEARCH IN AFRICA
Presenter : Robert TIPPMANN and Team from CLIMATEKOS
Chair : Delali Benjamin DOVIE, Conference Co-Chair
Venue : Auditorium Time: 11:40 – 12:00 Hrs

Abstract

This is a study that will assess the barriers and solutions in bridging sources of finance from development banks and/or adaptation funding sources with adaptation projects and research in Africa. It will be conducted by Climatekos, successor to EcoSecurities Consulting, with the support of Oxford Climate Policy (OCP) and the Victorian Centre for Climate Change Adaptation Research (VCCCAR) on behalf of International Development and Research Centre (IDRC). The overall aim of the study is to provide guidance and recommendations to research efforts and approaches on the development and implementation of adaptation activities in Africa – focusing on bridging the gap between adaptation research and the generation of viable business plans that can be supported by organizations providing adaptation funding to African project promoters.

12:00-13:30	LUNCH BREAK

MONDAY 2ND JULY 2012

SESSIONS 01 – 04 PRESENTATIONS

EARLY AFTERNOON PRESENTATIONS

SESSION 01: RIPS-IDRC SCIENCE TO POLICY ROUNDTABLE I
MODERATOR: Henri Mathieu Lo, Université Cheikh Anta Diop, Dakar, Senegal
DISCUSSANT: Liqa Raschid-Sally, IWMI-Ghana, Sri Lanka
VENUE: Seminar Rooms 1&2
TIME: 13:30-15:00

PANELLISTS: 1. Seth OSAFO [Ghana]
Legal Adviser to the African group of negotiators at Climate Change negotiations (formerly at UNFCCC)

2. Grace AKUMU [Kenya]
Executive Director, Climate Network Action, Kenya

3. Sean DOOLAN [Ghana]
Climate Policy Adviser, British High Commission / DFID in Ghana

SESSION 02: CLIMATE VARIABILITY AND CHANGE, VULNERABILITY AND FOOD SECURITY
MODERATOR: Yonah Ngalaba Seleti, African Young Scientist initiative on Climate Change and Indigenous Knowledge Systems, South Africa
VENUE: Auditorium
TIME: 13:30-15:00

13:30-13:50 Determinants of Farm-Level Adaptation to Climate Change in Akwa Ibom State, Nigeria
HARRISON Ubong E, Bisong Francis E, Anwana Eno D, Department of Geography and Environmental Sciences, University of Calabar, Nigeria.

13:50-14:10 Climate Change Impacts, Vulnerabilities and Adaptation in Upper West Region of Ghana.
KUSAKARI Yasuko, United Nations University - Institute for Natural Resources in Africa (UNU-INRA), Accra, Ghana.

14:10-14:30 Gender and Climate Change: Vulnerability and capacity assessment of Oshana Region, Namibia.
ANGULA Margaret N, Kaundjua Maria B, Angombe Simon T, University of Namibia, Faculty of Humanities and Social Sciences, Windhoek, Namibia.

14:30-14:50 The Africa Climate Exchange (Afclix): A Knowledge Exchange programme towards improving food security in Sub-Saharan Africa
HIRONS Linda C*^, *Cornforth Rosalind, *Department of Meteorology, University of Reading, UK, ^Department of Physics, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana.

14:50-15:00 General Discussions & Conclusion

15:00-15:30 SNACK / COFFEE / TEA BREAK

LATE AFTERNOON PRESENTATIONS

SESSION 03: RIPS-IDRC SCIENCE TO POLICY ROUNDTABLE II
MODERATOR: Edith ADERA, IDRC, Nairobi
DISCUSSANT: Ayalew Moges SEMU, Institute of Technology, Addis-Ababa, Ethiopia
VENUE: Seminar Rooms 1&2
TIME: 15:30-17:00

PANELLISTS: 1. Sepo HACHIGONTA, [South Africa]
Project Manager, FANRPAN and Africawide Civil Society Climate Change Initiative for Policy Dialogue

2. Suruchi BHADWAL [India]
The Energy Research Institute (TERI)

3. James KINYANGI [Kenya]
International Livestock Research Institute (ILRI)

SESSION 04: Environment, Energy and Land Use
MODERATOR: Samuel Adiku, Conference Co-Chair, Soil Science Dept, University of Ghana
VENUE: Auditorium
TIME: 15:30-17:00

15:30-15:50 The impact of shading on annual energy use of residential buildings in Ghana
KORANTENG Christian*, **Simons Barbara, *Department of Architecture, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

15:50-16:10 Potential Amounts of Biomass Available for Biorefinery Processing in South Africa
MKHIZE Ntandoyenkosi M.*, **Sithole Bruce B, *Department of Chemical Engineering, University of KwaZulu-Natal, Durban, South Africa.

16:10-14:30 Charcoal Production and Soil Fertility in Derived Savanna Ecological Zone of Nigeria.
ORIOLA Emmanuel O, Department of Geography and Environmental Management, University of Ilorin, Ilorin, Nigeria.

16:30-16:50 A Comparative Analysis On The Rate Of Heat Flow Through Windows In Ghana
SIMONS Barbara*, Koranteng Christian, *Research Centre for Building Performance and Design, Kumasi, Ghana

16:50-17:00 General Discussions & Conclusion

17:00-18:30 Climate Adaptation Finance Dialogue (see page 9 for details)

ABSTRACTS

MONDAY 2ND JULY: SESSIONS 01 – 04

01 & 03: RIPS-IDRC SCIENCE TO POLICY ROUNDTABLE I & II

Climate change as a development catalyst is characterised by knowledge generation and uptake. However most of Africa is yet to experience such a knowledge revolution at the climate science - policy interface. Thus, there are gaps between knowledge generators and the marketplace which involves policy, politics and development. However, the gaps continue to widen in Africa in spite of the opportunities presented by important regional and global policy frameworks (e.g. Millennium Development Goals (MDGs) and AU/NEPAD Environment Action Plan). The AU/NEPAD Environment Action Plan has overall objectives to complement relevant African processes, including the work programme of the revitalised AMCEN, with a view of improving environmental conditions in Africa in order to contribute to the achievement of economic growth and poverty eradication. It will also build Africa's capacity to implement regional and international environmental agreements and to effectively address the African environmental challenges in the overall context of the implementation of NEPAD. Thus, the enormous scientific gaps on climate change at policy levels even at national levels need rethinking. The Policy Roundtable will provide lessons and among other things create awareness and knowledge transfer opportunities, on policy processes related to climate change, negotiations, funding and the role of science. It will seek to among others answer the following questions: What are the climate change policy issues that policymakers/decision makers are dealing with now that could be informed by science within the context of negotiations and also implementation at national and regional levels? What is the problem and how can science bridge the gap(s)? What are the effective pathways for science-policy interface within the climate change field? What framework of science-to-policy could be adopted in support of climate negotiations, policy development and implementation in Africa?

02: CLIMATE VARIABILITY AND CHANGE, VULNERABILITY AND FOOD SECURITY

Determinants of Farm-Level Adaptation to Climate Change in Akwa Ibom State, Nigeria

HARRISON Ubong E, Bisong Francis E, Anwana Eno D: Department of Geography and Environmental Sciences, University of Calabar, Nigeria.

Adaptation to climate change primarily aims at adjustment in response to actual or potential changes in climatic conditions. In the agricultural sector, it normally involves the adoption of measures to enhance adaptive capacity and reduce the vulnerability of the system to climate change. This study analysis the determinants of farm-level adaptation to climate change in farming communities in Akwa Ibom State, South-South Nigeria. About three hundred and ten farmers (310), sampled from communities in the thirty one (31) Local Government Areas of the state formed the basis for the study. Using a multivariate probit model, the analysis reveals that a combination of social, economic, political, institutional, cultural and bio-physical factors including poverty, farming experience, membership of cooperatives, farm size, type of farming, access to information, subsidies, market and extension services are the major determinants of adaptation. To achieve the Agricultural transformation Agenda of Government, the study emphasizes the urgent imperative for policies and measures to reduce poverty, create awareness, facilitate access to subsidies and market information. Efforts to combat climate change must necessarily be refocused to adopt participatory approaches that aim essentially at promoting sound adaptation strategies and best practices especially, at the farm-level.

Climate Change Impacts, Vulnerabilities and Adaptation in Upper West Region of Ghana.

KUSAKARI Yasuko, United Nations University - Institute for Natural Resources in Africa (UNU-INRA), PMB KIA, Accra.

Climate change and its associated effects directly or indirectly affect people's livelihoods and well-being. The Upper West Region of Ghana, which is considered vulnerable in socio-economic and environmental terms, has been stricken by recurrent floods and frequent droughts alternately. These extreme weather events, coupled with erratic rainfall patterns and rising temperatures, have had multidimensional impacts on the dominantly agrarian region — such as environment, agricultural productivity, income, housing, migration,

health, nutrition and food security, further increasing vulnerabilities. Such vulnerabilities have evidently affected types of existing adaptation measures as well as the level of adaptation. This presentation elaborates climate change impacts, vulnerabilities and adaptation – and linkages among these dimensions – by analysing the case of the Wa West District, one of the districts in the Upper West Region of Ghana. The assessment has revealed that there are clear linkages among climate change impacts on livelihoods, state of vulnerabilities and adaptation measures which the populations in the rural communities have been taking. The findings suggest that local capacities to sustain and enhance livelihoods and well-being can increase adaptability by reducing climate change impacts and vulnerabilities.

Gender and Climate Change: Vulnerability and capacity assessment of Oshana Region, Namibia.

ANGULA Margaret N, Kaundjua Maria B, Angombe Simon T, University of Namibia, Faculty of Humanities and Social Sciences, P/Bag 13301, Windhoek

There is increasing evidence that climate change has an effect on natural disasters such as flood and drought, impacting on agricultural production. Furthermore, gender and climate change studies revealed that there is gender differentiated adaptive and coping capacities. The differentiated impacts of climate related disasters on individuals, demonstrate the social construction of vulnerability which reveals the pre-existing gender inequalities. This paper assesses the gender vulnerability to climate change and the capacity to respond to climate change impacts. It demonstrates an understanding of the relationship between gender, age, social class and climate change in Namibia. The results are based on the 2008-2009 Gender and climate change in Oshana region and 2011 Vulnerability and capacity assessment of flood victims in Oshana and Ohangwena regions. The methodology is based on the Climate Vulnerability and Capacity Analysis (CVCA) and Socio-economic and Gender Analysis (SEGA) frameworks. The study reveals some positive changes in gender relations but slow attitudinal changes towards women. In addition, women are expected to cope and develop adaptation strategies to deal with reduction in land productivity as this affects food security. Although women were found to be more vulnerable to the adverse impacts of climate change, the results from this study reveals that they are the first to diversify their livelihood by engaging into small scale business enterprises while men engage in long-term business enterprises.

The Africa Climate Exchange (Afclix): A Knowledge Exchange programme towards improving food security in Sub-Saharan Africa

*^HIRONS Linda C, *Cornforth Rosalind, *Department of Meteorology, University of Reading, PO Box 243, Reading, UK, ^ Department of Physics, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana

The vagaries of the rainfall in Sub-Saharan Africa have had profound and generally dire effects on African society and economy. Research and development efforts have considered the causes and predictability of these rainfall variations, and have more recently extended to the societal use of the resulting knowledge through a new project, the Africa Climate Exchange (AFCLIX). AFLCIX aims to ensure that all climate-related policy decisions in sub-Saharan Africa can be made with access to the best-available scientific information. This is exemplified by its emphasis on "feet on the (African) ground" mechanisms of knowledge-sharing activities at the science-policy interface. The two-way interaction - both Africa-UK, and policy-science exchanges - seeks to channel the latest climate science into policy for the identified strategic regions of Sudan and Senegal and to extend lessons learned to other Sub-Saharan countries. Face-to-face meetings to establish stakeholders' key priorities, are followed by exchange fora on the ground in Africa to help give scientists a much better understanding of local issues, the complexity of the policy-making environment and the competing challenges faced by African decision-makers. Targeted Africa-centric publications and the AFCLIX interactive web portal will ensure learning is shared effectively. The establishment of region-specific consortia will ensure collaborations are sustained and provide useful models for networking and co-ordination towards climate adaptation for food security. Such multidisciplinary development of the type proposed by AFLCIX is essential in the so-called developed world "to help Africa help itself".

04: Environment, Energy and Land Use

The impact of shading on annual energy use of residential buildings in Ghana

KORANTENG Christian*, **Simons Barbara, *Department of Architecture, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, **Research Centre for Building Performance and Design, Kumasi, Ghana

The high energy use of curtain wall buildings is well-known around the globe. In Ghana, the situation is not different, as new buildings are being constructed with inefficient materials. In this context, the study outlined here sought to analyse four glazing types and how shading could be used to reduce the energy usage of buildings. The simulation approach employed required knowledge on the thermal properties of glazing being used in the construction industry. The results showed that there are inefficient glazing types (high shading and solar heat gain coefficient values). Low solar gain glazing types could have a positive impact on the reduction of cooling loads; the use of the sustainable design principle of shading had a positive effect on annual cooling load (climate change); and educating professionals and the public will help to contribute to a better built environment.

Potential Amounts of Biomass Available for Biorefinery Processing in South Africa

MKHIZE Ntandoyenkosi M, *,**Sithole Bruce B, *Department of Chemical Engineering, University of KwaZulu-Natal, Mazisi Kunene Avenue, Glenwood, Durban, South Africa, **Council for Scientific and Industrial Research (CSIR), P. O. Box 17001, Congella, South Africa.

A successful strategy against climate change requires a strong reduction of the greenhouse gas emissions. Biomass contributes towards this as it is renewable, and is permanently produced by green plants all over the world. We have compiled a report of types and quantities of South African biomass that can be used for biorefinery processing operations and help in greenhouse gas mitigations. The available biomass is classified into four main sources: i) agriculture (animal dung, field crops, and horticulture); ii) aquaculture/fisheries (marine and freshwater); iii) forestry and iv) other (a "catch-all" class that includes alien species, alien invasive species and urban waste). An example of application of the biorefinery process is generation of high value chemicals from forestry waste biomass, such as the production of fuels from wood biomass. We have studied the production of biodiesel from tall oil, a by-product of the chemical pulp processing operations. Our studies indicate that acid catalysis of tall oil is effective in converting the tall oil components into biodiesel in high yield. Parameters that needed optimisation will be discussed and the economics of the process will be discussed also. The production of biodiesel will help to reduce dependence on fossil fuels.

Charcoal Production and Soil Fertility in Derived Savanna Ecological Zone of Nigeria.

ORIOLA Emmanuel O, Department of Geography and Environmental Management, University of Ilorin, Ilorin, Nigeria.

Charcoal production and demand are on the increase in developing countries and international markets respectively. However, the production and use of charcoal have greatly degraded the physical environment. Aside from loss of woodland and accompanied change in potential terrestrial carbon sequestration and ecosystem benefits, it also facilitates climate change and global warming which modifies soil fertility status, where charcoal production is widespread. This study examines the consequences of charcoal production on soil fertility in derived savanna ecological zone of Nigeria. Forty soil samples were collected from charcoal production sites and adjacent fallow land for comparison. Essential soil chemical properties were analysed using standard laboratory analytical procedures. Coefficient of variation and Student 't' test analysis were used to summarise and draw inferences from the results. The results show that most of the chemical properties analysed are heterogeneous and their mean values in charcoal production sites are significantly different from those of the fallow land. This reveals that charcoal production effect changes in the values of the soil chemical properties. The changes reflect an improvement in the soil fertility, it then suggests that charcoal material can serve as soil amendment in this ecological zone. The study therefore recommends that selective tree harvesting and aggressive wood plantation should be rigorously pursued as this would increase carbon sequestration and generate employment at local level.

A Comparative Analysis On The Rate Of Heat Flow Through Windows In Ghana

SIMONS Barbara*, Koranteng Christian**
*Research Centre for Building Performance and Design, Kumasi, Ghana, **Department of Architecture, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

The issue of global warming and climate change is known to be a result of human activities. Efforts are being made to adhere to sustainable architecture since worldwide, building sectors are responsible for high energy use. Therefore, the study being presented analysed ten glazing types with different heat flow

properties (U-Values) to reduce the thermal discomfort (energy usage) of buildings. A test model was built in a simulation application to study the effects of heat flow on the internal space. The indoor temperatures were generated and graphed in an MS Excel application. The results showed that windows with low heat flow values had a better output on comfort (indoor temperature). However, the cost implication of very high performance windows as against moderate types ought to be taken into account in the design and selection of building fenestration.

SIDE EVENT, 5:00 – 6:30 pm

SIDE EVENT:	Expert Climate Finance Dialogue & Reception
MODERATORS:	Robert Tippmann & Ali Agoumi
VENUE:	Conference Hall, Yiri Lodge, Legon
TIME:	5:00 PM – 6:30 pm

Theme:

'Accessing and Benefiting from Adaptation Finance – Identification of Approaches and Development of Strategies to Overcome Investment Barriers in Africa'

By the Kind Courtesy of:

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On Behalf Of:

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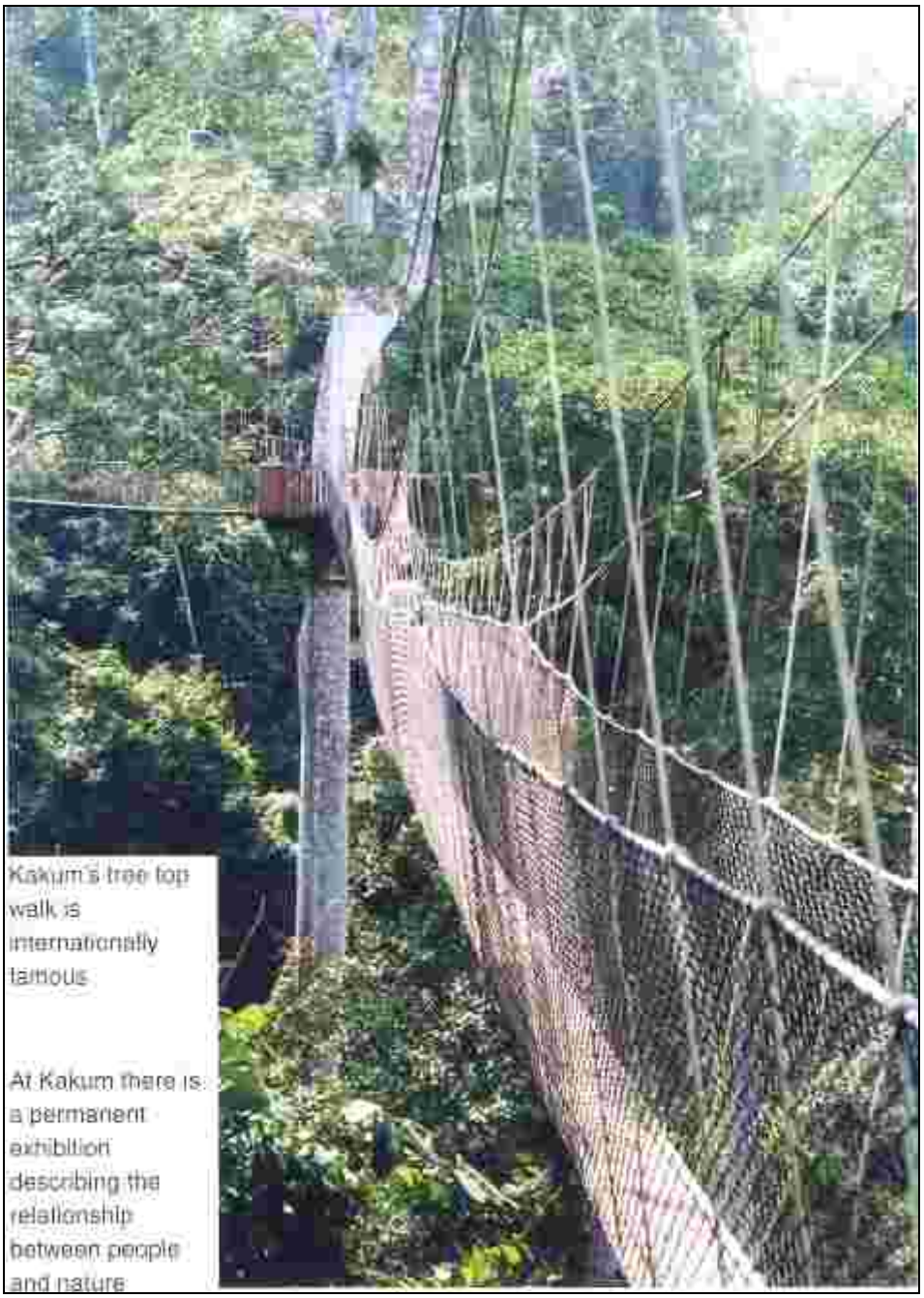
Come One Come All – FREE

Mitigating Through Conservation



Courtesy: Ghana Forestry Commission (WD)

TUESDAY 3RD JULY 2012

Day 2 Scientific Time Table At A Glance

07:30-08:30
PARTICIPANTS' REGISTRATION CONFIRMATION

08:30-10:00
PLENARY 3: Prof. Naana Jane OPOKU-AGYEMANG, Vice Chancellor, University of Cape Coast, Ghana
PLENARY 4: Dr. Joyce Rosalind ARYEE, Salt & Light Ministry, Accra, Ghana

10:00-10:30
SNACK BREAK 1

10:30-12:00
PARALLEL SESSION 5: Symposium 1 - Managing water in the urban-rural interface for climate resilient cities
PARALLEL SESSION 6: Climate Change and Human Security

12:00-13:30
LUNCH

13:30-15:00
PARALLEL SESSION 7: Population, environmental change and development
PARALLEL SESSION 8: Climate variability, water resources and livelihoods

15:00-15:30
BREAK 2

15:30-17:00
PARALLEL SESSION 9: Knowledge Systems and Climate Change in Ghana
PARALLEL SESSION 10: Climate Change Vulnerability, Health, Poverty and Gender

17:00-21:00
POSTER RECEPTION / DANCE & DRAMA EVENT

PLENARY 03

Title : Climate Change and the Humanities

Presenter : Prof. Naana Jane OPOKU-AGYEMANG, Vice Chancellor, University of Cape Coast, Ghana

Chair : Samuel G.K. ADIKU, Conference Co-Chair

Venue : Auditorium Time: 08:30 – 09:15 Hrs

Abstract

The paper recognizes that Climate Change has become a topic of major concern in the 21st Century. It has engaged the attention of world bodies, governments, organizations, corporations and has found expressions also in individuals of different persuasions. Climate Change has assumed the focal point of major research findings, most of these justifiably hinged on the 'scientific' nature of the complex issues that affect food security, migrations patterns, water and biosphere management, the cross-cutting issues of energy, understanding of gender equality issues related to climate change, sustainable development, environmental ethics, climate change adaptations actions and many other relevant areas of concern. The success of mitigating and managing these changes that have serious implications for the sustainability of life itself on our planet. The causes of climate change have been established is instigated by factors that include oceanic processes (such as oceanic circulation), variations in solar radiation received by earth, plate tectonics and volcanic eruptions, and human-induced alterations of the natural world; these latter effects are currently causing global warming, and "climate change" is often attributed to human-specific impacts. The response of academe has nearly always rested on the physical biological and social sciences. This paper argues that climate change should be a matter of concern to every discipline. Given the inter-disciplinary nature of climate change, it is important to consider a context that places all the relevant disciplines at the centre of its solution. A direct response of United Nations Educational, Scientific & Cultural Organisation (UNESCO), for example, is to propose climate change education is one of its focal topics within the UN Decade of Education for Sustainable Development. UNESCO offers support to Member States to address climate change, in particular, through developing learning tools and organizing workshops for policy makers and teacher educators. The response of this paper is to contribute to the discussion of finding ways to address this important phenomenon, by focusing on the potential of the creative arts, especially literature, in this direction.

PLENARY 04

Title : CLIMATE CHANGE: CHALLENGES AND OPPORTUNITIES FOR AN EXPANDING POPULATION

Presenter : Dr. Joyce Rosalind ARYEE, Salt & Light Ministry, Accra, Ghana

Chair : Samuel G.K. ADIKU, Conference Co-Chair

Venue : Auditorium Time: 09:15 – 10:00 Hrs

Abstract

There are changes in the earth's climate, due largely to greenhouse gas emissions especially carbon dioxide resulting from human activities. These man-made generated gases are derived in part from aspects of the built environment such as transportation systems and infrastructure, construction and land-use planning as well as energy consumption. It is interesting to realize that there is an intricate relationship between population growth and climate change, to the extent that the latter is induced by the activities of the former. The high population growth leads to

increase in energy use, increase in waste generation, increased concentration of methane in the atmosphere, poor environmental conditions, pollution of water bodies, deforestation for housing and farming as well as increase in Carbon Dioxide emissions, and all these conditions adversely affects the earth's climate. In Ghana, the rapid increase of human population coupled with desperate poverty to deplete and pollute local resource bases on which the livelihood of present and future generations depend pose a great threat to climate change and sustainable development. At the continental level the situation is not different. The UN population Fund reported that the number of people in Africa has passed the one billion mark and according to a senior researcher at the Institute for Security Studies in Addis Ababa, climate change has the tendency to further aggravate the high population growth and environmental foot prints in Africa. In terms of impacts Africa is already facing its worst drought as a result of the changes in the earth's climates, especially in East Africa where more than 11 million inhabitants are affected. Ghana's rapid population growth is straining urban infrastructure, degrading social amenities and increasing environmental problems, particularly in the urban areas. It is essential to recognize that high population growth cannot and should not be delinked from climate change, as a result a more holistic approach and collaborations should be adopted in dealing with this menace.

10:00-10:30	SNACK / TEA / COFFEE BREAK

SESSIONS 05 – 10 PARALLEL PRESENTATIONS

LATE MORNING PRESENTATIONS

SESSION 05: Symposium 1: Managing water in the urban-rural interface for climate resilient cities

ORGANISERS: RASCHID-SALLY L.{ XE "RASCHID-SALLY L." }, Sri-Lanka, Amisigo Barnabas, Ghana, Akoto-Danso E.K, Ghana, Semu Ayalew M., Ethiopia

MODERATOR: RASCHID-SALLY Liqa

VENUE: Auditorium

TIME: 10:30-12:00

SYNOPSIS This symposium is organized around the findings of a multidisciplinary research project on urban adaptation to water mediated impacts of climate change that is being implemented in two African cities, Accra, Ghana and Addis Ababa, Ethiopia. The project was designed for policy influence and uptake of research, through a process of continuous stakeholder engagement. It is nearing completion, with findings that suggest a paradigm shift in thinking around integrated urban water resources management for adaptation to climate change. The research has produced a rich evidence base that is in the public domain, and our motivation is to share this knowledge with a wider audience.

10:30-10:45 Factoring climate change into urban water management – conceptual framework for adaptation.
RASCHID-SALLY L.*, Semu Ayalew M.**, Amisigo Barnabas A***, Geremew S, *Akoto-Danso E.K, *Van Rooijen D., and *Hirvonen M., *International Water Management Institute, Ghana

10:45-11:00 Climate Downscaling over Densu basin, Ghana, Using RegCM4
KASEI R.A., University for Development Studies-Earth and Environmental Science Department (EES), Faculty of Applied Sciences (FAS), Navrongo, Ghana

TUESDAY 3RD JULY 2012

11:00-11:15 Impact of Climate Change on existing and future Drainage Infrastructures of Addis Ababa.
SEMU Ayalew M.*, **Abayneh A, ***Geremew S, ****Raschid-Sally L., *Hydrology and Water Resources Management, Department of Civil Engineering, AAiT, Addis Ababa University, Ethiopia

11:15-11:30 Water supply–demand management for Accra under climatic and non-climatic drivers
AMISIGO Barnabas A.*, ** Raschid-Sally L, **Akoto-Danso E.K, and * Logah F; *Council for Scientific and Industrial Research, Water Research Institute, Accra, Ghana.

11:30-11:45 Impacts of expansion of built environment on the flooding regime of Addis Ababa
SEMU Ayalew M.*, Getahun Habtamu, Geremew Sahilu, Liqa Raschid-Sally, *Hydrology and Water resources Management, Department of Civil Engineering, AAiT, Addis Ababa University, Ethiopia

11:45-12:00 GENERAL DISCUSSION & CONCLUSION

SESSION 06: Climate Change and Human Security in Ghana
MODERATOR: John Anarfi, Regional Institute for Population Studies, University of Ghana
VENUE: Seminar Rooms 1 & 2
TIME: 10:30 – 12:00

10:30-10:50 Effects Of Shoreline Erosion On Infrastructure Development Along The Coastal Belt Of Ghana: The Case Of Nkontompo Community
AMOS-ABANYIE Samuel*, Olympio George F. A., *Department of Architecture, KNUST – Kumasi, Ghana

10:50-11:10 Climate Variability, Gender and Social Reproduction: Can Indigenous Knowledge and Practices contribute to Adaptation in Ghana?
BADASU Delali M.*, Kotey S.K., *Regional Institute for Population Studies, University of Ghana, Ghana

11:10-11:30 Investigation Of Rainfall Onset And Retreat Dates, And Length Of Growing Seasons In The Agro-Ecological Zones Of Ghana
AMEKUDZI L.K.*, Hirons L.C.**, Yamba E.I.***, Asare E.O.*, Preko K.*, *Meteorology and Climate Science unit, Department of Physics, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana

11:30-11:50 Intra-Regional Migration, Climate Change, and Environmental Sustainability in Africa
DOVIE Delali B., Regional Institute for Population Studies, University of Ghana, Legon, Ghana

11:50-12:00 General Discussions & Conclusion

12:00-13:30 LUNCH BREAK

TUESDAY 3RD JULY 2012

EARLY AFTERNOON PRESENTATIONS

SESSION 07: Population, environmental change and development
MODERATOR: Delali Badasu, Regional Institute for Population Studies, University of Ghana
VENUE: Seminar Rooms 1 & 2
TIME: 13:30 – 15:00

13:30-13:50 Population Dynamics, Climate Change and Sustainable Development in Africa
Mutunga C.*, Ciera J.^, DE SOUZA, R-M.*, Zulu, E.^, *Population Action International, Washington DC, USA.

13:50-14:10 Gender Perception of Climate Change, Kwara State, Nigeria
OGUNLEYE-ADETONA C I*, **Ajibade L T, *Dept of Geography & Regional Planning University of Cape Coast Ghana, Ghana

14:10-14:30 Challenges of Rapid Population Growth and Vulnerability of Nigerian Environment to Direct and Indirect Impacts of Climate Change
AJADI, Bolakale Saheed*, **Tunde, A.M., *Department Of Geography
*Kwara State Polytechnic, Ilorin, Nigeria

14:30-14:50 The Mining-REDD+ Debate in Guyana: Lessons for sub-Saharan Africa
HILSON Gavin M, School of Agriculture, Policy and Development, The University of Reading, UK

14:50-15:00 General Discussions & Conclusion

SESSION 08: Climate Variability, Water Resources And Livelihoods
MODERATOR: Ayalew Moges Semu, AAiT, Addis Ababa University, Ethiopia
VENUE: Auditorium
TIME: 13:30 – 15:00

13:30-13:50 Climate Change Adaptation Through Integrated Water Resources Management In Northern Ghana.
ADUNA Aaron B, Water Resources Commission, White Volta Basin Secretariat, Bolgatanga, Ghana.

13:50-14:10 Demographic And Socio-Cultural Dimensions Of Climate Change Adaptations In Flood-Prone Communities In Ghana
ISSAH Aminu Danaa, Regional Institute for Population Studies, University of Ghana, Ghana

14:10-14:30 A Rapid Vulnerability Assessment Method For Climate Change And Natural Hazards In Ghana's Coastal Zone
KANKAM Stephen*, **Robadue Donald, *Inkoom Justice, **Stevens Hilary, **Fenn Mark, *Adupong Richard, *Friends of the Nation, Takoradi, Ghana.

14:30-14:50 Linkages Between Sea-Level Rise And Groundwater Quality: Livelihood Implications And Interventions
NYAMEDOR Felix H., Regional Institute for Population Studies, University of Ghana, Legon, Ghana

14:50-15:00 General Discussions & Conclusion

15:00-15:30 SNACK / TEA / COFFEE BREAK

LATE AFTERNOON PRESENTATIONS

SESSION 09: Knowledge Systems and Climate Change in Ghana
MODERATOR: William Tawiah, Regional Institute for Population Studies, University of Ghana
VENUE: Auditorium
TIME: 15:30 – 17:00

15:30-15:50 Climate Change and Disaster Risk Accumulation: Reflections from Urban Neighbourhoods, Ghana
OTENG-ABABIO Martin, Geography and Resource Development, University of Ghana

15:50-16:10 Flood Victims' Expectations Regarding Their Future Environments – Findings From Interviews In Accra
HALTERMANN Ingo, Institute of Advanced Study in the Humanities, Essen, Germany.

16:10-14:30 Using Mental Model Techniques To Understand How Rural And Poor Urban Dwellers In Ghana Perceive Climate Change
ABU Mumuni, Regional Institute for Population Studies, University of Ghana, Legon, Ghana

16:30-16:50 Establishing Indicators For Climate Change Adaptation In Ghana's Health Sector
DOVIE Delali B.*, Anwana Eno D.*, Regional Institute for Population Studies, University of Ghana, Legon, Ghana

16:50-17:00 General Discussion & Conclusion

SESSION 10: Climate Change Vulnerability, Health, Poverty and Gender
MODERATOR: Scott Moreland, Futures Group, USA
VENUE: Seminar Rooms 1 & 2
TIME: 15:30 – 17:00

15:30-15:50 Climate And Socio-Economic Determinants Of Malaria Vulnerability In Ga-Mashie, Accra
APPIAH Margaret, Regional Institute for Population Studies, University of Ghana, Ghana

15:50-16:10 Poverty And Changing Climates In Rural Cameroon: Does Gender Matter?
SAH Nancy A., (CIFEM) Universidad de Oviedo, Spain

16:10-14:30 Access To Information For Sustainable Environmental Development: Is There Gender-Based Bias?
SOLOMON-AYEH Bettie E, CSIR-Building and Road Research Institute, Kumasi, Ghana

TUESDAY 3RD JULY 2012

16:30-16:50 Impact Of The Adoption Of Improved Rice Varieties On Income And Poverty Reduction Among Rice Farmers In Cameroon: A Local Average Treatment Effect (LATE) Approach
ANISSA Banawe P.*, Malaa Dorothy K., Diagne Aliou, * Sub-regional Institute for Statistics and Applied Economics (ISSEA), Togo

16:50-17:00 General Discussion & Conclusion

ABSTRACTS

TUESDAY JULY 3RD: SESSIONS 05 – 10

05 - Symposium 1: Managing water in the urban-rural interface for climate resilient cities

Factoring climate change into urban water management – conceptual framework for adaptation.

RASCHID-SALLY L.*, **Semu Ayalew M., ***Amisigo Barnabas ****A, Geremew S, *Akoto-Danso E.K, *Van Rooijen D., and *Hirvonen M. *International Water Management Institute, PMB CT 112, Cantonments-Accra, l.raschid@cgiar.org, ** Hydrology and Water resources Management, Department of Civil Engineering, AAiT, Addis Ababa University ***Council for Scientific and Industrial Research, Water Research Institute, P.O. Box M 32, Accra, ****Water Supply and Sanitation Chair, Depart of Civil Engineering, AAiT, Addis Ababa University

The water resources sector is one of those most affected by changes in climatic conditions, with important consequences for urban water management (UWM). Though current UWM has adopted a more broad-based approach to analysis, it is still contained within the bounds of water supply and sanitation management. It does not situate urban water needs within the hydrological and developmental contexts of the basins from which they derive, and which are subject to the vagaries of climate change. Nor does it address flood control and management as a component for integration. Factoring in climate change must address the dual phenomena of complexity and uncertainty, inherent to both climate change and urban development. This paper presents a conceptual framework that was utilized to generate evidence for strategic decisions on adaptation responses to climate change, in Accra, Ghana and Addis Ababa, Ethiopia. Both are rapidly urbanizing cities sourcing water from beyond their administrative boundaries and sometimes water basins, and exhibiting increasingly built environment and spatial expansion. Current water-related issues are a persistent supply-demand gap, urban flooding due to the increase in impervious areas and inadequate drainage infrastructure, and uncontrolled wastewater disposal with downstream consequences for urban farmers within the basins. Whilst presently these are the consequences of the non-climatic drivers of demographic growth, per capita water demand, and insanitary wastewater disposal; climate drivers are seen to exacerbate the situation. The paper concludes with some recommended good practices for making cities more resilient to the water mediated impacts of climate change.

Climate Downscaling over Densu basin, Ghana, Using RegCM4

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Climate Downscaling is a term adopted in climate science in recent years to describe a set of techniques that relate local to regional-scale climate variables in relation to the larger scale atmospheric forcing. Climate downscaling specifically addresses temporal and spatial information from Global Climate Models (GCMs) required by precise researches of today. The Regional Climate Model version 4 (RegCM4), with horizontal resolution of 55 km, was used to downscale the ECHAM5 simulations forced with observed SSTs. An ensemble of 10 ECHAM5 AGCM integrations forced with observed time-evolving SSTs was done from 1961 to 2000. For each of the ECHAM5 AGCM integrations a nested integration with the REGCM was done for the period January–June 1970–2000. The results of the comparison for the Densu catchment station showed a good correlation between the observed REGCM-simulated monthly rainfalls with significant statistics. Although no coherent trends were found in the basin, inter-annual rainfall variability was more pronounced as revealed by the REGCM 4 simulations. The northern part of the basin is most vulnerable to these variations because it has a mono-modal rainfall pattern compared to the south which has relatively higher rainfall amounts due to its bi-modal rainfall pattern. The SPI analysis conducted on projected

precipitation based on REGCM using IPCC's A1B and B1 scenarios against the base period of 1961-2000 showed both scenarios agreeing to a general drying trend for the future.

Impact of Climate Change on existing and future Drainage Infrastructures of Addis Ababa.

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Insufficient knowledge about impacts of climate change on cities of sub-Saharan Africa, makes them vulnerable, and limits adaptation capacity. To generate evidence for informed decisions, on city adaptation to climate change, this study investigated the impact of climate change on Addis Ababa City, in relation to the change in extreme hydrological regime and its effect on the drainage infrastructures; based on regionally downscaled climate change projection (RegCM3) of ECHAM-5 global circulation model (GCM). The investigation period includes two windows of 2030s and 2090s. It is likely that the Addis Ababa and surrounding area will become warmer in 2030's than 1990's by about 1.1 o C. By the end of 21st century, the temperature is expected to rise by about 4 o C. Similarly, precipitation will increase in the same period, by about 13 to 17%, for most months, the higher value occurring during the wet season of June to September. Exceptionally, precipitation is expected to show likely decrease in the Autumn season of February to May. The combined effect of temperature and precipitation will be to increase the frequency and magnitude of the peak floods. The peak flood magnitudes of return period up to 20 years will likely be exceeded, requiring re-design of drainage structures normally designed to accommodate 10 or 20 years flood. To minimize the risk of urban flooding and associated damages, the city must invest in a well-designed drainage system that incorporates the future climate change impact in its design, which is a vital requirement for adaptation.

Water supply–demand management for Accra under climatic and non-climatic drivers

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Expanding cities of developing countries, such as those in Sub-Saharan Africa, are already under severe stress of inadequate water supply for livelihood support of their populations. In addition, sources of water supply for these cities are often from river basins shared with rural communities. Therefore, economic and other activities in these communities could have serious repercussions on the water availability to urban areas. Climate change impacts on water resources would exacerbate this difficult urban-rural interaction. The Densu River Basin in Ghana serves as a source of potable water supply and life support for Accra and communities living in and around the basin. This study investigated climate change impacts on the surface water resources of the basin through hydrological modelling with downscaled climate data. Also, the water supply-demand gap for Accra was modelled for different non-climatic urban development scenarios. The study was undertaken as part of the assessment of the resilience of Accra to climate change impacts under the URADAPT Project. The study showed general drying in the basin to 2050 and reduced stream flow. Current water abstraction is at 34% of annual stream flow which is already high enough for the basin to be classified as water stressed. Further, there exists a current supply-demand gap which will increase with expected demographic and economic growth. In addition to expanding supply infrastructure to bridge the gap, it may be necessary in the long term to consider alternative water sources and to encourage other water management options like demand management through water conservation measures.

Impacts of expansion of built environment on the flooding regime of Addis Ababa

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Cities in Africa show rapid expansion of built environments, including impervious areas. This can lead to important changes in the hydrological regimes, with consequences for urban flooding. Addis Ababa is used

as an example, to evaluate the surface runoff generation and flooding potential from land use change, using three land use maps spanning the change period from 1986 to 2002. Modelling the runoff for the same rainfall series indicated the runoff potential has increased from 28% in 1984 to 45% in 2002. GIS computations of the map areas showed that the city asphalt area has increased from 4.72 sq.km in 1984 to 27.7 sq.km in 2002. Similarly the paved area has expanded five fold from an original 11.1 sq.km, whilst the built environment expanded from 60.1 to 212.7 sq.km. It was concluded that the cause of runoff increase is mainly due to the rapid expansion of the city and the built environment including impervious areas. In the absence of a comparative study, it is nevertheless hypothesized, that the impact of land use change (on flood generation) is likely to be more significant than the climate change impacts in the short and medium term, for urban areas. It is important to view land use change and climate change in tandem, since both introduce high non-stationarity in the time series of flood variables which should be factored into the design of urban infrastructure. This calls for a paradigm shift in planning, designing and maintenance of city infrastructure for developing cities in Africa.

06 - Climate change and Human Security

Effects Of Shoreline Erosion On Infrastructure Development Along The Coastal Belt Of Ghana: The Case Of Nkontompo Community

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The coastal areas of Ghana are the locus of rapid urban and industrial growth, oil and gas development, industrial-scale fisheries and tourism destinations. Changes in the coastline position has seriously threatened the equilibrium of the coastal environment thus affecting the socio-economic life of local populations, cultural heritage and hindered coastal tourism development. This paper assessed the extent of shoreline recession, how buildings and infrastructure have been affected along Ghana's coastline with Nkontompo Community, a suburb of Sekondi in the Western Region of the country as a case study. The study employed data spanning a period of 23 year period, including Townsheet and Toposheets that were interpolated to establish rate of recession of the shoreline. The extent of land lost in conjunction with the building density was used to establish the number of buildings lost. The study revealed that environmental conditions at Nkontompo have changed over the past three to four decades as a result of shoreline erosion. The coastline of the community has been receding at a rate of approximately 2 m per annum. From the topographical sheet interpolations and analysis made by the authors, it was realized that approximately 9 acres of the coastline, forming a third of the total built up area has been eroded leading to damage and subsequent loss of about 117 buildings to the sea. Recommendations have been made identifying adaptation techniques and strategies to manage the effects of this phenomenon along the coastal belt of Ghana.

Climate Variability, Gender and Social Reproduction: Can Indigenous Knowledge and Practices contribute to Adaptation in Ghana?

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Gender relations have continued to characterize social reproduction in most human populations, yet the inter-linkages of such relations within the coupled human-environment system is often ignored. The greatest burden of child care, for example, has been borne by mothers and vulnerable when resources are limited. The resources may come from the environment and largely influenced by changes in climate such as food, energy and water supply. Ironically women also have been generally poorer and have had less opportunity to access critical livelihood resources. Meanwhile climate variability will most likely make more demand on women's burden as they spend more time and effort to access resources such as water and energy, among others, not only for the consumption of their families but also as resources that are indispensable for social reproduction. The challenges that climate variability poses to social reproduction are not entirely new to human society. Moreover, traditional knowledge and practices have contributed to response of traditional African societies to climate variability in their quest to sustain their populations. The paper examines challenges that climate variability holds for social reproduction in contemporary Ghana such as human displacement, diminishing water resources and food insecurity, and associated traditional sources of knowledge and practices for sustainable response.

Investigation Of Rainfall Onset And Retreat Dates, And Length Of Growing Seasons In The Agro-Ecological Zones Of Ghana

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This study examines rainfall onset and retreat dates, and length of growing seasons in the agro-ecological zones of Ghana using Ghana Meteorological Agency (GMet) data from 12 synoptic stations. The length of the growing season is determined using cumulative percentage mean and daily rainfall probability methods. There is a clear distinction between the characteristics of the rains, and hence growing season, in the south and north of the country. The forest and coastal zones in the south show a bi-modal distribution of rainfal with the major seasons for the forest zone starting in the third dekad of March and the end of first dekad of April. Axim, a coastal station, shows a surprisingly late rainfall onset date (second dekad of may) and also a short growing season (only 40±5 days). This is in stark contrast to the length of the growing season at other forest zone stations, where in general it is more than 3 months. The longest growing season, of 144±5 days (3 months 24 days), was observed in Ho. The growing seasons for the minor rainy season are shorter (just over a month) for all the forest and coastal stations. In contrast, the Northern zones show a uni-modal distribution of rainfall with a growing season in the range of 120 – 170 days and onset in the second dekad of April. The change in the characteristics of the major growing season in Axim may be related to changes in land-use and degradation, and deforestation.

Intra-Regional Migration, Climate Change, and Environmental Sustainability in Africa

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Migration as a global phenomenon traditionally has mostly been dictated by labour and trade mobility than social and forced migrations including victims of war and conflicts and resulting in refugees as unintended migrants in Africa. Whilst much of the efforts to minimise migration in Africa have been through social and economic instruments, their sustainability may be constrained by the physical environmental resource base due to extensive occupation and changing land use. Thus the African migration dictated by spatial occupancy will lead to environmental degradation, and create imbalances in social and economic sustainability. Weather anomalies in parts of Africa induce rural – urban migration that subsequently triggers migration beyond individual country's and sub-regional boundaries. Climatic change, as proxied by rainfall, has acted to change urbanization in sub-Saharan Africa, and linked strongly to decolonization due to the often simultaneous lifting of legislation prohibiting the free internal movement of native Africans. Migration influences on the physical environment of Africa are great and are leading to new forms of human and creating environmental refugees.

07 - POPULATION, ENVIRONMENTAL CHANGE AND DEVELOPMENT

Population Dynamics, Climate Change and Sustainable Development in Africa

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Population is important for climate and sustainable development, yet policies on pertinent issues like family planning, reproductive health, and women's education are rarely considered in climate planning. Despite strong inter-linkages between population and climate change and their implications for development, opportunities are often missed to address these links because many policy makers do not fully understand the inter-linkages and their role. This paper presents findings from a research collaboration which seeks to generate and translate evidence to demonstrate the importance of population parameters for climate and sustainable development planning in Africa. The study analyzes the impact of different scenarios of population growth on climate vulnerabilities, such as the projected availability of fresh water resources and agricultural productivity. The analysis identifies population and climate hotspots, which are defined as areas of opportunity where addressing rapid population growth will help increase resilience to climate change, while contributing to development goals. The quantitative analyses examine all African countries, while in depth policy and program environment analyses are done in Kenya and Malawi. The results highlight policy and program implications and guide national and regional responses to consequences of climate change, and contribute to efforts to enhance resilience and the capacity of African countries to adapt to and mitigate consequences of climate change while addressing a critical development challenge.

Gender Perception of Climate Change, Kwara State, Nigeria

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Climate change is one of biggest threats to natural resources and human existence all over the world. The perception /knowledge of climate change and its consequences on human survival are prerequisite to successful adaptation and mitigation strategies for a sustainable development. Men and women although have different vulnerability to climate change especially in the rural setting, the disparity in their level of awareness is often overlooked by most researchers. Nigeria being one of the countries under pressure from climate change, prompted an examination of the differential gender perception of climate change among selected inhabitants of Ilorin east LGA, Kwara State, Nigeria. 400 copies of questionnaire were administered in the study area. The findings confirmed significant variation in the level of awareness of climate change between the males and females in the study area. For the women, having to trek over long distance to get water for use and their children becoming sicklier due to increased heat, were attributed to climate change. While the males see reduction in crop yield due to erratic and unreliable rainfall which are signs of climate change. Water harvesting will ensure less stress and continues vegetable production in the study area, the major livelihood of the women there.

Challenges of Rapid Population Growth and Vulnerability of Nigerian Environment to Direct and Indirect Impacts of Climate Change

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Nigeria like many other countries in Africa is the most vulnerable regions in the world. There is obvious unsustainable rise in the level of population especially in Africa characterized with low quality of life, low income per capital, inequitable distribution of population between rural and urban areas. This paper explores how changes in population dynamic influences climatic change and vulnerabilities in Nigeria given the fact that Nigeria is going through a demographic transition. Though, previous efforts to assess impacts of population growth in Nigeria have ignored the climate change response which has had its net effects on the country and by extension Africa. This paper focuses on Nigeria with the aim of overcoming the active and potential adverse effects of climate change and vulnerabilities with mitigation measures and policy response. This study establishes link between population growth and climate change vulnerabilities as well as environmental changes based on population scenarios generated. Nevertheless, several counterfactual scholarly contributions were examined to enhance our understanding of the effect of population dynamics on climate change and its obvious adverse effects on Nigeria environment . This study therefore recommends policy frameworks and mitigation measures to address the challenges posed by rapid population growth which is the source and driver of high level of Green House Gases (GHG) emissions.

The Mining-REDD+ Debate in Guyana: Lessons for sub-Saharan Africa

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This presentation casts light on the challenges of implementing REDD+ programs in sub-Saharan Africa, drawing upon experiences from the Caribbean nation of Guyana, a trailblazer of the initiative. In 2008, the Governments of Norway and Guyana launched an innovative 'payment for ecosystem services' scheme, under which, the former has agreed to award, over the period 2010-2015, US$250 million to the latter if it protects 16 million ha of rainforest. Whilst this agreement could yield some economic and environmental benefits, it would also be particularly damaging to small-scale gold mining, Guyana's most important economic activity. The industry's operators and investors, as well as residents of dependent rural communities, have already voiced their dissatisfaction over some of the recent sweeping policy changes made in the name REDD+ and 'forest conservation', organizing protests and writing letters of complaint to key government officials. Drawing upon findings from recent pilot research, this presentation critically examines both the industry and government perspectives on the REDD+-mining debate in Guyana. In tune with a broader body of literature that calls for greater inclusion of forest-based communities in REDD+ dialogues, it is argued that small-scale gold mining must be recognized in Guyana's Low Carbon Development Strategy and that the concerns of its operators are addressed. The case of Guyana provides a glimpse of the types of problems that could arise in Africa under REDD+ if the needs of forest-based industries and groups are not adequately taken into account.

08 - CLIMATE VARIABILITY, WATER RESOURCES AND LIVELIHOODS

Climate Change Adaptation Through Integrated Water Resources Management In Northern Ghana.

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With a uni-modal rainfall and drained by the three major tributaries of the Volta River namely, the Oti the White and the Black Volta, the Northern Savannah Ecological Zone (NSEZ) is experiencing its share of the effects of climate change. This is evident in the average rise in temperature by about 1.9°C between 1931 and 2003, increase in evapotranspiration, reduction in mean annual precipitation and the frequent occurrence of extreme events. In addition to the impacts of Climate Change, is the increasing pressure on fresh water resources as a result of increasing population leading to increasing demand for food production. The local agrarian communities are more vulnerable to the impacts of climate change and therefore have to develop adaptive mechanisms. Using Integrated Water Resources Management (IWRM) as a tool and with support from the Danish International Development Agency (DANIDA), the Water Resources Commission implemented a two year Climate Change Adaptation Project in the NSEZ. The focus of the project was on enhancing community resilience and building capacity of relevant institutions in the use of IWRM principles for climate change adaptation, The project brought together the academia, civil society, policy makers and community members to conduct vulnerability assessments, determine critical interventions and facilitate implementation. Institutions and Communities benefited from the training, Learning Centre was established and WATSAN facilities provided.

Demographic And Socio-Cultural Dimensions Of Climate Change Adaptations In Flood-Prone Communities In Ghana

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This paper looks at the perceived causes and impacts of flood and how adaptations to flood vary by demographic and socio-cultural dimensions in two communities namely; a rural farming community (Dungu) in Northern Ghana and an urban fishing community (James Town) in Accra. Pair wise ranking of preferred adaptations was done with focus groups and also households were surveyed. It was found that preferred adaptations to flood vary with occupation, gender and age among rural and urban communities. Women in the rural area, regardless of age and occupation prefer water harvesting as an adaptation to flood. Rural male farmers prefer crop insurance to keep them in business but other males of varied occupations prefer community drains. While fishermen prioritize seasonal forecast as their preferred adaptation to flood, their female counterparts, the fishmongers want insurance. James Town men of varied occupations prefer community drains and their women prefer education of community members on the need to keep drainage channels clean. Since climate variability is expected to worsen the plight of coastal and rural settlers in general and fishers and farmers in particular, concerns of adaptation should aim at options that are specific to local context. From the findings of this study, policy concerns should be on; the construction of community drains, the provision of credit facilities to farmers and fishers, and also, the provision of water harvesting technology to help the rural women to adapt successfully.

A Rapid Vulnerability Assessment Method for Climate Change and Natural Hazards in Ghana's Coastal Zone

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Densely populated communities in Ghana's low-lying coastal areas are considered highly vulnerable to physical hazards and climate related risks. Each settlement may be exposed to different impacts and vary in its residents' adaptive capacity. A rapid assessment was designed and applied in 28 coastal communities within the Jomoro district of the Western region of Ghana, to assess vulnerability using eight indicators and to identify appropriate actions at the district scale to improve adaptive capacity. The assessment involved group discussions, key informant interviews and site observations. Communities were scored, ranked and compared across the 8 indicators. Participatory mapping aided by orthophotos and shoreline change analysis provided additional information on physical exposure to hazards. The results of the assessment indicate that shore erosion along with coastal, river and wetland flooding are the most recurrent threats among 9 main physical hazards and climate risks. Generally, the capacity to respond to these impacts is low,

however it varies among communities, with some afflicted by a high number of impacts and very low ability to respond effectively. Development of coastal setback and flood control regulations by the district government, much improved emergency and disaster response as well as resettlement in some cases, are among the necessary initial steps towards reducing community level vulnerability.

Linkages between sea-level rise and groundwater quality: livelihood implications and interventions

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Sea-level rise and groundwater linkages affect drinking groundwater and livelihood in general. The present study examines the linkages using 350 quantitative data, focus group and 60 groundwater samples for laboratory analysis according to WHO 1993 guidelines. The result shows that sea-level rise affects groundwater system for well irrigation using sodium absorption ratio techniques. Proximity to the coastline and the quality of groundwater was used to examine linkage using least mean square level (LMSL) methodology. The analysis revealed four major groups: low salinity, acidic groundwater contaminated with phosphorus; low salinity, moderate to neutral pH in ground waters from communities away from the coastline; very high salinity waters which are not suitable for most domestic and irrigation purposes and two intermediaries of moderate pH and ionic metals. Communities' responses has led to the use of improper farm practices to increase yields which is limiting coastal communities' adaptive capacity as agriculture the mainstay occupation. Responses to impacts are more burdensome to women than their male counterparts. Equitable distribution of potable water as well as livelihood empowerment through pump irrigation from closest fresh water systems will help alleviate poverty and empower coastal rural communities to meet Ghana's Millennium Development Goal 1.

09 - KNOWLEDGE SYSTEMS AND CLIMATE CHANGE IN GHANA

Climate Change and Disaster Risk Accumulation: Reflections from Urban Neighbourhoods, Ghana

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Globally, about 700 catastrophe events shatter lives, destroy assets, and disrupt communities across geographic regions, particularly in developing world annually. Weather events are strong determinants of such disaster events and as the century proceeds climate change will have an increasing impact on human society, which is increasingly urbanising. thus, climate change and the continuing growth of cities are the two major drivers of change in the 21st century and its impact will be experienced through the ways in which its affects the lives of urbanites. Climate change is happening through man-made emissions of greenhouse gases, while the growth of cities is by migration, immigration and population growth. The ways these interact will be of great consequence to the well being of man. Using qualitative and quantitative methods, the study examines the relationship between climate change and cities and explores what the future holds. The findings show that studies tend to over-concentrate on the impact of climate variability, inappropriate spatial planning, mass displacement and coping strategies displayed by the more famed slums dwellers who live in hazardous environment while other neighbourhoods with equally huge challenges, where people become homeless and economic vulnerability continue to escalate, remain virtually unnoticed. The paper calls on policymakers, planners and urban theorists to adopt a comprehensive approach in understanding the impact of climate change so that appropriate interventions in cities can be implemented.

Flood victims' expectations regarding their future environments – Findings from interviews in Accra

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To answer the question of how people do adapt on climate change, not only the socio-economical facilities as well as the predicted local impact of global warming have to be considered, but also how people use to interpret both, their resources and the future threats. Key to this is the mental framing that we use to interpret our world. It is generated from a set of social and cultural norms that pre-shape our perceptions, memories and experiences. My recent research in Accra points out to the question, if Climate Change is part of the frame used by self-concerted flood victims to explain these incidents. I conducted 40 narrative, enviro-biographical interviews in Accra's flood prone areas in English and Twi. With the help of a local translator and co-interpreter I intend to find out how the respondents assess the future threat through increasing extreme weather events and sea level rise and how they evaluate their socio-economic assets to

tackle supposed future threats. First findings from a Content Analysis show, that Climate Change in its actual scientific meaning is seldom taken into account regarding floods in Accra. The phenomenon is largely unknown. When considered, people integrate it into their existing interpretive framework be it of religious, pseudo-scientific or any other shade. Hence many people don't expect a change in the main rainfall pattern. If taking any action, this refers to retrospective analyses of future threats. When Climate Change is taken into account, own possibilities of adaptation seem to be regarded as inappropriate or even non-existent.

Using Mental Model Techniques to Understand how Rural and Poor Urban Dwellers in Ghana Perceive Climate Change

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Climate change has received a lot of research attention in sub-Sahara Africa as a result of weak adaptation systems and the environmentally diverse nature of the region. Concerns about the different impacts of climate change in rural and urban areas in the region makes it more complex. This paper examines how rural and poor urban dwellers in Ghana understand climate change and how it has affected their livelihood. Using data from the Climate Change Collective Learning and Observatory Network, Ghana (CCLONG) and Climate Change and Human Health in Accra (CCHEALTH) projects; and the Ghana Meteorological Services Department, the paper employed a mental model technique to examine the local vocabulary for climate change, how rural and poor urban dwellers perceive climate change, it causes and effects. The results indicate that while rural residents perceive climate change based on their immediate environment and its impact on their livelihood, poor urban dwellers perceive climate change as both internal and external environmental factors affecting the climate, thereby making it difficult for businesses to grow and increasing urban unemployment. The paper concludes that climate change information should be packaged in such a way that will help the target population to link it to their livelihood.

Establishing Indicators for Climate Change Adaptation in Ghana's Health Sector

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Vulnerability of a population to health risk in general depends on population density, level of economic and technological development, local environmental conditions, pre-existing health status, and the quality and availability of health care. Many of the possible measures in the health sector for adapting to climate change lie primarily outside the direct control of the sector, dictated by areas such as sanitation and water supply, agriculture, tourism, transport, and housing which are mostly climate sensitive. Yet health management indicators tend to omit such exogenous drivers and with climate uncertainty, a health system can easily disintegrate (e.g. from unexpected disease outbreaks). Using rapid vulnerability assessment and response situated within a Resilience Analysis Framework (RAF) climatic indicators were established for three pilot districts under a UNDP / Ministry of Health climate change and health project in Ghana. The indicators included over 10 categories e.g. environmental, epidemiological, demographic, biological, meteorological, physical, policy, with specific indicators such as morbidity, disease history, migration, rainfall, physical infrastructure, and decentralisation. Thus efficient climate-resilient health sector will depend on the management of appropriately established indicators.

10 - CLIMATE CHANGE VULNERABILITY, HEALTH, POVERTY AND GENDER

Climate and Socio-Economic Determinants of Malaria Vulnerability in Ga-Mashie, Accra

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Despite the successes achieved in the control of climate sensitive diseases such as malaria in Ghana, it continues to be on top of the list of outpatients' records and contribute extensively to maternal and child morbidity and mortality rates. Projections indicate that climate variability and change are likely to alter the spread and incidence of malaria and the poor living in marginal areas, especially along the coast, are likely to suffer the most. Using a mixed method approach, this study examines the extent to which socio-economic and climatic factors influence the incidence of malaria in Ga-Mashie. A total of 497 households were interviewed with structured interview guide while 30 households were involved in in-depth interviews. Cross-tabulations, binary logistic and thematic analytic techniques were used in the analysis. The result shows that the level of education of household head and locality of residence are significantly related to the incidence of malaria. There is an association between incidence of flooding and malaria, though not statistically significant. Multiple coping strategies are used to prevent the incidence and treatment of malaria, including the usage of insecticide treated net. Enrolment on the National Health Insurance Scheme tends to relieve households of the financial burden due to malaria. Therefore, enrolment on the scheme

should be encouraged. Our cities should be well planned to prevent flooding. There is an urgent need for increased sensitisation on the use of insecticide treated net.

Poverty and Changing Climates in Rural Cameroon: Does Gender Matter?
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Climate change is one of the greatest challenges of the 21st century threatening global efforts to reduce poverty and hunger especially in some vulnerable regions such as Sub Saharan Africa. This article examines vulnerability to climate change being articulated along social, poverty and gender lines and explores prevalent poverty amongst rural women as a phenomenon partly birthed from existing gender inequalities. Drawing insights from recent research on gendered dimensions of climate change impact on subsistence farming in rural Cameroon, this article reveals how gender relations influence the use of rights, resources and power, which often results in women's overdependence on rain fed agriculture for livelihood. Though these women are devising coping strategies, it is most tasking in a vicious cycle wherein existing feminization of poverty intensifies vulnerability and severely handicaps adaptation efforts. Concurrently depletion of natural resources and decreasing agricultural productivity places additional burdens on women's health, self development and constrains time available for income generating activities or participating in decision making processes. Salient analysis of the interconnectedness of gender and poverty must be central to development of programmes and agricultural policies aimed at enhancing rural adaptive capacity. An urgent need exists for institutionalized local, national adaptation climate change policies which understand and recognize different vulnerabilities whilst also recognizing rural women as important actors, with knowledge and capacity for ensuring effective responses to climate change.

Access To Information For Sustainable Environmental Development: Is There Gender-Based Bias?
SOLOMON-AYEH Bettie E, CSIR-Building and Road Research Institute, UP Box 40, Kumasi

Men make most decisions and even in households headed by women, men still intervene in the decision-making process through members of the extended family. In most parts of rural Ghana, women have no rights to own land and have difficulty in accessing information on land issues. This influences how both men and women use natural resources. Women's responsibilities in the households and communities as stewards of natural and household resources, position them to contribute to livelihood strategies adapted to changing environmental realities. This study, through a field survey, sought to examine men and women's access to information regarding environmentally sustainable practices in Bonwire, a rural community in Ghana. It also investigated if there is gender bias in access to information on the environment and found that more men had access to information on the environment and relevant technologies than women. Recommendations were made which explored strategies to adopt a gender-inclusive approach aimed at providing women with information to create awareness on environmental issues that would improve their productivity. This would also enable them to employ measures to mitigate climate change.

Impact of the adoption of Improved Rice Varieties On Income and poverty reduction among rice farmers In Cameroon: A Local Average Treatment Effect (LATE) Approach
*ANISSA Banawe P., MALAA Dorothy K., Diagne Aliou, *Sub-regional Institute for Statistics and Applied Economics (ISSEA), 04. PO Box 392 Lome, Togo

The food price crisis of 2008 has led to the re-emergence of debates about climate change, global food security and its impact on prospects for achieving the first Millennium Development Goal: to end extreme poverty and hunger and lead to the Green Revolution in Africa. The present study aims to evaluate the impact of improved rice varieties (IRV) adoption on income and poverty alleviation among rice farming households in Togo. It used instrumental variables (IV)-based estimator to estimate the Local Average Treatment Effect (LATE) using cross-sectional data of 250 households. In particular, the LATE using the instrumental variable and Local Average Response Function estimation methods. The key findings reveal a robust positive and significant impact of Improved Rice Varieties adoption on farm household income and poverty reduction. The adoption of IRV raises household income by an average of 80 540 CFA per cropping season. The impact is higher within women than men headed households and for irrigated ecology than other ecologies. We therefore suggest that intensification of the investment on IRV dissemination is a reasonable policy instrument to raise incomes and reduce poverty and gender inequality and to achieve food security in a world under the pressure of climate change.

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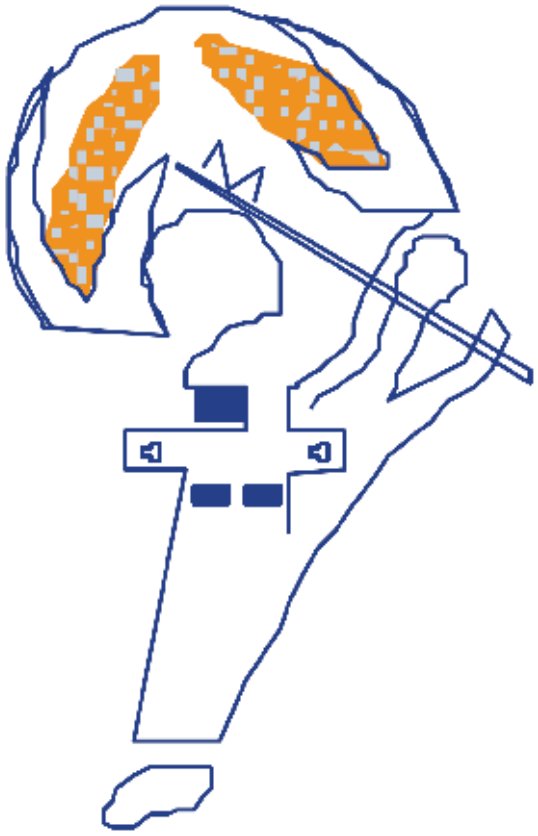

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WEDNESDAY 4TH JULY 2012

Day 3 Scientific Time Table At A Glance

07:30-08:30
REGISTRATION CONFIRMATION

08:30-10:00
PLENARY 5: Emerita Prof. Elizabeth Ardayfio SCHANDORF, University of Ghana, Legon, Ghana
PLENARY 6: Dr. Ayalew Moges SEMU, Institute of Technology, Addis-Ababa, Ethiopia

10:00-10:30
SNACK BREAK 1

10:30-12:00
PARALLEL SESSION 11: Roundtable - African Young Scientists Initiative On Climate Change And Indigenous Knowledge Systems
PARALLEL SESSION 12: Climate variability and natural resources governance

12:00-13:30
LUNCH

13:30-15:00
PARALLEL SESSION 13: Applied Modelling, climate change and resource development
PARALLEL SESSION 14: Weathering Change [A Film Discussion by Population Action International, USA]

15:00-15:30
SNACK BREAK 2

15:30-17:00
OFFICIAL CLOSING CEREMONY

17:00-22:00
CLOSING / DINNER / AWARDS NIGHT

PLENARY 05

Title : CLIMATE CHANGE, GENDER AND VULNERABILITY OF WOMEN'S ACCESS TO WATER RESOURCES

Presenter : Emerita Prof. Elizabeth Ardayfio SCHANDORF, University of Ghana, Legon, Ghana

Chair : Samuel Nii Ardey CODJOE, Conference Co-Chair

Venue : Auditorium Time: 08:30 – 09:15 Hrs

Abstract

Sub-Saharan African countries are known to be least prepared to respond to extreme events from unexpected impacts of global environmental change (GEC) and mostly climate change. This is because policies on economic development and poverty reduction hardly consider broader impacts of the networks of disaster events and environmental shocks as forms of development challenge just as the ones that bring food to the table. The need for doing comprehensive stakeholder analysis has never been important than in the times that we live with the uncertainties and complexities of climate change and variability. The role of individuals and groups in society in adapting to climate change, whether directly or indirectly should reflect equity yet this has not truly reflected in matters of gender and climate change mainstreaming. The differences in the social and economic roles of women and men should inform adaptation planning in managing water resources which when dwindled, impacts on the productivity of women. This could mean more distance to cover to fetch water for the household, reduced gardening by women and diminished returns including cash incomes. Integrated water resources management (IWRM) allows women to effectively participate in decision making and activities that increase resilience and thus with benefits of further strengthening the positive contributions of men towards adaptation. Attention to gender differences and inequalities is required if participatory adaptation to climate change initiatives are to involve women as well as men.

PLENARY 06

Title : THE BOTTOM-UP VULNERABILITY APPROACH FOR ADAPTATION TO CLIMATE CHANGE IMPACTS

Presenter : Dr. Ayalew Moges SEMU, Institute of Technology, Addis-Ababa, Ethiopia

Chair : Samuel Nii Ardey CODJOE, Conference Co-Chair

Venue : Auditorium Time: 09:15 – 10:00 Hrs

Abstract

Future Impacts of climate change is highly uncertain and the burden of the impact is believed to be huge in Sub-Saharan Africa. While the signal of future temperature is highly likely to increase, precipitation hasn't indicated strong likelihoods of strong decreasing or increasing tendencies. Moreover, it is extremely difficult to determine the magnitude of the climate change impacts. Thus planning of the development pathway towards future adaptation to climate change becomes challenging. Many of adaptation options provided in many of African National Adaptation plan of Action (NAPA) documents were entirely based on Inter-governmental Panel on Climate Change (IPCC) projections. There is no consideration of socio-economic issues, population growth, migration, pollution and contamination which are visible in the context of developing countries. Recently, it is proposed by Pielke et al (2011) to follow a bottom up vulnerability approach to

determine objectively the adaptation pathway. The approach incorporates and weighs the risks from climate change, socio-economic and environment to determine the adaptation pathway. This presentation demonstrates the suitability of this approach for urban areas of developing countries – the case of Addis Ababa City, Ethiopia.

10:00-10:30	SNACK / TEA / COFFEE BREAK

SESSIONS 11 – 14 PRESENTATIONS

LATE MORNING PRESENTATIONS

SESSION 11: Roundtable: Managing Water In The Urban-Rural Interface For Climate Resilient Cities
ORGANISERS: HASSAN O. Kaya, S. Africa, Weisheit Anke, Uganda, Jacob THABIT, Tanzania
MODERATOR: Weisheit Anke
VENUE: Auditorium
TIME: 10:30-12:00

SYNOPSIS: The African Young Scientists Initiative on Climate Change and Indigenous Knowledge Systems (IKS) in collaboration with University of Kwazulu-Natal (RSA), the IKS Centre (North-West University, RSA), the NEPAD Agency and National IKS Office (RSA), will organize round table discussions on the role of IKS and African young scientists in climate change focusing on indigenous food security. The main objective is to create a platform for sharing experiences on the role of IKS in climate change adaptation after participating in COP17 in Durban; provide an opportunity for African young scientists to build networks on the role of IKS in climate change.

10:30-10:45 African Young Scientists Initiative On Climate Change And Indigenous Knowledge Systems: A Round Table Discussion
WEISHEIT Anke, Mbarara*, Hassan .O. Kaya, *University of Science and Technology (MUST), Mbarara, Uganda,

10:45-11:00 Interfacing African Indigenous And Modern Knowledge Systems For Food Security In Changing Climatic Conditions: Challenges And Prospects
YONAH. N. Seleti, National IKS Office (Department of Science and Technology), South Africa

11:00-11:15 Hot, Cold, Wet, Dry: African Illness Beliefs And The Climate Change-Health Relation
DE-GRAFT AIKINS Ama, Regional Institute for Population Studies, University of Ghana, Legon, Ghana.

11:15-11:30 Interfacing Modern And African Indigenous Knowledge Systems For Natural Resource Management And Climate Change Adaptation

HASSAN. O. Kaya, IKS Centre, North-West University, South Africa.

11:30-11:45 Local Farmers' Perception Of Climate Change In Benin (West Africa)
FANDOHAN Belarmain*, Cuni Sanchez Aida**; *Université d'Abomey Calavi, Cotonou, Benin.

11:45-12:00 Building Resilience to Climate Change through Adaptation: the Role of Indigenous Knowledge
APPIAH M., Codjoe, S.N.A. RIPS, UG

SESSION 12: Climate Variability And Natural Resources Governance
MODERATOR: Bhim Adhikari, IDRC, Canada
VENUE: Seminar Rooms 1 & 2
TIME: 10:30 – 12:00

10:30-10:50 Carbon Sequestration As A Tool For City Greening- A Case Study Of Atunrase, A Residential Estate In Metropolitan Lagos.
WILLIAMS, Fadera A*, Adejumo, T.A, *University of Lagos, Akoka, Nigeria.

10:50-11:10 REDD and Land-Use Conflict – A Review of Mining in Forest Areas
HIRONS Mark A., Department of Agriculture, Policy and Development, University of Reading, UK

11:10-11:30 Potential Contribution Of Genetic Technologies For Mitigating Effects Of Climate Change On Fisheries
PADI, Joseph N., Water Research Institute, Council for Scientific and Industrial Research, Achimota, Ghana

11:30-11:50 Assessing Wastewater Reuse Option As Additional Source Of Water In The Greater Accra Metropolitan Area (GAMA)
ABBEY Fenella Marilyn, Geography and Resource Development, University of Ghana, Legon, Ghana

11:50-12:00 General Discussion & Conclusion

12:00-13:30 LUNCH BREAK

EARLY AFTERNOON PRESENTATIONS

SESSION 13: Applied Modelling, Climate Change And Resource Development
MODERATOR: Samuel Codjoe, Conference Co-Chair
VENUE: Seminar Rooms 1 & 2
TIME: 13:30 – 15:00

13:30-13:50 Improving Crop Management Strategies Under A Changing Climate: A Preliminary Assessment
ZINYENGERE Nkulumo*, *Crespo Olivier, **Hachigonta Sepo, *Climate Systems Analysis Group (CSAG), Department of Geography and Environmental Science, University of Cape Town, Cape Town, South Africa.

WEDNESDAY 4TH JULY 2012

13:50-14:10 Impacts Of Global Warming On Aquaculture: Opportunities And Challenges
PADI Joseph N., Atsakpo Patience, Water Research Institute, Council for Scientific and Industrial Research, Achimota, Ghana.

14:10-14:30 Climate Change, Food Security, and Population in sub-Saharan Africa: Modelling the Linkages
MORELAND Scott, Smith Ellen, Futures Group, Washington DC 20001 USA.

14:30-14:50

14:50-15:00 General Discussion & Conclusion

SESSION 14: Population and Climate Change Film by Population Action International, USA
TITLE: Weathering Change: Stories From Women From Africa And The World About How Climate Change Impacts Their Lives
SYNOPSIS: This short film will show the stories of women's lives from Ethiopia, Nepal and Peru, demonstrating their particular vulnerability to climate change impacts. The screening will be followed by a discussion on the policy and program implications for climate change adaption for women and their families.
MODERATOR: Roger-Mark de Souza, Population Action International, USA
VENUE: Auditorium
TIME: 13:30 – 15:00

OFFICIAL CLOSING CEREMONY EVENTS

Venue: AUDITORIUM

15:30-16:00 GUEST SPEAKER ADDRESS

16:00-16:15 CLOSING REMARKS

16:15-16:20 VOTE OF THANKS

16:20-16:25 ANNOUNCEMENTS

16:25-16:30 UNVEILING "CC POP-GHANA 2013"

CLOSING DINNER

Venue: T.B.A.

Time: 06:00 PM

ABSTRACTS

WEDNESDAY JULY 4TH SESSIONS 11 – 14 ABSTRACTS

SESSION 11 - Roundtable: African Young Scientists Initiative On Climate Change And Indigenous Knowledge Systems: A Round Table Discussion

Weisheit Anke, Mbarara University of Science and Technology (MUST), P.O. Box 1410 Mbarara, Uganda, HASSAN O. Kaya, IKS Centre, North-West University (South Africa)

The African Young Scientists Initiative on Climate Change and Indigenous Knowledge Systems (IKS) in collaboration with University of Kwazulu-Natal (South Africa), the IKS Centre (North-West University, South Africa), the NEPAD Agency and National IKS Office (South Africa), will organize round table discussions on the role of IKS and African young scientists in climate change focusing on indigenous food security. The main objective is to create a platform for sharing experiences on the role of IKS in climate change adaptation after participating in COP 17 in Durban; provide an opportunity for African young scientists to build networks on the role of IKS in climate change. The initiative realizes that Africa is vulnerable to climate change; yet, Africans have a lot to offer in climate change adaptation from the indigenous knowledge developed and used for centuries. This knowledge resides in older generations and is not adequately documented to inform research and development. This threatens its sustainability and minimises its contribution to the global knowledge pool. African young scientists need to participate fully in affirming/validating IKS on climate change as a challenge of their generation, as local community members and are among the most vulnerable social groups affected by the adverse effects of climate change. Currently, the search for solutions to climate change is dominated by western agendas.

Interfacing African Indigenous And Modern Knowledge Systems For Food Security In Changing Climatic Conditions: Challenges And Prospects

YONAH. N. Seleti, National IKS Office, Department of Science and Technology, South Africa

Improving the use of African indigenous knowledge systems (IKS) through their effective combination with modern knowledge and technology systems is an important issue for sustainable development in Africa. Modern science and technology systems often tend to marginalize African IKS and are thus not sustainable. In the context of food security and climate change, any interface between the two knowledge systems will only be relevant if indigenous agricultural practices are applied to agriculture in Africa. This will enable African local farmers to move into knowledge creators and recognize IKS as an important source of knowledge and climate change adaptation for sustainable livelihood. To enable the exchange of information between the two knowledge systems, participatory measures should be taken to capture and conserve African IKS and disseminate it among agricultural researchers and extension workers, ensuring that both systems of knowledge are relevant in local settings.

Hot, Cold, Wet, Dry: African Illness Beliefs And The Climate Change-Health Relation

DE-GRAFT AIKINS, Ama, Regional Institute for Population Studies, University of Ghana, P.O. Box LG96, Legon.

There is emerging concern on the impact of climate change on population health and of the lack of research on this relationship in sub-Saharan Africa. Researchers observe that climate change is likely to lead to the rising prevalence of infectious and chronic conditions like malaria and asthma with challenging consequences for health systems. This paper focuses on lay African perspectives on climate change and health. Multidisciplinary studies on African lay health and illness beliefs published between 1970 and 2011 are reviewed. Diseases are categorised as naturally, socially and supernaturally/spiritually caused. These categories are linked to distinct sets of diseases: infectious short-term diseases are viewed as naturally caused and chronic long-term diseases are viewed as socially and supernaturally caused. However the categories are fluid and dynamic: infectious diseases can also have supernatural dimensions, when they recur often; chronic conditions can have natural dimensions when individual or structural responsibility is recognised. Four climatic conditions are salient in illness causal theories: heat, cold, wet, and dry. Infectious short-term illnesses such as malaria, colds, fevers and some chronic illnesses such as asthma and sickle-cell disease are linked to changes in heat, cold, wet and dry conditions. Within the dynamic and fluid context of

illness causal theories, environmental and climactic changes that lead to recurrent infectious conditions and exacerbate complications of chronic conditions are likely to lead to changes in lay illness perceptions, responses to illness episodes and social legitimacy of pluralistic medical systems. The implications for health systems and healthcare are considered.

Interfacing Modern And African Indigenous Knowledge Systems For Natural Resource Management And Climate Change Adaptation

HASSAN .O. Kaya, IKS Centre, North-West University, South Africa

The paper uses secondary sources to discuss the importance of interfacing modern science and African indigenous knowledge (AIK) systems for natural resource management and climate change adaptation. This is based on the argument that the use of AIK in natural resource management and climate change adaptation promotes the principle of equity of knowledge. It provides empowerment, security and opportunity for both community knowledge producers and users to promote sustainable development. Therefore, the identification of science behind indigenous knowledge is a more constructive endeavour than debates such as 'indigenous vs. scientific' or 'traditional vs. western' arguments. Scientists need not encounter community knowledge uncritically, just as communities need not approach modern knowledge uncritically. It should, draw on complimentarity and the "consilience" across knowledge systems. Furthermore, conservation scientists must make a transition from "staid observers to active participants" in the development process as gone are the times when scientists could afford to say that their work is to create knowledge and leave application to policy makers and practitioners. They should work with communities to put forth new hypotheses that incorporate aspirations of formal and indigenous systems of knowing and modify their methodologies accordingly.

Local Farmers' Perception Of Climate Change In Benin (West Africa)

FANDOHAN Belarmain*, CUNI Sanchez Aida**; *Université d'Abomey Calavi, République du Bénin, 01BP:526 Cotonou, Benin, ** University of Southampton, Highfield, Southampton SO17 1BJ, UK.

This study aimed at assessing climate changes in Benin as perceived by local farmers. The main goal was to better understand the observed changes in climate and more precisely suggest the adequate strategies that could be used to deal with it. Nine villages were selected following a latitudinal gradient and ethnicity in Benin. In each village two focus-groups were carried out (men and women). Farmers were asked about: (i) the changes in climate and the environment they have observed in the past decades, (ii) what they have done to cope with and adapt to these changes, and (iii) what else could be done in the future. Results from this study suggest that climate in north Benin is becoming drier, the rainfall regime is changing from bimodal towards unimodal in the centre, and the amount and timing of precipitation are becoming more erratic in the south. Higher temperatures, soil degradation and severe floods also seem to be a problem. In general, crop yield has decreased and a number of crops and/or varieties can no longer be grown in some parts of the country. Wild fruiting trees also seem to have decreased their yield. Some 'adaptive strategies' identified by local farmers are: the use of short-cycle crop varieties, the earlier sowing of crops, the use of fertilisers and/or irrigation, and tree planting. Despite certain local success, local farmers need increased and sustained institutional support to enhance their resilience to the predicted changes in climate and the environment.

Building Resilience to Climate Change through Adaptation: the Role of Indigenous Knowledge

Appiah M. and S.N.A. Codjoe, RIPS, UG

According to IPCC projections, climate change will bring about frequent variability and extreme climatic events. Though a global phenomenon, indigenous knowledge has been found to be effective in providing learning and problem-solving strategies for local communities and shaping local visions, perceptions and adaptation to global climate change in a sustainable way. Little has however been documented in Ghana in this regard. With the use of historical matrices among vulnerable fishing communities in urban Ghana, the study examines how indigenous knowledge facilitates the understanding and adaptation to climate change. Focus group discussions, made up of elderly community members were used to explore how local communities interpret climate variability and change and coped under extreme climatic events. Analysis indicates that three extreme climatic events in the form of drought, flooding and windstorm were experienced in the past. Effects of climatic events were short and long term, ranging from economic, health,

social and psychological effects. The experience afforded the community the opportunity to learn new methods of food preservation and discovered effective ways of preventing malaria disease. Through the observation of creatures such as frog and herrings as well as the study of the sun and moon, fishermen are able to predict the weather for effective conduct of their livelihood activities. It is therefore recommended that local knowledge on climate is documented and shared among community members and if necessary improved to help build resilient communities to withstand the effects of climate change.

SESSION 12 - Climate Variability And Natural Resources Governance

Carbon Sequestration As A Tool For City Greening- A Case Study Of Atunrase, A Residential Estate In Metropolitan Lagos.

*Williams, FADERA. A, *Adejumo, T.A, *University of Lagos, Akoka, Nigeria.

Urban greening as a philosophy is a recent development in the Nigerian built environment. The dearth of green infrastructure in metropolitan Lagos is a typical example. This paper explores carbon sequestration as a tool for greening the urban areas with a view to creating sinks for the carbon emissions generated by households within the Lagos metropolis. This study is underpinned by the green city concept. Random surveys of household interviews were conducted within Atunrase estate, Gbagada, Lagos State. Domestic activities limited to the use of kerosene, P.M.S and butane (excluding influx of carbon emissions via vehicular sources or otherwise) were recorded and based on carbon emission coefficients for carbon emitting substances, the carbon content emitted by the use of these was calculated. The vegetation required to offset these carbon emissions generated was then estimated. The total amount of carbon generated within the estate is 176,904kg and it will be offset by planting trees, groundcover and shrubs. A total area of 81,380m² will accommodate grass (lawn) along both sides of the streets, canal, the proposed neighbourhood park and within each house plot. A total of 3,350 shrubs and a total of 1668 trees are proposed to offset 153,944kg of the total amount of domestic carbon generated. In conclusion, Nigeria as a country in the African continent has experienced the impacts of the erratic climate change in the recent past years. These impacts range from destructive flooding in the south to rapid desertification in the North

REDD and Land-Use Conflict – A Review of Mining in Forest Areas

HIRONS Mark A, Department of Agriculture, Policy and Development, University of Reading, UK

In 2005, the United Nations mandated parties signatory to the Framework Convention on Climate Change to formulate policies and identify economic incentives to Reduce Emissions from Deforestation and Degradation (REDD). With support from the World Bank's Forest Carbon Partnership Facility (FCPF), Ghana is implementing a REDD strategy which aims to both mitigate climate change and, by harnessing carbon finance, contribute to economic development. If the REDD process in Ghana is to achieve these objectives, however, a broadened understanding of the dynamics of deforestation in the country is imperative. At present, there is a pertinent, high profile and polarised debate surrounding the broad issue of land-use conflict, of which population growth is an important component. This presentation outlines the initial findings from an exploratory case study of mineral exploitation and land-use conflict in Ghana, and links the findings to the emerging REDD process. An analysis of key stakeholder perceptions on mining in forest areas reveals the centrality of post-mining rehabilitation in arguments. The paucity of data on mining and the success of mine site reclamation fuels the politicisation of land-use in Ghana, factors which may threaten the successful implementation of a viable national REDD programme. In addition to a more concerted effort to quantify the long-term impact of mining in forest areas, future work should identify governance mechanisms which account for the variety of normative positions in land-use debates.

Potential Contribution Of Genetic Technologies For Mitigating Effects Of Climate Change On Fisheries

PADI, Joseph N., Water Research Institute, Council for Scientific and Industrial Research, P. O. Box 38, Achimota, Ghana

Technologies that minimize ecological foot prints will be needed to mitigate effects of climate change on fisheries. Traditional selective breeding and genetic engineering are proven technologies for developing synthetic genotypes of fish that exhibit superior culture performance. Climate change will expose fish populations to a variety of temperature- induced stresses including deteriorated water quality, fish diseases

and gender (sex) change. Identification of gene complexes in fish that both confer temperature tolerance and resistance to temperature-induced environmental stresses, via marker assisted selection (MAS) and other molecular genetics approaches including gene mapping and chromosome set manipulation, and transfer of such gene assemblages to relatively less sensitive fish species, for example, the tropical freshwater silver catfish, *Chrysichthys nigrodigitatus*, will improve survival of this species. Thus, genetic technologies can be used to produce different fish genotypes and establishment of gene banks under controlled conditions for both aquaculture and capture fisheries, given that natural selection (evolution) may be too slow to develop temperature-tolerant fish species within the relatively short time that increased temperature will impact world fish stocks. Intra-and inter-species gene transfers have the potential to enhance biodiversity

Assessing Wastewater Reuse Option As Additional Source Of Water In The Greater Accra Metropolitan Area (Gama)

ABBEY Fenella Marilyn, Geography and Resource Development, University of Ghana, Legon

Attempts at addressing the increasing water shortage problems in developing countries have been biased towards the supply management but not the efficiency of water use from existing schemes that is demand management. This supply-driven approach has serious consequence on overall sustainable water management strategy, especially in this era of climate change and variability and rapid population increase, thus leading to overuse of water resources, its overcapitalization, wastage and pollution. This study focuses on current water demand and supply patterns, and how this affects wastewater reuse options among different socio-economic groups in the GAMA. Data from Ghana Water Company Limited, shows the demand for water in 2010 for GAMA to be 469,171.68m3/day with a corresponding supply, through its current rationing programme, as 404,841.00m3/day. The observed deficit of 64,330.68m3/day justifies further analysis of coping mechanisms among residents. Respondents resorted to alternative mechanisms such as rain-harvesting, borehole water, tanker and vendor services for reasons such as reliability and cost. Additional responses indicated 80% usage of wastewater. The analysis revealed that wastewater is a cheaper source, more readily available and suitable for non-potable uses only. It is concluded that wastewater reuse as a coping mechanism in the face of increasing water demand by the rapidly increasing urban population and the stress imposed by climate change through rainfall regimes should be managed at individual and community levels.

SESSION 13 - Applied Modelling, climate change and resource development

Improving Crop Management Strategies Under A Changing Climate: A Preliminary Assessment

*ZINYENGERE Nkulumo, *Crespo Olivier, **Hachigonta Sepo, *Climate Systems Analysis Group (CSAG), Department of Geography and Environmental Science, University of Cape Town, P Bag X3, Rondebosch 7701, Cape Town, South Africa, **Food Agriculture and Natural Resources Policy Analysis Network (FANRPAN), 141 Cresswell street, Weavind park 0184, Pretoria, South Africa

This preliminary study is a first step towards an evaluation of the utility of various management strategies in reducing the effect of climate change on crop production in southern Africa (SA). Such an evaluation would help to identify synergies between management options, which have significant adaptation benefits for small holder crop production. The study is performed in the context of a regional project administered by FANRPAN and funded by IDRC, which aims to strengthen evidence-based climate change adaptation policy in the region. The study is carried out at the district scale in Lesotho (Mohale's Hoek), Malawi (Lilongwe) and Swaziland (Mpolongeni). Climate scenarios are downscaled from 9 GCMs using the A2 and B1 CO2 emission scenarios for a baseline period (1961-2000) and future period (2046-2065). Downscaled climate scenarios are used to drive DSSAT to model maize cropping systems and simulate common and innovative crop management options under current and future climate. Hence assessing the impact of projected climate change on crop production. Preliminary results show a decline in maize yields for Malawi and Swaziland between baseline and future periods. Yield change in Lesotho is shown to be insignificant. Maize yields in Malawi decline by an average of 12-14%. Yields in Swaziland also decline and vary significantly across simulated scenarios. Management practices are shown to potentially moderate the negative effect of climate change on maize in Malawi and Swaziland with little effect in Lesotho. This study is expected to contribute to our understanding of local adaptation to climate change in South Africa.

Impacts Of Global Warming On Aquaculture: Opportunities And Challenges

PADI Joseph N., Atsakpo Patience, Water Research Institute, Council for Scientific and Industrial Research, Ghana

Global warming is projected to increase atmospheric temperatures by 1.4-5.8 oC with concomitant shifts in precipitation by 2100. This will impact food production systems including aquaculture. However, little empirical data is available for assessing the potential benefits and risks of elevated temperatures and precipitation on aquaculture. In the present study, the effects of increased mean ambient water temperatures and monthly precipitation on hatchery fish seed yield and spawning rate were determined experimentally for Tilapia (*Oreochromis niloticus*) and the bonytongue fish (*Heterotis niloticus*) to aid model formulation for prediction of seed output and spawning of the two fish species. Simulation data using morning and afternoon water temperatures in regression models suggested temperature increases of 1 oC above ambient conditions may increase tilapia seed productivity by 15 - 36 %. In contrast, increased precipitation by 10 - 30 % is predicted to improve spawning of the bonytongue by 1-6 %. Synthesis of aquaculture literature indicated increased temperatures will accelerate egg hatching time, increase physical deformities in embryos thereby compromising fish survival. Strategies for conservation of water resources will be critical to ensuring resilience of aquaculture production systems to climate change. Policy initiatives for promotion of basic research in generation of empirical data on responses of fish to increased temperatures is recommended to enhance development of coping strategies for mitigating the effects of global warming on aquaculture.

Climate Change, Food Security, and Population in sub-Saharan Africa: Modelling the Linkages

MORELAND Scott*, SMITH Ellen*, Futures Group, One Thomas Circle, Suite 200, Washington DC 20001 USA.

Adapting to climate change-induced agricultural changes is challenging in Africa, where subsistence farming dominates, and food security is a concern. Many policy studies emphasize the role of climate change and population growth in contributing to food security issues. However, population growth is rarely discussed as a policy or adaptation strategy and emphasis remains on adapting agricultural and food systems. This paper uses a computer model to demonstrate that addressing high rates of population growth can be a useful strategy for adapting to climate change in the food security area. We developed and tested a model of population growth, food consumption, and the physiological food energy requirements of specific populations. Food consumption was determined by a macroeconomic model that model the effects of climate change on the agricultural sector. Using a demographic projections model we estimated the impacts of lowering population growth on meeting food requirements. We then computed a measure of food insecurity by comparing the economically-determined food consumption with the physiologically-determined food requirements – both expressed in terms of daily kcal consumption per capita. Using the model we explored various food security futures based on alternate climate change and population growth scenarios. Lowering population growth can be achieved by improved access to, and use of, voluntary family planning services. The model was pilot tested in Ethiopia in 2011, and results from Ethiopia will be shown.

SESSION 14: Population and Climate Change Film

Weathering Change: Stories From Women From Africa And The World About How Climate Change Impacts Their Lives

POPULATION ACTION INTERNATIONAL, USA

Weathering Change documents how family planning, girls' education, sustainable agriculture and environmental conservation are part of the solution. As the world's population hits 7 billion in 2011, the film calls for expanding access to contraception and empowering women to help families and communities adapt to the effects of climate change. "A woman's life is hard, and climate change is making it harder," says Aregash Ayele, an Ethiopian woman featured in the film. Aregash is 32 years old and lives with her six children in a small farming community in the Gedeo Zone of Ethiopia. Adapting to the impacts of climate change requires a variety of responses. These include enacting policies to improve management of climate-related risks, enhancing individuals' and communities' ability to cope with a changing environment, and easing pressure on resources.

POSTER ABSTRACTS

Posters will Remain on Display throughout the Conference

PS01 *Poster Title:* Climate Change, Biodiversity-Ecosystem Management And Sustainable Development In Ekiti State, Nigeria

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The human environment encompasses the physical, cultural, biological and social components that constitute the general surroundings of the people wherever they may be living on the surface of the earth. The environment is important to man and other forms of life. Likewise, the abundances of nature are of paramount importance to the continual existence and survival of man. Nevertheless, the care for the environment and the biological diversity is grossly inadequate. The environment is endangered by the challenges of climate change. The environment is equally degraded as a result of human ignorance, greed and insensitivity. The biodiversity of the environment are threatened by natural and anthropogenic hazards. The biodiversity is important to man because it provides food, shelter, clothing and raw materials. Hence, man's physical well being depends largely on biodiversity. Ekiti State, Nigeria is blessed with abundant flora and fauna resources. Climate change resulting from natural factors and man-environment interaction is causing some of the species to reduce. To this end, this study examines the causes and consequences of biodiversity loss in Ekiti State Nigeria with much emphasis on climate change. The research method for data collection includes questionnaire administration, observation, interviews and focus group discussions. Seven hundred copies of questionnaire were administered on selected respondents with the aid of multi-stage sampling technique. The data were analyzed with the aid of descriptive and statistical tools. The study identified climate change as a major cause of biodiversity loss in the study area. Climate change is a wild and disastrous situation that is wrecking havocs on the biodiversity in the study area. It endangers the ecosystem and the biodiversity. Overall, climate change has impact on food production, water resources, agro-forestry, and other environmental resources. The study found out that climate change is a major cause of environmental degradation, food insecurity, loss of natural habitat, and disturbance of hydrological balance in the environment. Hence, the study recommends mitigation of climate change, biodiversity conservation, as well as the formulation and implementation of environmental laws for the mitigation of climate change and the achievement of sustainable environment and development. Other strategies are environmental management, recycling, land management, forest management, pollution abatement, as well as rural development.

PS02 *Poster Title:* Adapting To Flood In The Rural Area: The Role Of Culture

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Objectives To understand the cultural orientation of the rural community and how that influences the prioritizing of adaptation strategies against extreme climatic hazard (flood). Settings A rural agricultural community, Dungu, located in the Northern Region of Ghana. This study uses the Hofstede's (1980; 1999) cultural dimension to measure some cultural values such as power distance, masculinity index , uncertainty avoidance and how that influence the prioritization of adaptation strategies to flood in the community. Four focus groups discussions based on age and occupation have been conducted. All the households in the community have been surveyed. Preliminary results show that adaptation strategies in the community differ by age, sex and occupation. Men aged 24 and above in the community prioritize community drainage development where as women age 24 and above prioritize water harvesting. Both male and female farmers have some priority for seasonal forecast (not fully confirmed by analysis so far) as an adaptation to flooding. Conclusion The increase in climate variability is expected to worsen the plight of rural dwellers in general and farmers in particular because of their reliance on rainfall to farm. Policies aimed at addressing the challenges of vulnerable communities to climate change/variability should not generalize and impose adaptation on the people. Policies should aim at addressing issues of adaptation with local culture in mind. This

will not only address the issues of adaptation better but will also increase the chances of success of adaptation.

PS03 *Poster Title:* Assessment of Geophysical Vulnerability to Flooding of Accra

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In Ghana, floods have led to the loss of lives and material possessions. This study focuses on two urban poor localities in Accra (Ga mashie and Agbobloshie). This study looks at how some geophysical attributes of the dwelling structures of a locality could make it vulnerable to flooding. This would provide insight into how issues of the occurrence and/or impact of the flooding can be minimised. The general objective of this study is to assess the vulnerability to flooding through dwelling structure, by locality and make recommendations for the implementation of policy. The geophysical factors considered in this study include topography, proximity to water body, impervious surface, and building material (wall, roof and floor material). Preliminary analysis indicates that the study area is some distance from the korle lagoon even though it is still in close proximity. It is also noted that the topography of the locality is undulating, most of the land area is built up and impervious and there are a number of sub-standard buildings which may be prone to collapse or deterioration due to flooding. Poverty in these localities is likely to exacerbate the impact of flooding and hinder adequate infrastructural changes to limit such impact.

PS0 4 *Poster Title:* Drama As Communication Support To Address Climate Variability On Ghana's Water Resources

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This paper proposes the use of drama as an efficacious communication support for safeguarding Ghana's water resources. Drama incorporates aspects of life realities, supports progress and effectively grips audience's attention for awareness creation and commitment to effect positive change. It entertains, counsels, informs, stimulates debate and educates. Through improvisation, environmental, cultural, social and other problems raised by the people in a community are addressed by the same people due to drama's participatory nature. As Ghana's population continues to grow, people are putting ever-increasing pressure on her water resources. In a sense, our rivers, and other inland waters are being ""squeezed"" by human activities—as they take up less room by drought, so is their quality reduced. Poor water quality means water pollution. The spread of "industrialization" around the continent also poses the problem of pollution of our water resources. When Africa's population was much smaller, no one believed pollution and drought would ever present serious problems. Our people got clean healthy water for their activities. Today, with over 24 million people in Ghana, it has become apparent that, all the country's water resources are in great danger to drought and pollution. Is there any clear-cut policy on our water resources as a country? How serious is the problem? Pollution from toxic chemicals and environmental degradation threaten life in the country. Every water resource in the country seems contaminated, or is on the verge of drying up as a result of negative human activities and drama can help salvage the problem.

PS05 *Poster Title:* Extreme Climatic Events and Coping Strategies in Accra Ghana

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With livelihoods, properties and lives among others at more risk to climate change, there is the need for more sustainable coping options. This paper looks at how community members coped with climatic events in the past in order to develop sustainable adaptation options for community members. Three communities were selected and focus group discussions were used for the data collection. Adult males and females aged 30 years or more selected must have lived in the community for at least ten years. All three communities mentioned floods and droughts ranging from 1955 to 1995 with the exception of James Town experiencing storms recently in 2003. Losses encountered in all three communities bordered on their livelihood

assets, injury to themselves and loss of property. For instance, community members in James Town indicated they coped with flooding outcome by burning orange peels and palm flowers to drive mosquitoes away. They indicated it been efficient and sustainable even after the flooding events. With climate change expected to exacerbate climatic events, local coping mechanisms are needed for sustainable adaptation. Any policy on climate change should incorporate local experiences and coping strategies into the climate change policy as local experience serves as valuable basis of knowledge.

PS06 KUMAR Pradeep, Medicinal & Process Chemistry Division, Central Drug Research Institute, Lucknow-226001, India

Recently, the president of Maldives informed the media that he wants to buy land for his country. People were surprised on this statement as why such vast land? The answer is very simple as Maldives is in the hit list of global warming and is only an average of two meters above the sea level. Any future change in the climatic condition will make Maldives submerged in the ocean. This will cause sea level to rise affecting many countries in the world. The first country in the world which will be soon submerged in the ocean is Tuvalu which in Pacific Ocean and people of that country is already fleeing to neighbouring countries. More than 15 million acres of land is converted into desert every year in the world. This has made 100 million people to become homeless. The major reason for this is increasing green house gases in the atmosphere and deforestation. There are around 2,65,000 flowering plants in the world but we have knowledge in detail only about 0.5% of them. Modern scientists/experts know about 5-10% of the medicinal plants found in the rain forest area whereas a tribal person knows about medicinal use of 48-80% of the plants around him. 60,000 plant species would have become extinct in the world by the end of the year 2050. Coral reefs are unique ecosystems of plants, animals, and their associated geological framework. The ocean equivalent of rainforests, they are home to 25% of all marine species, yet it is estimated that many of the world's reefs will be destroyed or significantly damaged in the next 20 years. The Great Barrier Reef, measuring 2,000 Km. in length, is the largest living structure on Earth. Nearly 60 per cent of the world's remaining reefs are at significant risk of being lost in the next three decades. The major causes of coral reef decline are coastal development, sedimentation, destructive fishing practices, pollution, tourism and global warming. Climate change threatens to destroy the majority of the world's coral reefs, as well as wreak havoc on the fragile economies of Small Island and developing nations. We need to reach not only the conservation experts or scientists but also to wide range of people who inhabit this planet earth and all those who are concerned about the this vital issue. The paper will focus on the effective use of a new science called Scientoonics which uses a novel concept of scientoons developed by the author for the first time in the world, in planning a unique strategy especially for Asian continent for saving our rich biodiversity and medicinal plants from climate change which ultimately is leading to Global warming.

PSO7 *Poster Title:* Urban Household Characteristics And Implications For Food Utilization In Accra

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The right to food is one of the most consistently mentioned international human rights to date, unfortunately also one of the most spectacularly violated in recent times. Myriad studies, policies and programmes have focused on food production alone rather than a comprehensive approach to include other components of food security. Food security is largely taken for granted by urbanites. The study seeks to examine urban household characteristics and its implications for food utilization among urban poor communities. The study focuses on three indigenous urban poor communities; Gamashie (James Town and Ussher town) and Agbogbloshie in Accra. Food utilization is measured in terms of household dietary diversity to determine nutritional value and whether the foods they consume are constrained by any taboos. Preliminary analyses indicate that household food consumption largely depends on cash exchange. Also, certain foods such as snails, tortoise, pork and some fish species for example

electric fish are not socially acceptable foods to some households and also across sub-groups. Although a wider variety of food is available, the food consumed in these communities is not necessarily of superior nutritional quality and food hygiene is of growing concern in urban poor environments. The different factors which impact food security of urban populace, particularly the urban poor should be considered when designing policies and programmes to improve food security.

PS08 *Poster Title:* Local Community Awareness And Use Of Wetland Resources In Kyeizooba Sub County Bushenyi District – Uganda

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The study was aimed at finding out the people's level of awareness and use of wetland resources in Kyeizooba Sub County, in Bushenyi district. The researcher used descriptive survey to get opinions of the community on awareness programs and wetland uses. Questionnaires, interview guides and observation guide were also used. Data collected were computed using the chi-square test and percentages. The study established that local communities living in and around Kyeizooba wetlands were aware that wetland degradation is the major problem in the area. There are awareness and education programs being conducted in the area. The field staff educated the local communities on the conservation of the environment and wetland resources in the Sub County and Bushenyi district in general. Whereas the on going awareness raising programs have had a great impact on the environmental awareness of the local communities, their impact on wetland conservation practices carried out by the local communities has been low, with many people draining wetlands.

PS09 *Poster Title:* Climatic Change And Household Vulnerability: Sociological Study Of Food Security In Zambia

KAONA Frederick A.D *, Miti Esnart*, Mwengu Soc

In rural Zambia, agriculture plays an important role in poverty reduction, food security and sustainability of the ecosystem. Agriculture is mostly led by poor small scale farmers who make up to 60 percent of the population, with the majority marginalised with poor access to farming input supplies, poor infrastructure and market accessibility. Household perceptions on climatic and food insecurity trends reveal strong influence on vulnerability to food insecurity. Study was conducted in the Northern Province of Zambia in randomly selected households during the lean rainy months of February and March 2010 and targeted 1400 heads of households. The study used structured questionnaire and key informant interviews, which were administered to heads of households. Focus Group Discussions were conducted among women and men aged 18 to 79 years old. Data were analysed using SPSS and Atlas.ti. Indigenous knowledge was as high as 80% in identification of sustainable practices of smallholder farming participatory approaches on selection of seed varieties. Nearly 73% documented and shared information with other farmers. There were 68.5% who said cassava was a better crop for current poor rainfall in the country. Selling of cassava increased income generation than other crops. Women were more likely to mention lack of food in homes during rainy season. Agriculture creates awareness on climatic change and environmental conservation and protection, with emphasis on drought resistant crops

PS10 *Poster Title:* Statistical Analysis Of The Economic Performance Of The Directorate Of Water Development. Case Study Of Wakiso And Kiwunya Sub Stations.

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Uganda is a country richly endowed with Water Rivers and lakes nearly 20% of her surface. These waters act as a cheap resource and source for foreign exchange. These waters are used for industrial domestic consumption and so on. The monitoring of water cycle can be by the use

of the Geographical information system (GIS). Geographical series about water can be readily got and they constitute a substantial proportion of official statistics and environmental statistics. This study was intended to collect information on the economic performance of directorate of water development in its work of expanding to rural areas of Kiwunya substation and wakiso district. Data collection was collected from wakiso and kiwunya sub station. A sample of 103 respondents was used to collect data using simple random sampling. Data was both qualitative and quantitative in nature. Qualitative in nature coded questionnaires were administered to collect data. Quantitatively in nature text books, journals and publications were used also to get data. Data entry and analysis was done using SPSS, Ms Excel, STATA and Epidata Packages. The major findings of the study showed that the shortage of water in a given area is independent of the type of water source (P=0.362). Earlier assumptions were that areas with wells face water shortages in the dry seasons which case does not lead to water shortages as alternatives are available.

PS11 *Poster Title:* Adaptation Strategies Of Rural Women Farmers To Climate Change In Nigeria.

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Climate change can be regarded as any alteration in the climatic parameters over a period of years. Men and women adapt to climate change in different ways. However when there is a change in the climate, the women are the most affected as a result of their ascribed and acquired roles. This study examines the adaptation strategies of rural women to climate change in Edu LGA, Kwara State, Nigeria. Both primary and secondary sources of data were used to elicit information in the study area. Three hundred (300) copies of questionnaire were randomly administered on the respondents. The study employs descriptive statistical method such as means and percentages to analyze the data collected. The results reveal that rural women form a disproportionate share of the rural poor and are more vulnerable to climate change. It concludes by emphasizing on adaptation to climate change to help people especially women secure their lives and livelihoods and develop new method of agriculture. The study however, recommends that government should develop strategies to enhance women's access to and control over natural resources in order to reduce poverty, protect environmental resources, and cope with climate change.

PS12 *Poster Title:* Impact Of Climate Change On The Health Sector In Uganda. A Case Of Malaria And Cholera.

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This paper tends to assess the impact of climate change on human health in Uganda focusing on malaria and cholera. Available data on malaria and cholera from MoH Health Management Information Systems (HMIS) and Epidemiological Surveillance Division (ESD) was analyzed using the WHO Health Mapper (Version 4.3) Geographical Information Systems (GIS) software to generate spatial maps of the diseases and historical charts. Other graphs and tables were produced using MS Excel. A district health official was interviewed on vulnerabilities, strategy and policy related to climate change and human health. The problem of malaria is on the increase in the country geographically and in terms of intensity. Malaria is endemic in 95% of Uganda while the remaining 5% is epidemic prone especially in the highlands of South West and Eastern Uganda. Looking at specific districts especially those considered malaria-free zones. The impacts to the health sector have been enormous in terms of cases, loss of lives, economic loss and destruction to infrastructure. Since climate will continue to change in the foreseeable future the most reasonable option is to integrate climate change in the health policy and ensure that all programmes take into account climate change concerns in all their plans. Only then shall the sector be able to adapt and minimize the impacts. As the climate change phenomenon is cross-cutting the health sector must collaborate with other sectors in order to have an effective adaptation.

POSTER ABSTRACTS

PS13 *Poster Title:* The Links Between Climate Change Risk Perception And Adaptation In Sub-Saharan Africa: A Meta-Analysis

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The issue of Climate change perception has had a growing importance since the third IPCC Assessment. The data for a meta-analysis now being available, this work aims at interrogating the links between climate change risk perception and adaptation in Sub-Saharan Africa. This study is based on N=48 peer-reviewed case studies concerning climate change perceptions in Sub-Saharan Africa. The work is divided into two parts. Firstly, a "conceptual" meta-analysis (Hofmann and al. 2011) is performed. The scheme consists on the one hand on a classification of studies according to the type of adaptation they produce; on the other hand on a hierarchical classification of the regional and thematic context of studies. Then, a more classical meta-analysis, where data can be pooled together will follow. As contradictory results can occur, there is a need to study on the one hand methodological tools, concepts and contexts; on the other hand the results obtained. The classification and meta-analysis provided are policy-relevant and give a high level of information about existing knowledge. We found that some regions of Africa appear to be overrepresented when there is no available knowledge about other parts of Africa. Then, risk perception has a strong cultural component and can therefore widely vary from one cultural, geographical or national area to another. Finally, risk perception is part of an adaptation process where other constraints are at stake. The importance of risk perception on preventive adaptation practices is low.

PS14 *Poster Title:* Effect Of Climatic Conditions On Flowering And Fruiting Of *Tamarindus Indica* L. In Benin, West Africa

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This study examined effect of climatic conditions on patterns of flowering and fruiting of tamarind (*Tamarindus indica*), an Agroforestry Fruit Tree species. Data were recorded over a period of 26 months in three contrasting climatic conditions. The monitoring revealed that irrespective of climatic conditions, flowering started by the end of the dry season when hygrometry began to rise and lasted two to three months. Fruiting began around the peak of the rainy season and reached ripening stage six to eight months later during the dry season. On the hand, flowering and fruiting abilities weakly varied with climatic conditions. On the other hand, flowering and fruiting durations and active phases seemed to be significantly longer under wetter climatic conditions. The wetter the climate, the longer the fruiting length and active phase. This may be linked to (i) larger size of fruits in wetter regions so that they take longer to reach full size; (ii) earlier beginning of the drought period or lower relative air humidity in drier regions so that ripening is more precocious. This study provided relevant insight into the patterns of phenological events of tamarind that could help in managing its populations and anticipating its flowering and fruiting shifting response to climate changes. Further long term investigations should however focus on modelling the combined effect of climate, soil, land use regimes and age on the inter-annual variation of phenological events and productivity.

PS15 *Poster Title:* Mitigation Of The Impacts Of Climate Change On Pastoralism In Africa

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Climate change threatens the survival of pastoralism in Africa. Growing pressure on grazing lands, population growth, inefficient use of grazing resources and frequent meteorological droughts destabilize the effectiveness of pastoral system creating needs to address the issues surrounding sustenance of the system. Pastoralists in West Africa are increasingly moving southwards to tropical forests in response to changing sahelian environment. Unregulated trans-national boundary movements of livestock and increasing settlement of pastoralists in the rainforest zones create divers tensions that threaten pastoral mobility and access to favourable

sites during droughts. The sustainability and future of pastoralism in Africa, and the need for continued institutional promotion of the system remains debatable. Capturing all contending issues requires linking current realities to institutional policies that promote sustenance of pastoralism. Emerging consensus suggests that the most crucial approach to this sustenance is increasing and prioritizing investments linked to resilience to drought. Arguably, institutional mitigation of drought impacts should be based on tested community approaches, addressing enhancement of pastoralists' capacity to manage drought (promotion of early warning systems, grazing havens, sustainable water/fodder management, breeding of drought resilient livestock); legislations (trans-boundary movements, key grazing areas, co-habitation of competing groups); investments and incentives; diversification of livelihood; education; good governance.

PS16 *Poster Title:* Assessment Of Carbon Storage In Automobile Waste Polluted Soils Of Owerri South Eastern Nigeria

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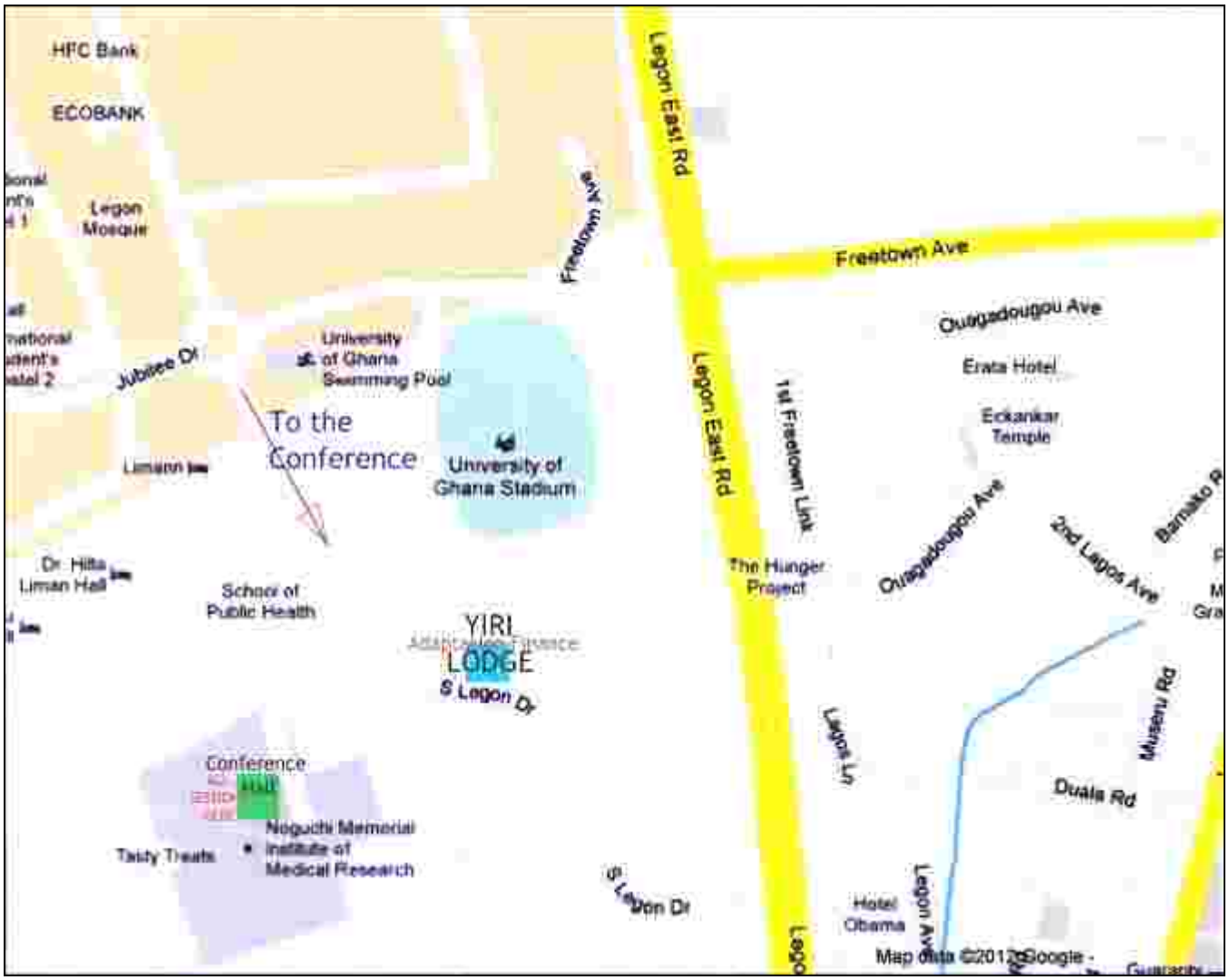
Carbon stored in soil is returned to the atmosphere as carbon dioxide; a greenhouse gas which has a long history of instigating climate change. Soils contaminated by automobile waste in Owerri, South Eastern Nigeria, were analyzed for ability to store carbon using routine standard laboratory methods. Data collected from soil samples were subjected to statistical analysis. The total carbon storage in waste affected soils of two mechanic villages. (Orji and Nekede) were (OWSI: 20.34±0.05 tha-1; OWS2 19.94±0.01tha-1 and NWS1 20.39±0.33 tha-1; NWS2 23.32±0.31tha-1) respectively compared to non automobile waste affected soils (control), which recorded ONWS 8.03±0.01 and NNWS 4.63 ± 0.02 at Orji and Nekede respectively. The values of soil organic carbon storage were higher in automobile waste affected soils when compared with non affected soils. Increases in organic matter, (11.93 -11.69 and 12.38 - 14.15 gkg-1), exchangeable base (4.41 and 3.7 gkg-1) and effective cation exchange capacity (4.73 and 3.610gkg-1), were obtained in automobile waste affected soils compared to automobile waste non affected soil (Organic matter, 5.53 and 3.44gkg-1; exchange capacity (1.5gkg-1). The study revealed significant difference among carbon storage in automobile waste affected and non affected soil.

Annex 1: Map of University of Ghana & Direction to Conference Venue



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