



Hominin Sites Palaeoclimate Drilling Project

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U.O.N.

The HSPDP was developed starting in 2006 with the goal of collecting high quality sediment cores through scientific drilling to document the climatic and environmental context of human evolution. The University of Nairobi, University of Arizona, and the National Oil Corporation of Kenya entered into a Memorandum of Understanding to formalise the project in the year 2010. The project is collecting cores from a series of five sites in East Africa (3 in Kenya - Baringo, West Turkana, Lake Magadi; 2 in Ethiopia - Chew Bahir, (Northern Afar) each of which is well known for



Extrusion of the sediment core from the drill casing: Prof. Andy Cohen (USA), Dr. Craig Feibel (USA), Prof. Daniel Olago (University of Nairobi), Mr. Leslie Dullo (University of Nairobi), Mr. Benson Kyongo (National Museums of Kenya), Dr. Sarah Ivory (USA).

spectacular fossil early human (hominin) and vertebrate finds. Lake beds are well known among geologists for providing detailed information about past environments, such as estimates of temperature and precipitation, vegetation around the lake from fossil pollen, and information

about lake conditions in the past. All of these clues can be used by teams of geologists and anthropologists to tie the climate and environmental history of an area to the fossil hominins found nearby.

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The Master's and Doctorate program in climate change at the University of Nairobi is now in full swing at the institute for climate change and adaptation. The institute have generated a lot of interest as one of the few of it's kind in Africa.

THE IPCC

The Intergovernmental Panel on Climate Change is the Scientific body endorsed by United Nation General Assembly resolution No. 43/53 and has the mandate to provide scientific assessment on of current scientific, technical and socio-economic information worldwide about the risk of Climate Change caused by human activity, its potential environmental and socio-economic consequences, and possible options for adapting to these consequences or mitigating the effects.

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Information Gaps in Climate Change Knowledge in Kenya

Prof Shem O. Wandiga Director Institute for Climate Change and Adaptation

The Director of the ICCA Prof. Shem Wandiga gave the Key-note address at the **High Level Expert Consultative Forum on Biodiversity, Conservation and Climate Change**. Prof. Wandiga pointed out that the effects of Climate Change

are expected to be greatest over the interior of semi-arid margins of the Sahara, and Central and Southern Africa. The impact of climate change on Africa is expected to be high due to the dependence on rainfed agriculture, rainfall and rivers for sources of

potable water, and the possible impact of extreme weather events occurring on the continent. The observed annual rainfall anomalies of the climate change models indicate that there are possible increases in precipitation
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Hominin Sites Palaeoclimate Drilling Project



Prof. Daniel Olago on site

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The project work in Kenya is being done by an international team of scientists, headed by Professor Andy Cohen of the University of Arizona, with strong participation by scientists from several Kenyan institutions, including the University of Nairobi, the National Museums of Kenya, and Kenyatta University. Professor Daniel Olago is the lead Kenyan scientist on HSPDP and has been working closely with the rest of the international team over the past 7 years to insure the project's success.

The fieldwork component of the project kicked off on 28th May 2013, with initial core recovery in Baringo area, Kenya, where 228m of core was recovered. The team then moved on to the second drill site in West Turkana and recovered 220m of core. This first phase of coring was wound up on 12th July 2013. The two sites in Ethiopia will be drilled in early 2014, then the team will return to Kenya later in

2014 to drill Lake Magadi as it was not possible this year due to unprecedented high water levels and lack of an appropriate drilling platform. In addition to the scientific drilling, the project has implemented a strong education and outreach program, working with partners to educate the public about our activities. The project is being documented by a professional film-maker (Earth Images Foundation), which specializes in Earth Science films. Earth Images will film the project in 3-D, and the film will be distributed and shown locally in Kenya and internationally.

Visit our project website to learn more about it: <http://hspdp.asu.edu/>



The drilling rig at the West Turkana site. Scientists are extruding a recovered core section of 3m length.

INFORMATION GAPS IN CLIMATE CHANGE KNOWLEDGE IN KENYA

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In East Africa. An increase in rainfall as projected would be welcome, however, it will be accompanied by an increase of extremely wet events, from the current 5% to about 20%, which could seriously disrupt food production systems and infrastructure.

The changes are expected to continue beyond the cessation of the rise of green house gases due to the long half life of some important gases like carbon dioxide.

Against this background, Africa needs to have strategies for adaptation, keeping in mind that adaptation to climate change cannot be addressed through a single economic sector, as it has impacts across all sectors on all aspects of social and economic development. Climate change has and continues to have impacts on biodiversity and extinction rates. As it is, knowledge of genetic changes that takes and will take place with climate change induced ecological transformation is least understood, and knowledge of vulnerable species and resilient species is missing.

In spite of knowledge on the lack of information being available, the performance of Africa in the area of research in climate change is worrying. Data on the availability of scholarly papers indicates that studies on climate change in Africa account only for 7% of all the papers published, and of this figure only 2.8% is research done by African scientists. In the area of adaptation, 9% of the global research has been found to focus on Africa, and of this a mere 3.8% has been carried out by African experts. Agriculture is seen to dominate most of this research followed by policy sectors. This is understandable given that the economies of the developing countries are dominated by rain-fed agriculture, which is extremely vulnerable to climate change. Contd Pg 3

INFORMATION GAPS IN CLIMATE CHANGE KNOWLEDGE IN KENYA

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The policy link in adaptation strategies to climate change is important in that, if it is properly developed and implemented, it provides for sustainability of the prescribed adaptation options, however much of recent policy debate on adaptation has focused on:

- The estimation of adaptation costs,
- Ways to raise and scale-up funding for adaptation,
- The design of international institutional architecture for adaptation.

It is important to link adaptation to the vulnerable communities and hence policies in this regard are necessary. An example is using innovative farming technologies as a strategy for adaptation. This may need an efficient agricultural extension service that will in turn require the necessary policies to implement.

The low numbers of Africa focused research reflected in this study could be due to; limited research going on; no visibility of the research, i.e. problems in publishing.

Academic and research institutions can fill these gaps and spur research, facilitate publications through grants, establishing a journal, e.t.c.

Investigation of further areas that could benefit from research such as water availability and impacts of extreme weather events is another way of increasing the amount of research available to enable and empower Africa to develop adaptation strategies in the face of Climate Change



Extreme weather events such as flooding and drought are expected to increase as a result of climate change. The resulting impact on the environment will include erosion of top soil and possible compromised ability to produce enough food.

TECHNOLOGY AND CLIMATE CHANGE

Dr. Simeon Otieno Dulo—Engineering, ICCA

Technology transfer is critical in an effective global response to the climate change challenge, since technology is the source of greenhouse gases (GHGs) emissions. Achieving substantial reduction of GHGs requires innovation to transform current technologies into cleaner and climate-resilient technologies. Technology innovation is thus the foundation for sustainable economic development for all countries.

The Intergovernmental Panel on Climate Change (IPCC) - Methodological and Technological Issues in Technology Transfer (IPCC 2000) and embodied in the UNFCCC technology transfer framework defined Technology transfer as:

“...a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organizations (NGOs) and research/education institutions...the broad and inclusive term “transfer” encompasses diffusion of technologies and technology cooperation across and within countries. It covers technology transfer processes between developed countries, developing countries, and countries with economies in transition. It comprises the process of learning to understand, utilize and replicate the technology, including the capacity to choose and adapt to local conditions and integrate it with indigenous technologies.”

The IPCC describes three major dimensions necessary to ensure the effectiveness of technology transfer:

- Capacity building;
 - Enabling environments; and
 - Mechanisms for technology transfer i.e.
- National development and investment Initiatives,
 - Foreign direct investment (FDI),
 - Official development assistance (ODA), and
 - Commercial lending and equity investment are all important channels through which technology transfer is financed

The Role of the ICCA in Technology

Transfer

Achieving the very large reduction in greenhouse gas emissions that scientists say is needed to avoid the worst effects of climate change will not be easy. It will require action across all sectors of the economy, from electricity and transportation to agriculture. A portfolio of technologies exists today for achieving cost-effective emission reductions, and emerging technologies hold promise for delivering even more emission reductions in the future. The successful development of these technologies will require research, incentives for producers and consumers, and emission reduction requirements that drive innovation and guide investments. Governments at all levels need to encourage short-term action to reduce emissions while laying the groundwork for a longer-term technology revolution.

ICCA endeavours to facilitate research and technology transfer to help address the climate change challenge while seeking collaboration in its activities with public-sector, private sector and technology institutions in Environmentally Sound Technologies (ESTs). ESTs have the potential for significantly improved environmental performance compared to other technologies. They include know-how, goods and services, and equipment, as well as organizational and managerial procedures. Priority research areas include:

- Energy efficiency – market transformation for energy efficiency in industry and buildings;
- Renewable energy technologies;
- Emerging, low-carbon, energy-generating Technologies amongst others.

In addition, many of the adaptation projects have included techniques for the improved management of local practices. As a result, capacity building, public awareness, and support for the mainstreaming of adaptation strategies in local economic development, land-use, and environmental planning have been important components of many projects.



1ST AFRICA FOOD SECURITY CONFERENCE Nairobi | 20-21 August 2013



Africa's vulnerability to climate change has been emphasized by the recent severe droughts that have been experienced in the Sahel and the Horn of Africa.

By 2050 Africa's population is expected to be 25% of the world population thus putting extreme pressure on the African states to provide food for their people and raises the question of approaches needed to meet food security challenges in the future.

In recognition of the need to put in place sustainable solutions that will not only provide nutritional needs for the people of Africa, but also ensure the preservation of ecosystems from degradation, The United Nations Environmental Programme Regional Office for Africa (UNEP/ROA) organized an African food security conference with the theme "Harnessing Ecosystem based Approaches for Food Security and Adaptation to Climate Change in Africa."



Maize farming: AFSC 's objective is to aggregate lessons and experiences into common solutions for food security and climate change.



Traditional farming methods: Sustainable practices are required to meet nutritional needs and preserve ecosystems

The conference took place from 20th to the 21st of August 2013 in Nairobi with the objective to aggregate lessons and experiences into common solutions for food security and climate change adaptation. Participants discussed recent applications, shared information on targeted ecological actions that provide opportunities for addressing food insecurity and identified how to scale up ecosystem based adaptation practices.

UNEP/ROA invited the University of Nairobi's Institute for Climate Change and Adaption to contribute to this event.



Population growth will pressurize African countries to provide food for their people due to climate change

TRECCAFRICA SCHOLARSHIP BENEFICIARIES

The students who have benefited from sponsorship under the ACP Academic Mobility Scheme otherwise known as TreccaAfrica II have settled down in Kenya nicely. Three Masters in Environmental Management and one Doctorate in Veterinary Studies are in Kenya under the scheme and have seen the benefits and will on their return ensure that they encourage friends and country men and women to take advantage of this opportunity to widen their horizons in the selected areas. The Students are Ms Vimbainashe Makombe

(Yvette) from Zimbabwe, Ms. Laura Makhombere from Malawi and Mr. Jean-Claude Tuyisenge from Rwanda and Mr. Hope Otsinya from Ghana. The programme is still expecting additional students to join from Nigeria and Ghana where those selected had difficulties and were unable to take up their positions. TreccaAfrica will soon advertise for new applicants for up coming opportunities in the academic and administrative fields the ACP countries.



TreccaAfrica beneficiaries from left, Ms Laura Makhombere, Mr. Jean-Claude Tuyisenge and Ms. Vimbainashe Makombe attending a meeting in the University of Nairobi.