

AFRICA SUSTAINABILITY HUB

Newsletter

Developing Competitive Green Climate Fund (GCF) Projects Using Climate Relevant Innovations (CRIBS) Approach



The African Union and Africa Sustainability Hub team during a GCF Training in Abuja Nigeria





THE AFRICA SUSTAINABILITY HUB (ASH)

was established on a mutual partnership between Africa and UK leading research and policy think tanks on sustainability with the founding partners being the African Centre for Technology Studies (ACTS), **the STEPS Centre** at the University of Sussex, the Africa Centre of the Stockholm Environment Institute (SEI),

and the African Technology Policy Studies Network (ATPS). ASH is part of the STEPS Global Consortium at the University of Sussex which comprises six 'hubs' based in leading academic/research institutes across the globe in Africa, South Asia, China, Europe, Latin and North America with a vision for tackling the most pressing sustainability challenges currently facing the world and in the future. The Global Consortium provides an opportunity for lessons sharing on various Sustainable Development Goals (SDGs) issues and lessons across the continents, which is pertinent to Africa's sustainability.



SPRU SCIENCE POLICY RESEARCH UNIT

The Steps Centre is hosted in the UK by the **Institute of Development Studies and the Science Policy Research Unit (SPRU) at the University of Sussex** constitutes a team of international researchers from a range of countries and academic backgrounds from social sciences and natural

sciences. The centre carries out carries out inter-disciplinary global research uniting development studies with science and technology studies to reduce poverty and bring about social justice. The Global Consortium at the Steps Centre unites 5 continents through their hubs with a vision to tackle the most pressing sustainability challenges facing the world. The Centre further aims to develop theoretical pathways approach to understanding interactions between social, technological, and environmental dynamics



The African Centre for Technology Studies (ACTS) is a pioneering development research think tank on harnessing

applications of science, technology and innovation policies for sustainable development in Africa. Founded in 1988 as an intergovernmental organisation, ACTS is today a leading think tank in Africa and continues to pursue policy-oriented research aimed at strengthening the capacity of African countries and institutions to harness science and technology for sustainable development. The think tank envisions a sustainable economic, social and environmental future for Africa, through science, technology and innovation. In 2013, it was rated amongst the top Environment Think Tanks in Africa and the world. In 2016 ACTS was ranked among the top 3 climate change think tanks by ICCG Rankings.



The Institute for Climate Change and Adaptation (ICCA) is

an academic institution of the University of Nairobi established in 2011 by the University of Nairobi Senate. The Institute's academic staff consists of a diversified team of experts and researchers drawn from within and across the University of Nairobi environs. ICCA applies trans-disciplinary approaches to its teaching, research and actions and is dedicated to building human capacity necessary to address the unique climate change adaptation needs of vulnerable communities through teaching, action-oriented research, development of innovative technologies and community participation. It provides expert advice for national and regional policy formulation and implementation. ICCA's mandate is to contribute towards the harnessing of applications of science, technology and innovation for accelerated sustainable development in Africa.

Capacity Building Workshop for African Union member States on GCF

In August 2018, the African Union Scientific Technical and Research Commission (AU-STRC) with the technical support of the African Centre for Technology Studies (ACTS), the Africa Sustainability Hub (ASH), and the Institute for Climate Change and Adaptation (ICCA), held a training for African Union Member States on accessing the Green Climate Fund (GCF) in Abuja Nigeria.

Africa is amongst the worst hit continent by the impacts of climate change despite contributing less than 5 per cent of the global greenhouse gas emissions. Considerable evidence of climate change in Africa continues to be recorded as Africa's six warmest years on record have all occurred since 1987. Lake Chad has shrunk from 26,000 square kilometres in the 1960s to 1,500 in 2,000 while ice caps on Africa's highest mountains are receding with an example of Mount Kenya which has lost 92 per cent of its glaciers in the last 100 years. These impacts continue to affect the vast populations in the continent.

The GCF was established to promote a paradigm shift towards low-emission and climate-resilient development pathways in developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change. Nevertheless, AU Member states continue to grapple with access to the fund. It's against this backdrop that the AU-STRC organised for a training for policy makers from AU Member states to build their capacity and skills on developing, implementing and monitoring GCF projects.

The training was critical in offering well thought-out strategies that would enable them gain the requisite knowledge and competencies on the GCF processes to develop competitive fundable projects that would ideally support the implementation of their Nationally Determined Contributions (NDCs) on climate change. The Africa Union (A.U) recognises that climate change and its impacts are fundamental and the continent's over-arching Agenda 2063 may not be achieved without addressing climate challenges.

The agenda was developed to address some of the Key challenges in Africa. Various strategies such as Comprehensive Africa Agriculture Development Programme (CAADP); Program Infrastructure Development for Africa (PIDA); A.U's Science, Technology and Innovation Strategy for Africa (STISA 2024) seek to effectively engage with Africans in that regard.

Africa has been touted as the frontier continent in development with tremendous infrastructural development being observed from construction of roads to the pursuit for industrial development, there's need for energy screening to ensure that GCF projects on mitigation are carefully developed to win funding and help mitigate against the effects of these developments. The policy makers were urged to widely think how their projects could tap into both mitigation and adaptation as there are opportunities for engaging and incorporating an integrated innovation approach towards solving some of Africa's key challenges on climate change.

Participants were drawn from AU-STRCs database of thousands of scientists and scholars from a wide range of stakeholders comprising key government policy makers that included Ministers, members of the academia from Vice Chancellors to Professors and top climate change scholars and researchers; development partners; private sector stakeholders as well as Non-Governmental Organisations from the Africa Union Member states.

The diverse backgrounds of the participants enabled facilitators to effectively lead and engage the discussions that provided insights on prospects, opportunities and challenges for establishing effective innovation systems to enhance climate change technology transfer for the AU member states. Discussions centred on the need to establish effective innovation systems that would be critical for AU Member States to leverage on to increase their chances of accessing the GCF. Declarations made by the AU Member states for consideration by the AU were agreed upon after the 3 day training.

Developing Green Climate Fund proposals using the CRIBS Approach

A two-week capacity building training on the preparation of proposals for the Green Climate Fund (GCF) took place at the Elementaita Country Lodge in Naivasha, Kenya recently. The event organised by the Africa Sustainability Hub (ASH) at the African Centre for Technology Studies (ACTS) in collaboration with the University of Sussex in the UK brought together researchers and policy makers from Ethiopia, Kenya, Uganda and Tanzania to engage on GCF processes.

The training sought to get insights on the current international policies on climate change and clean energy access, environment and climate change mitigation and adaptation and sustainable development impacts while identifying and assessing funding options for clean energy access projects for submission to the (GCF). The GCF was established to mobilize climate finance to support scaled-up mitigation and adaptation action during the COP 16 (United Nations Climate Change Conference) in Cancun in 2010 as an operating entity of the financial mechanism of the United Nations Framework Convention on Climate Change (UNFCCC).

A policy mechanism acronymed CRIBs, the Climate Relevant Innovation-system Builders, developed by a team of researchers from the University of Sussex and ACTS sought to have engagements with the policy makers on using a systems-based approach to leverage on climate relevant innovation ideas to apply for the GCF in their respective countries. CRIBs looks at innovative ideas and novelty nuances in the climate change sphere that seeks to engage relevant strategies built on a network of collaborations and long-term partnerships for the East African policy makers to enhance ease of funding for projects.

Dr. Joanes Atela, a Senior Research Fellow and the head of the Climate Resilient Economies programme at ACTS and ASH's coordinator noted that ASHs (www.ash-net.org) key role is to enhance Africa's sustainability engagements that are well thought-out and which could be utilised by policy makers on discussions touching on Africa's positive development trajectory. The ASH platform



Dr. Joanes Atela, a Senior Research Fellow and the head of the Climate Resilient Economies programme at ACTS makes a presentation in Elementaita. Dr. Atela is also the coordinator of the Africa Sustainability Hub.

a North-South collaboration provides a commendable idea for robust engagements and partnerships development which ideally seeks to turn research into use for policy makers in Africa. "Africa's economic trajectory is still wanting despite the abundance of resources. Does Africa still need development aid? Or does it need economic redistribution to address poverty? We need to centre our discussions on the institutions that work through political transformation linked to research; technology and innovation," said Dr. Atela

Dr. Rob Byrne from the University of Sussex who was one of the lead researchers in developing CRIBS notes that the mechanism sought to enable more African countries leverage on the systems-based approach methodology to tap into the GCF fund which has proven elusive to many African countries.

"The CRIBs approach is recognized by the GCF board as a mechanism that would enable effective engagements with different stakeholders for climate funding. Previously, the Clean Development Mechanism (CDM) investments favoured the developed countries compared to the

"The CRIBs approach for climate financing is a novel systems-approach mechanism that seeks to build capacity of governments, institutions and policy makers in Sub-Sahara Africa on climate financing. The African Union has recognized the importance of the CRIBs approach and seeks to incorporate it into the regional blocks of the National Designated Authorities"

Dr. Joanes Atela², Senior Research Fellow and the head of the Climate Resilient Economies programme at ACTS. Coordinator, ASH

developing ones where climate change has had a huge impact on populations.

Africa only managed a paltry 2% of the CDM investments while countries like China took up over 50% of these investments,” he noted. The CRIBs approach seeks to build networks of diverse stakeholders where it can foster and share learnings that seeks to promote innovative ideas as it engages policy makers on interlinked systems and processes to enable them formulate effective fundable proposals to the GCF. This mechanism also seeks to further engage and build the capacity of national bodies in the countries responsible for the GCF known as the National Designated Authorities (NDA’S) and to effectively support stakeholders in the various countries for GCF purposes. Dr. Atela, noted that these processes would impact African countries on global climate financing.

“The CRIBs approach for climate financing is a novel systems-approach mechanism that seeks to build capacity of governments, institutions and policy makers in SubSahara Africa on climate financing. The African Union has recognized the importance of the CRIBs approach and seeks to incorporate it into the regional blocks of the National Designated Authorities (NDA’s),” he noted. Peter

Odhengo, an advisor to the government of Kenya on climate related policies for over ten years notes that most of the GCF proposals are rejected as they lack critical elements stipulated by the GCF board.

“There are six investment criteria that most proposals lack which means they are dead on arrival and thus cannot be funded. Our doors are open for the various stakeholders seeking clarifications on these issues. Treasury and the National Environment Management Authority (NEMA) are the NDA’s responsible for engaging stakeholders on Climate Change on the GCF in Kenya,” he noted. CRIBs further augments previous projects which have sought to address how to leverage policy mechanisms to fund collaborative Research and Development while enhancing the delivery of climate technology transfer under the Paris Climate Agreement.

There’s need for researchers and policy makers to strengthen their capabilities to form ideal partnerships for informed engagements. Dr. Joanes further noted that CRIBs platform is an innovative and alternative pathway for African researchers and policy makers to effectively engage in the GCF processes and have their voices heard across the UNFCC



From Left to Right: Fiona Imbali, Dr. Kelvin Khisa, Dr. George Mwaniki, Beliyu Limenih, Dr. Rob Byrne, ACTS Executive Director Prof. Tom Migun Ogada, Victoria Chengo, Dr. Emmanuel Kwayu, Mildred Namiira, Nora Ndege, Dr. Joanes Atela, at Elementaita Country Lodge in Kenya

East Africa’s GCF Landscape

A huge gap exists in the African countries when developing proposals to the GCF due to lack of local expertise who aptly understand the GCF mechanisms of operation. This has consequently constrained the accreditation processes for National Designated Authorities (NDA’s). Only 7 countries in Africa have GCF accredited entities.

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There’s need for NDAs to sensitize their various institutions on these processes to accelerate climate funding. Budgets in most African countries are often constrained to adequately finance climate change and sustainability projects. The following Case examples (see Pages 8-16) were proposed by the Policy makers during the training for submission to the GCF board.

Institutionalising CRIBS

‘The CRIBs approach has enabled me to understand the current international climate policy on climate change and clean energy, funding options for clean energy access as well as promoting energy efficiency and understand the eco-system of the GCF funding mechanism which had not been clear before.

Ms. Mildred Namiira, an economist from Uganda’s Ministry of Water.

“As a co-chair of NETFUND’s resource mobilization committee, I have urged the organisation to institutionalise CRIBS in the organisation and this has been accepted and NETFUND has requested the Africa Sustainability Hub to train the organisation’s team which includes various parastatals within the ministry of environment,”

Dr. George Mwaniki, the Head of Research at NETFUND

“The CRIBS approach opened my eyes to understanding the various local and international policies that my project should ideally be aligned to. I’ve understood how these systems of operations are inter-linked and how the long-term partnerships and collaborations are critical in understanding and operationalising the requirements by the GCF board.

Beliyu Limenih, a Senior researcher at the Ethiopia Forest and Environment Research Institute, Central Ethiopia Forest and Environment Research Center.

“CRIBS Systems and sub-systems approach is timely in ensuring we understand what the critical climate challenges are and where we need to put more efforts on. I plan to institutionalise the CRIBs idea at the environment department at Kenya Industrial Research Development Institute (KIRDI) and eventually introduce it to the rest of the KIRDI team.”

Dr. Kelvin Khisa, The Head of the Environment Department at KIRDI

The University of Dar-es-salaam and especially the centre for climate change is keen on incorporating the CRIBS model to the various departments. CRIBs has opened my thinking to dissect ideas and engage on an innovative thinking process that allows me to look at all the systems and sub-systems within each sphere of organisation.

Dr. Emmanuel Kwayu a researcher from the University of Dar-es-Salaam

A Circular Economy Approach to promote sustainable exploitation and replenishing of Nairobi’s surface and underground water resources

When it rains in Nairobi, the city routinely experiences severe floods and often comes to a standstill. Floods wreak havoc due to poor drainage systems as little has been done to harvest this water due to lack of an elaborate water harvesting system. Consequently, during the dry season, Nairobi residents grapple with water rationing in a city that is operating at a water deficit of approximately 170,000 m³/ day. This situation is compounded by the rampant pollution of its surface water while effects of climate change coupled with a growing population means the demand outstrips supply.

Dr. Kelvin Khisa, the head of the Environment department at the Kenya Industrial Research Development Institute (KIRDI) has a well thought-out proposal that seeks to achieve water security for Nairobi residents and argues for a circular systems way of thinking. He proposes strategies for promoting water harvesting, conservation and water re-use while strengthening institutional capacities of water companies to adopt a more cohesive and integrated legal framework that supports an optimal mix of increasing supply and managing demand. In his

proposal to be presented to the Green Climate Fund (GCF) board for consideration, Dr. Khisa proposes an innovative re-use of treated waste-water or re-claimed water from flooding as has been done in various countries.

“Nairobi requires sustainable exploitation of both surface and ground water resources. The Dandora Sewerage Treatment Works treats approximately 160,000 m³ of waste water per day that can be re-used after further treatment. Similar to the Northern Collector Water Tunnel, re-use of treated waste effluent happens in many countries including Namibia, Singapore and India. In Windhoek, Namibia, reclaimed water is used as the main source of potable water in the country,” proposes Dr. Khisa. The project aims to create an enabling policy, incentive and regulatory framework to engage in capacity, education and awareness raising as well as enhanced technology transfer of environmentally sound technologies. These strategies would eventually enhance water security and improved recharge of the city’s underground water.

How does CRIBs work?

The CRIBs approach is based on an in-depth empirical analysis in Kenya, Tanzania and China as well as great insights from best practices in other contexts such as the Fundacion in Chile; a not for profit organization geared towards facilitating access to relevant international innovations and increasing indigenous innovation capabilities in Chile.

The first series of **CRIBs (CRIBS1)** was developed in 2016 to focus on understanding the tool which was developed after concerns that the climate change finance mechanisms such as the Clean Development Mechanism (CDM) was designed to benefit large developing countries like China and India with enhanced technological capabilities. CRIBS 1 approach sought to develop an innovation system that incorporates a set of actors; institutions and skills that function and interact to create conditions and learnings for innovative social, environmental or economic solutions that would successfully thrive in a particular context.

CRIBS 2 sought to look at options for accessing international finances. Africa received about 2% of the CDM funds and CRIBS sought to correct these past inadequacies. The idea was to sustain climate innovation systems through locally owned and governed, long-term institutions, supported by international climate policy structures to shift from one off, large projects, towards long-term, sustainable change in climate compatible, socially just pathways via the framework of the new global Paris Climate Agreement adopted in Marrakech.

CRIBS 3 seeks to strengthen capabilities of governments; institutions; research think tanks and various stakeholders to apply the right in-house capacity building tools to enable them access GCF & adaptation funds. The model proposes the establishment of key partnerships with unique roles, skills and experiences from different sectors ranging from governmental to non-government, universities and industry into a strategic arrangement linking their innovative actions as part of the innovation processes. The ultimate plan is to establish CRIBs in each of the countries currently being engaged. Such engagements have begun with collaborations with the African Union to train A.U member states on GCF processes in Africa. Other stakeholders and anticipated collaborations in this regard include the Africa Development Bank to further strengthen these processes

ETHIOPIA



Promoting intensive Forest Management for Sustainable Land Use and Land-Use Changes (LULUC) in Ethiopia's "zero net emission economy"

In 2013, Ethiopia utilized roughly 124 million cubic meters of wood and the number continues to increase every year. With population growth and economic development projections, total wood product demand will increase by about 27% over the next 20 years, reaching 158 million cubic meters annual consumption by 2033.

Increased demand for industrial wood requirements largely driven by the expanding construction industry and consumer demands of the growing middle class as well as construction (housing and commercial building) and rapid urbanization is likely to increase demand for high quality wood products to meet the requirements of modern construction. The absence of appropriate land use policy and poor awareness creation strategies continues to result into soil degradation and reduction of land productivity.

Beliyu Limenih a senior Research Officer with the Ethiopian Environment and Forest Institution's

proposal to the GCF seeks as part of wider national efforts to reach a "zero net emission economy" through the implementation of massive rehabilitation of degraded lands, sustainable woodland management, and livelihood improvement. Her proposal considers the existence of climate change and the need to avert its real impacts on the global economy, social and environmental settings as well as the ongoing global climate negotiations to curb Green House Gases (GHGs).

"Despite being a Least Developed Country, Ethiopia has made important international mitigation commitments. During the UN Summit on Forest Action Statements and action Plans in September 2014, Ethiopia pledged to restore 15 million ha of degraded and deforested lands by 2025 and the proposal seeks to enhance efforts towards land rehabilitation by engaging a wide array of stakeholders," proposes Beliyu.



A systems approach to cassava value-chain upgrading for improved food security in Kenya

Agriculture, the mainstay of a majority of Kenyans contributes directly to 25% of the Gross Domestic Product (GDP), 60% of export earnings and 75% of the country's industrial raw materials. The sector however, still experiences great challenges on food security. With a strong correlation between the agriculture and national economic growth, agricultural development is critical for the overall economic and social development of the country.

Kenya experienced its first drought described as the worst in 37 years between 1999 and 2001 where more than 4 million Kenyans were in need of food aid while approximately 23 million people experienced total crop failures and livestock deaths triggering severe food shortages especially in the Arid and Semi-Arid Lands (ASALS). The drought that occurred between 2008 and 2011 impacted the economy in estimates of USD 12.1 billion according to the Government of Kenya (2012) which was approximately equivalent to the country's total budget in the same year. Kenya is still classified as a food insecure country.

Dr. George Mwaniki, the Research and Development Director at the National Environment Trust Fund (NETFUND) has a proposal that seeks to apply transformative interventions to transform cassava into a commercially viable enterprise which requires organization of production, processing and marketing activities and an all-inclusive participation of value chain actors. "This proposal applies the Climate Relevant Innovation-systems Builders' (CRIBS) approach to Cassava Value Chain upgrading interventions that seek a shift from focusing on the traditional staple crops requiring heavy water investments to more drought resistant crops.

Constraints in the value chain will be addressed by strengthening mutually beneficial linkages between value chain actors while removing structural and policy barriers and creating sustainable business cases for actors within each of the processes," notes Dr. Mwaniki.

Dr. Mwaniki argues that cassava requires little maintenance and could help improve food security whilst providing raw materials for industries.



A farmer tends to his maize crop. Maize is Kenya's staple food. The Cassava project will also focus on developing and advocating for policy and legislation for blending of cassava in other flours

The project will also focus on developing and advocating for policy and legislation for blending of cassava in other flours, import substitution and mandatory use of locally produced cassava. This should build on the traditional indigenous practices and technologies by different communities in Kenya in the utilization of cassava particularly in blending with other traditional foods,'
-Dr Mwaniki, NETFUND

Promoting Charcoal Briquettes for Clean Cooking Energy in Tanzania



In most developing nations, more than 90% of households rely on biomass, such as fuel wood, charcoal, agricultural waste and animal dung to meet their energy needs for cooking. Over 70% of Tanzania's over 52 million people depend mostly on biomass in form of charcoal as a primary source of energy for cooking in households. Despite biomass's preference by large populations for cooking due to its affordability, there are great environmental and health challenges attributed to them. A World Health Organisation report indicates biomass smoke exposure increases the risk of childhood Acute Respiratory Infections (ARIs), particularly pneumonia, which is the main cause of death in children under 5 years. Moreover, women exposed to indoor pollution are three times more likely to suffer from Chronic Obstructive Pulmonary Disease (COPD) than those who cook with electricity or gas. Women and children bear the greatest brunt to these challenges.

“This proposal seeks to promote the production of briquettes through a public private partnership whose campaign will ensure the promotion of clean energy alternatives by promoting mass production of briquettes” -Dr. Kwayu.

Dr. Emmanuel Kwayu a researcher from the University of Dar-es-Salaam in his proposal to the GCF notes that despite great health and environmental hazards caused by the biomass, production of alternative, improved and clean bio-energy sources such as briquettes, charcoal briquettes and biogas for cooking is limited in Tanzania. “This proposal seeks to promote the production of briquettes through a public private partnership whose campaign will ensure the promotion of clean energy alternatives by promoting mass production of briquettes. The interventions sought will seek to contribute to the reduction of deforestation and support environmentally, socially and economically sustainable energy business development in Tanzania. Using the CRIBs approach, the project will seek to harness major funding streams to engage various stakeholders by utilising strategies that create new value chains that promote the production of briquettes,” proposes Dr. Kwayu.

Integrated Approach to Water Security through Rehabilitation of Valley Dams and Tanks in Uganda



Uganda is endowed with abundant water resources that includes direct rainfall-which varies between 500mm to 2,800mm annually, rivers, lakes and underground aquifers. The UN Department of Economic and Social Affairs (UNDESA) notes however, that the rapid population growth coupled with an increase in climate variability has led to frequent periods of erratic rainfall as well as droughts. Uganda's 'cattle corridor' which makes up the northern part of the country, is among the most degraded areas in the upper Nile basin due to years of overgrazing and charcoal production. Over 100 valley dams constructed over 50 years ago in these areas have silted and non-functional decreasing the water security of communities and consequently negatively affecting food security campaigns. Water for Production (WfP) that supports Uganda's economy directly through irrigation, livestock, rural industries and other commercial uses is estimated to account for 60–70% of the total national water requirements and originates mainly from

surface water. Out of this, only 2% of water in Uganda is used for irrigation which covers 15,000 of 1,300,000 ha under formal irrigation and livestock production.

Mildred Namiira an economist with this Ministry notes that the government has constructed 11 dams with a storage capacity of 14.7 Million Cubic Meters (MCM) in the cattle corridors as well as small to medium size valley tanks in selected livestock keeping districts through Public Private Partnerships. “While this may be critical, a CRIBS approach of thinking will enhance the existing structures for the much desired change. The CRIBS systems and sub-systems approach will seek collaboration from networks and partnerships and build long-term relationships with different stakeholders to hasten these processes. This approach will also apply an integrated approach to these rehabilitation processes to minimize the persistent silting of the dams and enhance water security,” proposes Mildred.

‘Only 2% of water in Uganda is used for irrigation.’

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