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**A4U DEBATES**

**“RESHAPING THE DIALOGUE WITH CONTEMPORARY  
AFRICAN WORLDS”**

**October-December 2021**

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# **“RESHAPING THE DIALOGUE WITH CONTEMPORARY AFRICAN WORLDS”**

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### **Third Session:**

## **Securing Food In A Climate Change Environment**

**Semipresencial: Sala de Actos del Rectorado, UAB**

**November 25th 2021**

**10.30-13.30 (CEST)**

**8.30-11.30 (SENEGAL)**

**11:30-14:30 (TANZANIA)**

### **10.30 AM (CEST) WELCOME OF THIRD SESSION**

**MÀRIUS MARTÍNEZ**, Vice-Rector for International Relations, UAB

### **10.35 AM (CEST) PRESENTATION OF THE SESSION**

**AGUS MORALES**, Director of Revista5W and Collaborator of The New York Times

### **10.40 AM (CEST) KEYNOTE SPEAKER**

**NDJIDO KANE**, Plant geneticist and molecular biologist. Director of the Institut Sénégalais de Recherches Agricoles (ISRA)-CERAAS

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### 11.25 ROUND TABLE AND DISCUSSION

**VANESSE LABEYRIE**, Researcher at the SENS Research Unit at CIRAD, Montpellier (France)

**NARRIMAN SALEH-JIDDAWI**, Vice-Chair: Women in Marine Sciences Center. PhD Marine Sciences University of Dar es Salaam (Tanzania – Zanzibar)

**LUCAS YAMAT**, Climate Change Economist at the Terrestrial Ecosystem Group, Basque Centre for Climate Change (BC3).

**VICTORIA REYES GARCIA**, ICREA Research Professor at the Institute of Environmental Science and Technology, Universitat Autònoma de Barcelona (ICTA-UAB)

### **13.15 CLOSING CEREMONY**

**JAVIER LAFUENTE**, Rector of the Autonomous University of Barcelona

## Securing Food in a Climate Change Environment

### Session Abstract

Food insecurity remains one of the world's most serious but least addressed socioeconomic and health problems, hitting hardest the poorest and most vulnerable. Food insecurity is often driven by a combination of socio-historical and political factors, but the current climate crisis contributes to exacerbate it by affecting food production.

Africa remains largely dependent on the primary sector. Agriculture employs 65% of Africa's labour force, with 96% of Sub-Saharan Africa crop production being based on rain-fed agriculture. Pastoralists accounts for about the 16% of African population, with pastoralism representing one of the most viable – and sometimes the only suitable – livelihood option in African drylands. And the fisheries sector employs over 12 million African people, being an important source of revenue and food – in many contexts the only protein source - for coastal populations. Almost unanimously, African small-farmers, pastoralists, and fishers rely on their local ecological knowledge for successfully developing these livelihoods.

Due to its large economic dependence on the primary sector, Africa has been identified as the world's most vulnerable region to climate change impacts. For example, according to the IPCC - 'Intergovernmental Panel on Climate Change' - the African agricultural sector is expected to experience prolonged droughts and higher precipitation variability, which will affect yields and crops suitability. Climate change impacts in African pastoral systems include, among others, lower pasture availability and animal productivity. Likewise,

the African fisheries sector is expected to be impacted by the increase in the occurrence of extreme events, which will disproportionately affect the artisanal sector and fishing coastal communities. Sea temperature increase could also decrease the abundance of important fish species for both, nutrition and income. These impacts are expected to exacerbate the historical vulnerability of African farmers, pastoralists, and fishers, for which it is important to address how to secure food production in a climate change environment.

In the session, we will hear the voices from experts from different disciplinary backgrounds (crop science, fisheries, pastoralism, local knowledge) on this topic. Participants will collectively reflect on the complexity of climate change impacts on African food production systems and on possible pathways for a transition towards more sustainable food systems, able to sustain healthy, nutritious and culturally appropriate diets in the light of climate change.

## Abstract Key Note Speaker

**NDJIDO KANE**, Plant geneticist and molecular biologist. Director of the Institut Sénégalais de Recherches Agricoles (ISRA)-CERAAS

The agricultural sector in sub-Saharan Africa employs between 60 and 70% of the workforce (women represent 50% of it) contributing 30 to 40% of the gross domestic product. It is confronted with anthropogenic and climatic challenges. First, population growth in this region, where income and employment depend almost entirely on rain-fed agriculture, would triple by 2050, from 1 to 3 billion people at the turn of the century. Second, multiple extreme conditions (floods, droughts, desertification, rising temperatures, reduced soil fertility, diseases and crop pests) combine with political and socio-economic factors to increase the vulnerability of the sector throughout this region. Worse, the crop yield scenarios predict 10 to 20% decrease by 2050 due to temperature warming (sorghum from 15 to 20% and millet from 20 to 30%). Then, agriculture must change radically to face these challenges and meet the demands of the burgeoning populations. One promising and sustainable solution is to design agricultural systems that are resistant to increasingly frequent shocks and capable of adapting to the new conditions imposed by these changes. In Sub-Saharan Africa, agricultural systems are predominantly small family farms without access to climate smart innovations, inputs or mechanized agricultural equipment suitable for increased production. Yet, some have been developed on which the actors in the sector could bank to redress the downward slope of productivity. We will present some examples of such solutions and share our point of view on how to contribute in a secure and



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sustainable way to face the challenges of global changes in Sub-Saharan Africa.



## Round table, abstracts short interventions

**VANESSE LABEYRIE**, Researcher at the SENS Research Unit at CIRAD, Montpellier (France)

*The role of relational networks in the resilience of small farms in Africa:* Adapting to climate change is a major challenge for small farms in Africa, where about 70% of croplands are located in drylands experiencing a dramatic increase in climate variability. I will briefly present how the networks of social relationship of small farms affect their ability to adapt or transform face to increased climate variability. I will draw on one illustration from my own research: the role of seed circulation networks in small farms adaptation in Sahelian Senegal. I will show how small-scale farmers have mobilized over time their relational network to access crop with different adaptive characteristics to adapt to the variations of climate.

**NARRIMAN SALEH-JIDDAWI**, Vice-Chair: Women in Marine Sciences Center. PhD Marine Sciences University of Dar es Salaam (Tanzania – Zanzibar)

*Status of fisheries and other marine resources in a climate change environment in Zanzibar:* Climate change and variability has become the most serious global problem, receiving local, regional and global attention. Such concern is necessary considering the fact that climate change and variability affect peoples' ways of life through impacts on infrastructure, environment, economies, food security, health and physical resources. As a small Island, Zanzibar has been experiencing the impacts of changing climate and variability. The impacts of climate changes observed in Zanzibar include increased temperatures, strong winds, and irregular rainfall. All these changes negatively affect coastal

activities conducted by women and men, including fisheries and seaweed farming yields and quality. Women conduct various activities along the coast, such as shell collection, sea cucumber and seaweed farming, which are important to sustain their livelihoods and empower them economically. Artisanal fisheries is mostly done by men in the inshore waters using various fishing vessels. However, climate change have resulted in a decrease in fish production and viability (i.e., the increase in wind speed threaten fisheries in the ocean). In this presentation, I will elaborate on these activities in Zanzibar and how they have been impacted by climate change as well as on the adaptation measures taken so far.

**LUCAS YAMAT**, Climate Change Economist at the Terrestrial Ecosystem Group, Basque Centre for Climate Change (BC3).

*The Challenges and Perspectives of Climate Change on Pastoralism in East Africa:* Pastoralism is a mode of production that support millions of people across the African drylands. It is widely acknowledged that pastoralists are custodians of dryland environment and that they provide services including biodiversity and wildlife conservation through good rangeland management in a customary governance style. This production system also has a significant contribution to the national economies and it provides animal source food all over the world. However, pastoral production systems are complex and dynamic as pastoralists seek to adapt to evolving environmental, social, political and economic conditions. With the changing climate system pastoralism is more stressed given the sensitivity of their environment. I will present on the challenges and perspectives that climate change imposes to pastoralists including those on rangelands,

livestock and other natural resources, and their extended repercussions on food security, incomes and vulnerability.

**VICTORIA REYES GARCIA**, ICREA Research Professor at the Institute of Environmental Science and Technology, Universitat Autònoma de Barcelona (ICTA-UAB)

*The contribution of local knowledge to food security in a climate change context:* Given their direct dependence on the environment to sustain their livelihoods, Indigenous Peoples and Local Communities are disproportionately being affected by climate changes. Climate change directly affects IPLC's livelihood systems through a myriad of effects that cascade from changes in the climatic systems (e.g., changes in rainfall and temperature), to changes in the biophysical system (e.g., changes in river level fluctuation or changes in plant phenology), and changes in the socio-economic system (e.g., reduced harvest or higher livestock mortality due to drought). Moreover, for many IPLC around the world, the impacts of anthropogenic climate change add to the social, political, and economic context of marginalization and disempowerment in which they live, further aggravating their vulnerability.

In the African continent, and elsewhere, current policies and socio-economic organization do not recognize that IPLC are not only helpless victims of natural disasters. Indeed, throughout the world, IPLC with a long history of interaction with the environment have developed intricate and complex knowledge systems that have allowed them to thrive in a myriad of environments. Such knowledge systems include information, management techniques, and forms of organization that result in sustainable livelihoods and that allow IPLC to detect changes

in local weather and climatic variability and the direct effects of such changes in the physical and the biological systems on which they depend. These knowledge systems can be an alternative source of information in the quest to understand climate change impacts on local livelihood systems, potentially contributing to design climate adaptation policies better tuned to local realities and vulnerabilities.

## Biographies

**NDJIDO KANE**, Plant geneticist and molecular biologist. Director of the Institut Sénégalais de Recherches Agricoles (ISRA)-CERAAS

Dr. Ndjido Kane is a geneticist and plants molecular biologist at the Senegalese Agri-research institute (ISRA). He uses the latest biotechnology tools to identify genetic traits governing crop performance in dryland environments as well as to exploit crop genetic diversity in prevision to climate change and for growing population's needs. Dr Kane is Director of CERAAS, a regional center of excellence specialized in research and training on drylands cereals and associated crops, he acts as co-director of an international joint lab (LAPSE) and coordinator of IAVAO Network of West Africa breeders. Previously, he coordinated the "Agrobiodiversity Management and biotechnology" national program. He authors numerous publications (articles, book chapters, patent, briefs, and technical sheets) and public communications. He will share his view on how to secure and nurture food in a climate changing environment, focusing in West Africa.

**VANESSE LABEYRIE**, Researcher at the SENS Research Unit at CIRAD, Montpellier (France)

Vanesse Labeyrie (Ph.D. in Population Biology, 2013, Montpellier SupAgro) is a researcher at the SENS research unit in CIRAD, Montpellier, working at the interface between agroecology and ethnobiology. Her research aims to understand how rural populations in the tropics manage plant diversity in agricultural landscapes to deal with the spatial heterogeneity and temporal variability of their environment. She is particularly interested in understanding how

biological resources and agroecological knowledge circulate through social networks and how the properties of these networks influence agroecosystems' resilience in the face of global changes. Her current projects are based in diversified agroecosystems in Madagascar and Senegal.

**NARRIMAN SALEH-JIDDAWI**, Vice-Chair: Women in Marine Sciences Center. PhD Marine Sciences University of Dar es Salaam (Tanzania – Zanzibar)

Dr Narriman Saleh Jiddawi is a Senior Marine Scientist. Until 2018, she worked as a Senior Lecturer at the Institute of Marine Sciences, UDSM, where she published not less than 100 papers and reports related to marine sciences, including climate change. She is now a Deputy Chair of the Women in Marine sciences network, Zanzibar, and a council member of the State University of Zanzibar where she was involved in the V3R Pwani Norhed project dealing with climate change issues. She is involved in various activities including teaching and supervising PhD and Msc students from IMS, SUZA, IRA and other universities. She has worked on women's empowerment along the coast, including in fisheries and mariculture. She has supervised more than 30 PhD and MSc students working on issues related to fisheries, marine issues and climate change.

**LUCAS YAMAT**, Climate Change Economist at the Terrestrial Ecosystem Group, Basque Centre for Climate Change (BC3).

Lucas Ole Yamat is a Climate Change Economist working with Terrestrial Ecosystems group at the Basque Centre for Climate Change (BC3). He joined the BC3 after having worked for The Nature

Conservancy since 2019 as Deputy Program Director for the Endangered Ecosystems of Northern Tanzania program and as a Northern Tanzania Conservation Projects Coordinator - a part of the Africa Program. Before, he worked with various Tanzanian organizations for over 10 years in managing programs across the African Drylands, focusing on building partnership between policymakers and non-state actors.

Yamat holds a Bachelor of Science in Economics from Mzumbe University (Tanzania) and a Master's degree of Science in Climate Change and Sustainable Development from the University of Dar es Salaam (Tanzania). He is currently a Doctoral student at the University of the Basque Country. His thesis evaluates the sustainability of African land uses with focus on livestock, crops and wildlife economies.

**VICTORIA REYES GARCIA**, ICREA Research Professor at the Institute of Environmental Science and Technology, Universitat Autònoma de Barcelona (ICTA-UAB)

Victoria Reyes-García (Ph.D in Anthropology, 2001, University of Florida) is ICREA Research Professor at the Institut of Environmental Science and Technology, Universitat Autònoma de Barcelona (ICTA-UAB). Her research focuses on indigenous and local knowledge, particularly regarding environmental issues.

Reyes-García coordinates the Laboratory for the Analysis of Socio-Ecological Systems in a Global World (<http://www.laseg.cat/en>). Her research has been funded by the European Research Council, first to study the adaptive nature of culture using a cross-cultural approach (<http://icta.uab.cat/etnoecologia/lek>), and later to study the



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potential contribution of indigenous and local knowledge to research on climate change impacts ([www.licci.eu](http://www.licci.eu)).