Title:

AICCRA knowledge on Digital, ICT, AI and data-based solutions to guide students research from WASCAL Master Research Program-informatics

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Sub-title:

AICCRA shared experiences to WASCAL Master students-informatics on Digital, ICT, AI and data-based solutions to improve real-time climate risk management in agriculture and food security

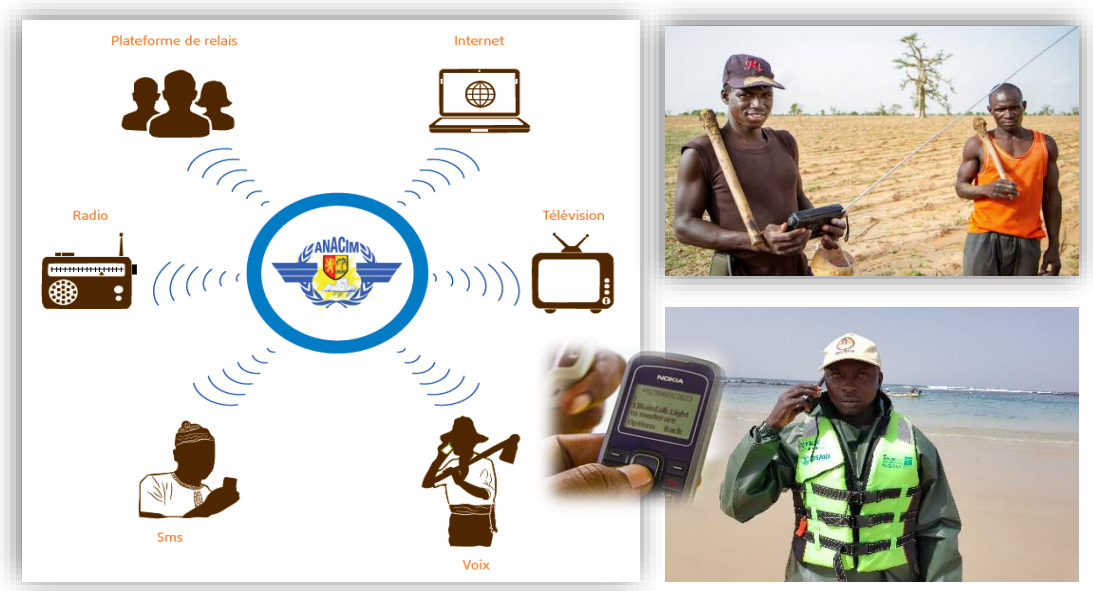
Getting to know of concrete application cases of ICT-led experiences can contribute to capacitate students on better management of data and information along the lines of managing risks associated with climate variability and chance. As part of AICCRA initiative, an institutional partnership has been developed between with WASCAL with the aim to develop curricula and training materials on CSA and CIS and make them widely accessible to stakeholders through WASCAL and RUFORUM network of universities in West Africa. Building on this collaboration, a half-day hybrid conference was organised by the WASCAL Master Research Program on Informatics for climate change (MRP-ICC) hosted at the University of Ouagadougou, Burkina Faso, to allow AICCRA West Africa Lead Prof. Robert Zougmoré to share with WASCAL MRP-ICC students, available and emerging digital, ICT, artificial intelligence and data-based technology solutions being adopted and with specific example-cases for information dissemination to better manage climatic risks in the agriculture and food systems sub-sectors in Africa. The conference was attended in-presence and virtually by 11 students originating from the WASCAL member-countries.

Prof Robert Zougmoré, the Scientific Coordinator of MRP-ICC, Dr Benewindé Jean-Bosco Zoungrana, and in-presence students during the conference.

AICCRA-led digital solutions to improve real-time climate risk management in agriculture and food security

After introducing on the need to transform our agriculture and food systems to contribute achieving the Paris agreement and the sustainable development goals, the lecturer highlighted that mobile phone penetration, of about 80% in Africa, is a great asset for digital-led services to benefit the rural areas transformation. And given the rapid evolution and diffusion of digital technologies worldwide, CGIAR, in line with its 2030 research and innovation strategy, has been considering the digital revolution as a crucial asset to creating opportunities in order use the best emergent tools available for research (such as big data analytics and artificial intelligence) and to support digitally empowered end users in the co-design, access and use of digital agrifood innovation. For instance, with AICCRA support, a new data-management and visualization tool is helping national meteorological services and regional climate centres across Africa, harnessing real-time weather data for decision-making in agriculture. Building on 50 years of CGIAR innovation, AICCRA works to scale climate-smart agriculture and climate information services that reach millions of smallholder farmers in Africa. Beyond its use in research, ICT can help extension services to get sustained, personalized information services to farmers and the food system. Preliminary data shows that successful ICT-enabled remote access services could drive 50% greater adoption rates, 30-40% increase in yields, 20-25% increase in farmer income. Some of AICCRA ground experiences include: (1) the ICT-led sustainable dissemination of climate information services to 300,000 farmers in northern Ghana through a public-private partnership business model involving (CSIR, MoFA, Awhere, Ghana met, Toto agriculture, Vodaphone, MTN, Airtel-Tigo) and led by ESOKO, a private startup using mobile phone and a call center to disseminate agricultural commodity prices, agri-inputs and agro-advisory services; (2) the automatic plant disease recognition with smartphones (e.g., plantix artificial intelligence recognises your problem and gives advice that you can share with your community members); (3) the use of rural community radios to make seasonal and intra-seasonal weather forecasts accessible to more than 7 million rural dwellers in Senegal; (4) the Rice Advice tools created by AfricaRice to provide farmers

with field-specific management guidelines (e.g., target yield, nutrient management and crop calendar, weed management advises) for rice production systems in Africa.



Digital-led dissemination scheme for climate information service through Public-Private Partnership business models

Prof. Zougmoré concluded his lecture with the following recommendations that are needed to make ICT more effective for agriculture and food systems transformation in Africa: improved connectivity; improved access and curation of data, Agriculture seen as a viable business – so farmers can pay for services and turn that into gains on the market; partnership – science-farmers-private sector service providers-extension services-policy; greater attention in R4D to some of the likely digital technologies that will transform agriculture and food systems.

Active participation and interest of WASCAL MRP-ICC students

The active and very participatory Q&A and discussions that followed the lecture indicates that MRP-ICC students were very appreciative, since the content with concrete application examples of the lecture fitted well with the expectations of the MRP-ICC students. For Coulidiaty Seraphin, student of Batch 3 working on "drought pockets analysis in Burkina Faso and implication for agriculture", the ideas shared during the conference will contribute to guide most of the 11 students to improve their research proposal and to implement their research. The MRP-ICC aims at training a critical mass of experts with adequate scientific computation and climate data management skills in West Africa. This Master programme includes all aspects of data management and administration of high-performance computing facility that can be used to run regional climate models and its auxiliaries for operational and research institutions and universities in West Africa. Students are exposed to interdisciplinary and trans-disciplinary approaches to climate data analysis and management skills as well as operations and maintenance of HPC systems.

The great interest of students on this AICCRA experience sharing on the potential of Digital, ICT, AI in climate change adaptation/mitigation demonstrated the relevance of AICCRA ground-evidenced scientific knowledge to backstopping universities' curricula and capacity building initiatives. This

conference may contribute to spillover AICCRA led-knowledge throughout WASCAL regional network of 11 Universities, therefore should be promoted and sustained to reinforce collaboration between WASCAL and AICCRA in their ambition to develop university curricula and training materials on CSA and CIS to support or create graduate programs in Africa.

Authors:

- *Dr Benewindé Jean-Bosco Zoungrana is the Scientific Coordinator of MRP-ICC at Université Joseph KI-ZERBO, Ouagadougou, Burkina Faso*
- *Prof Tanga Pierre Zoungrana is the Lead of MRP-ICC at Université Joseph KI-ZERBO, Ouagadougou, Burkina Faso*
- *Prof Daouda Koné is the Director Capacity Building Department of WASCAL, Accra, Ghana*
- *Prof Robert Zougmoré is the West Africa Lead for Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), Alliance of Bioversity International & CIAT, Dakar, Senegal.*