

Sub Theme 5: Tech Harvest: Utilizing ICT for Agriculture and Environmental Advancements

Background: In the context of rapidly evolving global challenges, the integration of Information and Communication Technology (ICT) in agriculture and environmental management has become a central topic of concern. The current pressures of population growth, shifting dietary patterns, economic globalization, and climate change all conspire to create a scenario where innovative solutions are urgently needed, especially in regions like East Africa, where the livelihood of many populations are predominantly reliant on agriculture and the sustainability of natural resources. Traditional agricultural methods and environmental management practices have often failed to adapt quickly enough to mitigate these complex challenges. Moreover, access to pertinent agricultural and market information remains a significant bottleneck for many small-scale farmers and environmental stakeholders. This is where the role of libraries and the use of ICT tools and technologies can have a transformative impact.

Libraries, as repositories of knowledge and community learning hubs, can provide an effective bridge between advanced ICT tools and local communities. They can function as centers for knowledge transfer, not only providing information but also offering training in the usage of ICT tools, thus empowering people with knowledge and skills that they can use to tackle their unique challenges.

The role of ICT in agriculture is multifaceted. Tools such as Geographic Information Systems (GIS), Remote Sensing (RS), mobile applications, and cloud-based services have all shown promising applications in improving agricultural productivity and efficiency. These technologies can enhance decision-making, boost crop yields, reduce waste, and connect farmers with markets, thus creating sustainable livelihoods and economies. Simultaneously, ICT can also serve as an effective weapon in the battle against climate change, one of the most pressing global issues. The ability to gather and analyze vast amounts of environmental data can help monitor climate patterns, predict weather phenomena, optimize resource use, and foster sustainable practices. Real-time monitoring can aid in detecting and mitigating the effects of global warming, protecting the environment, and preserving natural resources.

However, while the potential is great, there are still many challenges to overcome in the application of ICT for agriculture and the environment. These range from infrastructural and economic limitations to skill gaps and social acceptance issues.

Objective: We encourage researchers and practitioners from various disciplines, including ICT, environmental science, agriculture, library and information science to submit their research findings, case studies, or innovative solutions addressing the above challenges. This will not only enrich the discussion around this sub-theme but also contribute to our understanding and implementation of ICT-based solutions to tackle agricultural and environmental challenges.

The following topics are therefore invited:

- ICT based solutions for sustainable management of natural resources
- ICT based solutions for improvement of livelihoods
- ICT based solutions for combating the effects of global warming in East Africa and beyond
- Harnessing GIS and Remote Sensing for Precision Agriculture

- Bridging the Knowledge Gap: Libraries as ICT Hubs for Rural Development
- Big Data Analytics and Computation for Climate, Environmental and Agricultural Management

Key words: Digital Technologies, Mobile Applications, Internet of Things, Big Data analytics, Climate change Modelling, Environmental and Agricultural Systems, Artificial Intelligence, Blockchain