

EVENT REPORT

Geospatial Information and Sustainable Development in Africa: Facing Challenges of Global Change

Shuaib Lwasa, Makerere University, Uganda

Frank Kansiime, Makerere University, Uganda

Moses Musinguzi, Makerere University, Uganda

Anthony Gidudu, Makerere University, Uganda

Jane Bemigisha, IFS, RUFORUM, Uganda

Sives Govender, EIS-Africa, South Africa

INTRODUCTION

AFRICAGIS is the premier conference and exhibition event focusing on geo-information technologies and applications in Africa. Since its launch in Tunis, 1993, the biennial conference has grown to become a platform for geo-information professionals, vendors and practitioners from Africa to interact through learning-based exchanges about developments on geo-information technology and its applications. The conference has consistently provided a forum for geo-information professionals to meet, interact, and be updated on new devel-

opments, products and emerging trends and issues, but also to engage with the wider array of stakeholders in geospatial technology applications. The conference provided a unique opportunity for sharing information and knowledge, fostering networks and building trust between professionals, practitioners and policy makers in the development of geospatial technologies to meet African development needs. AFRICAGIS 2009 indeed was a platform that augmented dialogue among policymakers, international agencies, researchers on the continent, and the private sector. This report is a summary of the proceedings of AfricaGIS 2009 conference held in Kampala highlighting key issues discussed as well as strategies for augmenting the utiliza-

DOI: 10.4018/jagr.2012010108

tion of geospatial technologies for sustainable development in Africa.

AfricaGIS 2009 conference goes down in history as a remarkable edition of the biennial international conference held at the Commonwealth Speke Resort in Kampala, Uganda October 26th – 29th 2009. The conference which focused on the broad theme of “Geospatial Information and Sustainable development in Africa: facing Challenges of Global Change” saw an impressive involvement of Uganda Government, Ugandan institutions, international private organizations and diplomatic missions. The conference was opened by the Minister for ICT Hon. Aggrey Awori representing the President of Uganda General Y. K. Museveni in the presence of the Minister of Water and Environment Hon. Maria Mutagamba as well as the State Minister of Environment Hon. Jessica Eriyo. At the opening plenary, an interactive atlas on “Our Changing Environment” that features on Google Earth and produced by United Nations Environment Program and National Environment Management Authority Uganda (NEMA) was launched. The conference attracted a total of 481 delegates from five continents and 40 exhibitors from Africa, Europe, America, Middle East and Asia, organized along four major sub-themes that captured the topical sustainable development issues in Africa. Plenary, parallel sessions, side events and pre-conference activities produced very intuitive and inspirational discussions demonstrating the value of geospatial information and sustainable development in Africa. A total of 126 papers and 48 poster presentations were given at the conference providing evidence of the value addition of geoinformation to Africa’s sustainable development. The keynote addresses highlighted provoking ideas reminding Africa about the potential existing with the GI human resource and infrastructure and that it is time to build on capacity, generate knowledge and accelerate knowledge-based development on the continent.

The conference was supported by the government of Uganda, Makerere University and several international GeoInformation companies

and bilateral governments including US Department of State, ESRI, Google Earth, Trimble and UN-Habitat among others. Kicking off with three pre-conference workshops on GeoInformation for e-Governance, the GEOSS/Geonetcast and Google Earth workshops, young scholars were refreshed with new advances in utilization of geoinformation for improved governance being a key factor in sustainable development. A series of special sessions were held throughout the week notably Global Dialogue on Emerging Science and Technology, ESRI, Google Earth, WhereKampala, IALE, ISPRS, CIESIN and UNOOSA workshops. These workshops spiced up the conference and provided opportunities for networking, collaboration and transfer of skills and knowledge among the delegates.

ISSUES THAT EMERGED

The four subthemes around which papers and posters were presented include:

- Geospatial information for climate change, vulnerability and disaster risk reduction
- Spatial Data Infrastructure in Africa; enhancing science-policy interface
- Geospatial information Science for communication and Education
- Geospatial information for integrated environment and natural resources management for Africa’s development

In addition a couple of cross-cutting issues of poverty, rural development, urbanization, gender, health, land question, displacement and refugees, water and energy broadened the papers and discussions. A summary of issues that emerged from the discussions are as below:

There was a call for Geospatial information meetings on the continent to engage the policy makers. Interaction with diverse actors in sustainable development is important to allow cross-fertilization of information and uptake into the decision making domain.

African scientists in geospatial technologies should conduct research and assessment

to provide the necessary information to leaders in support of regional and global negotiations. This should enable increased participation in global issues by Africa. One of the most immediate global engagement discussed was the COP 15 Climate Change Congress in which Africa was envisaged to play a significant role in the negotiations. Global earth Observation System of Systems (GEOSS) and Global Earth Observation (GEO) systems are playing a key role in establishing platforms for monitoring environment and through which space technologies are making data accessible.

USGS ecosystem data was distributed for use in research. These maps are valuable in areas of food production systems, agriculture, conservation, land use planning.

Build the geographic information infrastructure and knowledge to address the challenges but also take the information to society through the emerging wireless technologies.

Several application papers demonstrated the many successes in applying geospatial information for sustainable development. Papers show cased tourism planning, natural resource conservation, health, urban management, sustainable mineral management, knowledge management under SDI, climate change analysis and vulnerability assessments.

ROADMAP FOR SUSTAINABLE DEVELOPMENT IN AFRICA

At the climax of the conference, delegates recognized the critical importance of Geo-information in addressing these challenges and the role of geospatial information in galvanizing the sustainable development of Africa. A couple of resolutions were formulated recognizing the successes in utilizing geospatial information as well as areas in which these can be augmented to fast track sustainable development. A synthesis of the resolutions are as follows:

- Accelerating Africa SDI initiative through support to country-specific SDI's to contribute towards reduction of societal costs

of not managing and disseminating spatial data-information

- To communicate effectively with policy makers on Geospatial information as key to understanding and supporting governance in Africa to address the social, economic, environmental challenges on the continent critical to enhance engagement of actors in decision making, stimulating innovation and good governance
- To build partnerships embedding multi-stakeholder strategies to making geography accessible to people, partnering with Open Source organizations, private sector and international agencies. This is to leverage the interactive, enjoyable but high valuable geographical information already existing to communities around the continent
- Accelerating information dissemination in simple language understandable by the larger community and utilizing the wide array of information technologies
- To increase Africa's visibility and participation in GEO and GEOSS in order to accelerate the generation of fundamental datasets critical in use for sustainable development, realization of the MDG's and Climate change adaptation. The delegates endorsed the on-going initiatives such as GROADS, Ecosystem Mapping AFREF, MAFA and the downscaling of climate change models
- Appreciate and pursue the acquisition of high resolution commercial satellite imagery leveraging initiatives such as GDEST to support the generation of fundamental datasets, generate knowledge for sustainable development and good governance
- Initiate the development of a common position on integration of SDI for Africa for future international negotiations particularly climate change negotiations under the AU-EU Lisbon partnership of 2007. This would support initiatives and projects to address Climate change adaptation and mitigation recognizing the climate change requires global response

- To continue strengthen partnership mechanisms for capacity building with international institutions and agencies. Recognizing that capacity building is a process involving training, resourcing, equipping and building functional knowledge bases. And that this will enhance the process of Spatial data generation, integration, re-integration, deriving information products for dissemination

Shuaib Lwasa is on the faculty of the department of geography with Makerere University, Uganda. His teaching and research foci revolve around geospatial applications for urban development, housing, urban poverty, urban environment and information systems for spatial planning in Uganda and East Africa. He was the scientific chair of the AfricaGIS 2009 in Kampala, Uganda from which this special issue comes. He currently serves as a member on the Scientific Steering Committee of the Urbanization and Global Environmental Change and a Lead Author of the IPCC Working Group III for the Assessment Report number 5.

Frank Kansiime is a professor and director of Makerere University Institute of Environment and Natural Resources. He has a long experience in the environmental field, most of which in the water and wetlands. He holds a PhD in Environmental Ecotechnology (using ecosystem processes to solve environmental problems), MS in Sanitary (Environmental) Engineering and M.Sc. in Applied (Environmental) Microbiology. He teaches courses in water, wetlands, solid wastes, energy, environmental microbiology and research methods at the Institute. He is a member of several environmental committees and has published over 60 papers and reports on water quality, wetlands, waste-water treatment and other environmental issues. He is a member of the Editorial Board of the African Journal of Aquatic Sciences and a reviewer of some articles submitted to Water Research, Aquatic Botany, Wetlands Ecology and Management, Journal of Waste Management and Research, Journal of Physics and Chemistry of the Earth, Journal of Ecological Engineering.

Musinguzi graduated in 1994 with a bachelor degree in surveying from Makerere University, a Master Degree in Geographical Information Systems from Nottingham University in the UK in 1996 and a PhD in GIS undertaken as a sandwich between Uppsala University in Sweden and Makerere University in Uganda (2007). Dr. Musinguzi Moses has held different offices of responsibility including Lecturing GIS at Makerere University, Working as Information Systems Analyst for the Wetlands Inspection Division and is currently, the head of surveying department and University GIS Centre at Makerere University. Dr. Musinguzi research interests include Spatial Data Infrastructures and Land Information systems and GIS modelling for wetlands assessment.

Anthony Gidudu is a senior lecturer at the Department of Surveying, Makerere University (Uganda). He holds a Doctorate in Geomatics from the University of Cape Town in South Africa which he obtained in 2006. He also was a National Research Foundation (NRF) Postdoctoral Fellow at the School of Electrical and Information Engineering, University of the Witwatersrand in South Africa from 2007 – 2009. His research interests include: Machine Learning, Satellite Image Classification and Classifiers, Cartographic Representation and Environmental Applications of Remote Sensing.

Jane Bemigisha is the program manager, Eastern Africa Hub of the International Foundation for Science, Hosted at the Regional Universities Forum for Capacity Building in Agriculture, Kampala, Uganda. Jane holds a PhD in “Hyperspectral Remote Sensing and Participatory GIS for Mapping Livestock Grazing Intensity and Vegetation in Transhumant Mediterranean Conservation Areas” done at the International Institute for Geo-information Science and Earth Observation (ITC) and awarded by Wageningen University, The Netherlands. She has research experience in integrated scientific, expert and local indigenous knowledge applied in various countries within Africa and Europe. Before joining IFS, she worked and undertook consultancies in the environment and wildlife sectors specializing in geo-information science applications to natural resources surveys, mapping, ecological land use planning and climate change including development and delivery of tailor-made courses. She is coordinating a project on enhancing the participation of African Women Scientists in Climate Change Assessment, Information Dissemination and Policy Advocacy. She is also coordinator for the International Association of Landscape Ecology – Africa Chapter and representing Africa on the Group on Earth Observations-Biodiversity Observation Network (GEO BON) handling terrestrial ecosystem change.

Sives Govender is the executive director and member of the Board of Directors of Environmental Systems Africa (EIS-Africa). EIS-Africa is pan African, membership based geo-information knowledge network based in Pretoria, South Africa and is registered as a not for profit Section 21 company. He has a BS in Geography and a MA (Social Policy) from the University of Durban-Westville (now University of Kwazulu Natal). Mr. Govender has been involved in numerous geo-information related activities and projects throughout the continent of Africa to support sustainable development. He is contributor to UNEP’s Global Environmental Outlook (GEO) and African Environmental Outlook (AEO) publications. He has also contributed to drafting the “Africa: Atlas of Our Changing Environment”, developing the African Metadata Standard, project managed the study to determine fundamental geospatial datasets for Africa, drafting South Africa’s Spatial Data Infrastructure Act, and managing the largest GIS and remote sensing conference on the African continent which is AfricaGIS. He has worked, in promoting the use of Geospatial Science and Technology in Africa, with various international and regional organizations such as US Department of State, the AAG, NGA, UNEP/DEWA, TIGER-Africa, CEOS, UN-ECA CODI-Geo, USAID, WRI, GEO/GEOSS, FAO-GLCN, GSDI, EUROGI, USGS Eros Data Centre, GRID-Arendal, FK Norway, ESRI, Google Earth, the South African Government, RCMRD, RRSU, RECTAS, AARSE, CEDARE, CSE, CSIR and many other national, sub-national institutions and private companies in Africa.