



# Spatial Data Infrastructure – Africa Newsletter



SDI-Africa Newsletter

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Spatial Data Infrastructure - Africa (SDI-Africa) is a free, electronic newsletter for people interested in GIS, remote sensing, and data management in Africa. Published monthly since May 2002, it raises awareness and provides useful information to strengthen SDI efforts and support synchronization of regional activities. [ECA/CODIST-Geo](#), [RCMRD/SERVIR](#), [RECTAS](#), [AARSE](#), [EIS-AFRICA](#), [SDI-EA](#), and [MadMappers](#) are some of the other regional groups promoting SDI development.

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The SDI-Africa newsletter is prepared for the GSDI Association by the [Regional Centre for Mapping of Resources for Development \(RCMRD\)](#) in Nairobi, Kenya. RCMRD builds capacity in surveying and mapping, remote sensing, geographic information systems, and natural resources assessment and management. RCMRD has been active in SDI in Africa through its contributions to the [African Geodetic Reference Frame \(AFREF\)](#) and [SERVIR-Africa](#), a regional visualization and monitoring system initiative. RCMRD also implements projects on behalf of its member States and development partners.



If you have news or information related to GIS, remote sensing, and spatial data infrastructure that you would like to highlight (e.g., workshop announcements, publications, reports, websites of interest, etc.), kindly send them in by the 25<sup>th</sup> of each month. I'd be happy to include your news in the newsletter.

**PLEASE share this newsletter with colleagues who may find the information useful and suggest that they subscribe themselves.**

Back issues of the newsletter are at the GSDI website: <http://www.gsdi.org/newsletters.php>  
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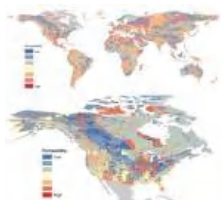


## Input to this Issue

Thank you to Kate Lance, NASA/SERVIR-Africa (USA); Hussein Farah, RCMRD (Kenya); Karen.Levoleger, kadaster (Netherlands); Martin Hagai, Ardhi University (Tanzania); Fitssum Woldegiorgis, AMESD (Ethiopia); Walter Leal, ICCIP (Germany); Valérie Thébault, Geosystem (France); Francesca Broadbent, Climate-Change.tv (UK); Angelica Valeria Ospina, NICCD (UK); Malcolm Park, University of Melbourne (Australia); Joep Crompvoets, Leuven University (Belgium) and Andy Tatem, EPIDG (USA) for their contributions to this issue of the newsletter.

## SDI News, Links, Papers, Presentations

### [Global map of surface permeability informs water supply, climate modeling](#)



University of British Columbia researchers have produced the first map of the world outlining the ease of fluid flow through the planet's porous surface rocks and sediments. The maps and data, published January 21 in Geophysical Research Letters, could help improve water resource management and climate modeling, and eventually lead to new insights into a range of geological processes.

"This is the first global-scale picture of near-surface permeability, and is based on rock type data at greater depths than previous mapping," says Tom Gleeson, a postdoctoral researcher with the Department of Earth and Ocean Sciences. Using recent world-wide

lithology (rock type) results from researchers at the University of Hamburg and Utrecht University in the



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Netherlands, Gleeson was able to map permeability across the globe to depths of approximately 100 metres. Typical permeability maps have only dealt with the top one to two metres of soil, and only across smaller areas.

"Climate models generally do not include groundwater or the sediments and rocks below shallow soils," says Gleeson. "Using our permeability data and maps we can now evaluate sustainable groundwater resources as well as the impact of groundwater on past, current and future climate at the global scale."

A better understanding of large scale permeability of rock and sediment is critical for water resource management-groundwater represents approximately 99 per cent of the fresh, unfrozen water on earth. Groundwater also feeds surface water bodies and moistens the root zone of terrestrial plants. "This is really an example of mapping research from a new, modern era of cartography," says Gleeson. "We've mapped the world, peering well below the surface, without ever leaving our offices." The study's maps include a global map at a resolution of 13,000 kilometres squared, and a much more detailed North American map at a resolution of 75 kilometres squared. The research also improves on previous permeability databases by compiling regional-scale hydrogeological models from a variety of settings instead of relying on permeability data from small areas.

### [The el-Africa conference proceedings are now online!](#)

The "2010 Euro-Africa e-Infrastructures Conference" - the 1st of its series - was held in the capital city of Finland on December 9-10, 2010 with the aim of providing a forum for discussions and debates on recent developments and perspectives in the field. The conference proceedings are now available online.

The conference brought together around 325 attendees coming from 55 different countries over Europe and Africa, the "2010 Euro-Africa Week on ICT Research and e-Infrastructures" took place in Helsinki, Finland, on December 7-10 and ended on a very high note of optimism. Presentations and debates were welcomed with very enthusiastic participation from the delegates and most of the interviewed participants judged the event to be a resounding success, giving a very good or excellent rating to the overall event (including networking opportunities) and content.

This series of events (conference, forum, lab visits, brokerage meetings) was held under the aegis of the European Commission (DG INFSO: International Relations Unit + GEANT and e-Infrastructures Unit) and the African Union Commission with the significant support of the Finnish Government (Ministry for Foreign Affairs + Ministry of Employment and the Economy). This week was organized by the FP7 EuroAfrica-ICT ([www.euroafricaict.org](http://www.euroafricaict.org)) and the el-Africa ([www.ei-africa.eu](http://www.ei-africa.eu)) EU-funded projects with the assistance of the VTT Technical Research Centre of Finland. Expressing the current political momentum for boosting both scientific and ICT partnerships between Africa and Europe, the "2010 Euro-Africa Week on ICT Research and e-Infrastructures" was designated as an official side event to the "3rd Africa-EU Summit" (November 29-30, 2010 - Tripoli, Libya) with the main objective of launching the newly adopted Action Plan 2011-2013 of the "8th Africa-EU Strategic Partnership on Science, Information Society, and Space".

### [Overcoming barriers to climate change adaptation: Innovative strategies using ICTs](#)



This article and related in the series on "Notes on ICTs, Climate Change and Development" explores the potential of ICTs in regards to leadership, resource availability, effective communication, values and beliefs, which often become barriers to effective adaptation. "Effective communication is essential in overcoming barriers, particularly those encountered during processes of adaptation and change. When faced with the many uncertainties posed by climate change impacts, the capacity to access, use and disseminate relevant information becomes crucial for vulnerable communities in order to better cope

with and adjust to new climatic conditions and to their social, economic and political repercussions. However, the availability, access to, and dissemination of information and knowledge remain among the most challenging aspects within adaptation processes, particularly in developing regions.

Innovative strategies supported by Information and Communication Technologies (ICTs) such as mobile phones, community radios, or the Internet and related applications, could help to overcome some of the barriers that arise throughout climate change adaptation processes". The lack of useful information (i.e. written in an appropriate, non-technical language, responding to local needs and priorities) about alternative livelihood options, rights and entitlements, new agricultural methods, credit programs or relief efforts, among others, can constrain adaptive actions -or even lead to maladaptation- within marginalised communities affected by climate change impacts. Within this context, innovative strategies supported by Information and



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Communication Technologies (ICTs) such as mobile phones, community radios, or the Internet and related applications, could help to overcome some of the barriers that arise throughout climate change adaptation processes.

## Key lessons of ICT4D partnerships for poverty reduction

[ICT4D Collective](#) published a report on the key lessons of ICT4D partnerships for poverty reduction as part of DFIDs new series of systematic reviews. The main aim of this report is to summarise the evidence available on the effects of ICT4D partnerships on poverty reduction.

The report reaches five specific conclusions about the success factors that are important in implementing ICT4D partnerships:

- Success is increased when detailed attention is paid to the local context and the involvement of the local community in partnership implementation.
- It is important for such partnerships to have clear and agreed intended development outcomes, even where constituent partners may themselves have different reasons for being involved in the partnership.
- Sustainability and scalability of the intended development intervention need to be built into partnership design at the very beginning.
- Successful partnerships are built on trust, honesty, openness, mutual understanding and respect.

A supportive wider ICT environment needs to be in place, both in terms of policy and infrastructure, if such partnerships are to flourish and deliver effective development outcomes.

## Developing Spatial Data Infrastructure (SDI) in Africa - A cooperative geospatial information management process



The [thirty-first session of the Inter-Agency Meeting on Outer Space Activities](#) (IAMOSA) was held at the headquarters of the United Nations High Commissioner for Refugees (UNHCR) in Geneva, Switzerland on 16-18 March 2011. Presentations of the open informal session: "Space and Climate Change" included:

- United Nations Framework Convention on Climate Change (UNFCCC): ["Developments under the UNFCCC of relevance to global climate observations - including from space"](#)
- World Meteorological Organization (WMO): ["Monitoring climate from Space"](#)
- International Telecommunication Union (ITU): ["ITU activity for Space Science](#)

### Services"

- United Nations Educational, Scientific and Cultural Organization (UNESCO): ["TIGER programme: Towards an African Water Observation System"](#)
- United Nations Economic Commission for Africa (UNECA): ["Developing Spatial Data Infrastructure \(SDI\) in Africa: A cooperative Geospatial information Management process"](#)

The outlines for presentation of the UNECA's ICT and Sciences & Technology Division (ISTD) on developing SDI in Africa: a cooperative geospatial information management process include: why Geographies, why SDI, what SDI is about, Africa's Vision: ARSDI, priorities & strategies, and challenges & conclusions. The need for complex SDI information requirement has been underscored including food security, water supply hydrography, resources management and ecosystems, drought rainfall and temperature, security and emergency, land cover, and health planning among other.

Fourteen African countries with SDI coordinating bodies are Botswana, Burkina, Congo, Liberia, Madagascar, Mali, Namibia, Nigeria, Senegal, South Africa, Sudan, Swaziland, Tanzania, Zambia. Nine countries with SDI committee, sub-committees and working groups are Botswana, Burkina, Liberia, Mali, Namibia, Nigeria, South Africa, Swaziland and Tanzania.

## Use of technology for elections and civil empowerment in Nigeria

In this article, the author expresses deep concern and anxiety over the announcement in Nigeria by the Independent National Electoral Commission (INEC) that it was not going to be using the Direct Data Capture (DDC) machines, that it had invested almost 35 billion Naira in purchasing for the April 2011 elections. His anger stems from the fact that it is believed that the use of electronic registration and voting could help minimize the risk of a fraudulent conduct of the upcoming elections. In addition, so much had been invested in these machines that it struck many as simply horrendous that the last voters registration exercise (with its faults) was the last that was going to be seen of these machines, or at least so it seemed.



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The author picks on a few ideas to which the machines could be used. Some have suggested that they should be used for the voting process. They could also come in useful in the next national census exercise. There are also elections that would keep holding in different states and local governments, these machines would definitely be of use. In about 4 years, a new generation of voters would be eligible to exercise this civic responsibility and having such machines available would make their assimilation easy. Then what about the National ID card or was it not this same types of machines that were used the last time the ID registration took place in Nigeria? Then there is also the need to have accurate civil registration, vital statistics, and a comprehensive national demographic database. The lack of good quality data on demographic indices is a curse.

First and foremost Nigerian engineers are capable of networking these machines and compiling a single secure database with all the data from these machines. Access to this database can be properly regulated and every action on the data fully recorded and logged for tracking purposes. This would ensure that they are not easily tampered with. Physical security of the machines and the data they are used in generating can be ensured through the building in of geotracking capability, backing up of the data, and other necessary physical measures to prevent their theft or misuse. When there is a single database for the collected data, it can be made accessible to the machines anywhere in the country for correlation and confirmation during voting. The kind of telecommunications infrastructure needed to do that may not exist all over Nigeria now, but it is hoped that by the next round of voter registration and elections such infrastructure would exist to permit the remote linking of these machines to a central database.

### [Mali's National Meteorological Service helps farmers manage climate risk](#)



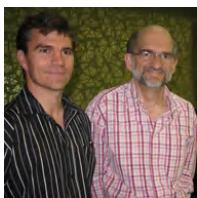
In 1982, Mali's national meteorological service initiated a project designed to provide farmers with seasonal climate information. By providing farmers with information at critical points in the growing season, the project aimed to help rural communities manage the risks associated with variable rainfall.

Effective communication of information has been a major factor in this project.

Climate information is processed by a working group into 10-day bulletins and 3-day weather forecasts. The former are given to national policy makers working on food security, and are broadcast through television and radio. The weather forecasts are downscaled to target regions and broadcast in local languages by radio stations, enabling them to reach rural farmers. However, obstacles still remain, such as low literacy among farmers and difficulties in translating technical terms into local languages. Farmers who have participated in the project consistently report higher yields, and correspondingly higher incomes, from fields where agro-meteorological information is used. The evidence suggests that farmers affiliated with the project are able to use climate information to take more risks, invest in new technologies, and seek information from other sources in order to increase production and, ultimately, income.

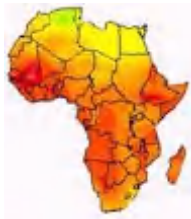
The results of this long-term project indicate that the regular provision of agrometeorological information helps farmers manage the risks associated with increased climate variability. The project has successfully built a framework for gathering, analyzing, processing, and disseminating information that farmers can use. A particularly important role has been played by the project's multidisciplinary working group, which has served as a boundary institution by "translating" climate data into practical advice. The Malian government has witnessed the project's success, and consequently committed itself to funding now that the external donor agency has withdrawn. The government is also investing further in the meteorological service and in new equipment and stations, in recognition of its important role in the country's development.

### [South Africa Spatial Data Infrastructure \(SASDI\) to be established](#)



South Africa needs a spatial data infrastructure (SDI) to make masses of spatial data readily available in an integrated format. The Committee for Spatial Information (CSI) will be the main driver in establishing the South African Spatial Data Infrastructure (SASDI). Antony Cooper, CSIR Built Environment Fellow and the CSIR delegate on the CSI, recently explained the aims of this committee and its implications. Cooper noted: "The CSI is a statutory body, currently with 30 member organisations, set up by the Spatial Data Infrastructure (SDI) Act. An SDI is more than just the technology of an online geographical

information system - it also comprises core data sets, the relevant custodian organisations of such data sets, policies (such as for pricing), etc. With the custodians in place, the committee will coordinate the



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infrastructure for the core or fundamental data sets only.” The CSIR is currently a member of CSI as a public entity, not as a data custodian.

The formation of SASDI will have a big impact on the CSIR Satellite Application Centre (SAC) as a major supplier of fundamental spatial data sets. SAC will be joining other groupings to become the new South African National Space Agency in April this year. The centre is currently represented on the CSI by Dr Corné Eloff, Manager for the Earth Observation Service Centre, as the CSIR’s alternate delegate.

The formation of the national SDI will impact users and producers of spatial data, with the field of SDIs being a research field in itself. Such base data sets and services will typically be used by different users for diverse applications, e.g. topographical data, time series data for analyses, administrative boundaries and population statistics. “The CSI was formed to ensure that geospatial data are shared and organised across different disciplines and organisations,” Cooper noted. At its meeting on 15 March 2011, the CSI established the following sub-committees:

- Data, which will deal with metadata and identify and prioritize the core data sets, assign unique IDs, liaise with the custodians, etc.
- Policy and legislation, which will update the SDI Act, draft its regulations and develop policies.
- Standards, which will identify the standards needed for the SASDI to succeed, identify candidate standards and develop and maintain standards, in collaboration with organisations such as the South African Bureau of Standards.
- Systems, which will develop the framework architecture for SASDI and its links to the geoportals of the data custodians.
- Education and training, which will aim at educating the members of the CSI and the CSI sub-committees, ensuring geospatial data literacy amongst all stakeholders, promote life-long learning, develop relevant terminology in all of South Africa’s official languages, and promote research.
- Marketing and communications, which will raise awareness about the CSI and SASDI, and develop promotional material concerning the SDI Act, SASDI, and the outputs of the CSI.

### [Internet at their fingertips for globe-trotting SA researchers](#)



South African researchers can now have easy access to the Internet when they travel locally or abroad. This has been made possible by making available to them [eduroam](#) (education roaming), a secure, worldwide roaming access service developed for the international research and education community. This is thanks to the work done by the [South African National Research Network](#) (SANReN) team. SANReN is managed and implemented by the CSIR.

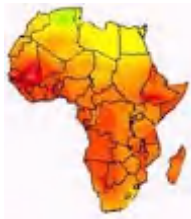
In February 2011 the SANReN eduroam RADIUS proxies were connected to the European eduroam root in anticipation of the establishment of a South African eduroam root. This follows an eduroam pilot by SANReN with the universities of Cape Town, Rhodes and the Free State in September 2010, to establish the proxies required for local institutions to participate. Several institutions are already participating in the pilot.

eduroam allows students, researchers and staff from participating institutions to obtain Internet connectivity across campus and when visiting other participating institutions by opening their laptop at wireless hot-spots. No cost is involved. “Through the use of RADIUS proxies, eduroam allow logging on using the credentials from a home institution, regardless of where the researcher is visiting,” SANReN project manager Christiaan Kuun confirms. A hierarchical system of RADIUS servers is used to transport the authentication requests of users from the visited institution to their home institution, and the authentication response back. Sakkie Janse van Rensburg, Executive Director: ICTS, University of Cape Town, comments, “eduroam enables our researchers to have access to fast free Internet when they visit participating institutions. This is a great initiative that will allow our own and visiting researchers to be more productive while travelling abroad.”

Laurens Cloete, Acting Executive Director, CSIR Meraka Institute concurs, “Researcher mobility is key to scientific knowledge exchange. The implementation of eduroam is therefore an important step in enhancing the integration of South African researchers and students into the global science community by virtue of them having ready access to the Internet while visiting their peers abroad. “At the same time it makes South Africa a more attractive destination for visiting researchers.

### [Spatial Data Infrastructure \(SDI\) implementation in Tanzania](#)

Tanzania will take sometime to develop and implement Spatial Data Infrastructure (SDI) in municipal councils, private firms and even government departments due to the lack of supportive technical framework from central government. A research carried out by a senior lecturer in Geomatics at Ardhi University, Dr



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Martin Hagai, on SDI implementation in Tanzania indicates that although efforts to develop spatial data infrastructure started worldwide in the late 1970's, many African countries still perceived it as new innovations and have not penetrated in many organizations to bring effective management and development. Besides that lack of an SDI policy, awareness and knowledge, as well as limited funding to sustenance have been identified as the main problems affecting their implementation.

Other problems affecting SDI implementation in Tanzania is the lack of institutional leadership and political commitment to coordinate the developments. Many countries have adopted SDIs to foster sharing of spatial data, but Tanzania has so far not developed its national SDI. According to Hagai, SDIs is a critical component for sustainable development which provides a platform for data users and producers for effective distribution of spatial data for various applications. He cited countries such as Kenya, Mozambique, Botswana, Namibia, Zimbabwe, Uganda, Lesotho, Ethiopia, Ghana and Nigeria that are at various stages of developing and implementing their Spatial Data Infrastructures. The main challenge facing Tanzania's SDI is the identification of major stakeholders to take the lead in coordinating the programme in the country. "I think lack of a coordinating body is attributed to the fact that SDI matters are cross-cutting in nature and as such are multidisciplinary," he said.

According to his research based on the evaluation of SDI readiness of selected sites and target stakeholders in government institutions, private organisation and firms, about 64, 33 and 28 per cent of the surveyed institutions in Dar es Salaam, Mbeya and Mwanza respectively indicated readiness to have SDIs. Dar es Salaam is relatively highly inspired towards SDI implementation than Mbeya and Mwanza cities, since it's the country's business hub and generates almost 75 per cent of the GDP. Private firms are relatively more inspired towards implementation of SDI however there exists a general apathy among institutions concerning data sharing and exchange. Lack of adequate knowledge on the potential of SDI development and unclear cost-benefits of investing is main drawbacks in its implementation.

### [Tanzania's villagers' request the removal of Serengeti National Park's from world heritage list](#)

Villagers surrounding the Serengeti National Park have called on the government to remove the park from the United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage list. Speaking to The Citizen, the chairman of Ikoma Robanda Village, Mr Mrobanda Japani, said since its listing 30 years ago there is nothing significant in development those surrounding the park can show contrary to the world heritage objectives.

The call has been enhanced by the objection by UNESCO and other local and international non governmental organisations to the government's plan to construct the Serengeti highway as part of its implementation of the 2002/12 Transport Sector Improvement Programme. The highway would be part of the 452km Natta-Mugumu-Taboro 'B'-Loliondo-Mto wa Mbu tarmac road, and would likely become a major transit route between Rwanda, Burundi and Eastern DR Congo.

According to UNESCO, when finished, the road would dissect 53 km of the northern wilderness area of the Serengeti threatening the migration path of millions of animals annually. The state of conservation of Serengeti National Park was examined at the 34th Session of the World Heritage Committee meeting in Brasilia, in July 2010, and the Committee expressed its utmost concern about a proposed highway.

"We do not see the benefit of the listing which is now being used to reject the construction of the road which many believe will bring development to the people as opposed to the UNESCO listing," he said. Elaborating the objectives which have not been fulfilled since Serengeti was declared world heritage site, the Serengeti Development, Research and Environmental Conservation Centre (SEDEREC) spokesperson Mr Damian Thobias said the villages surrounding the park could have had a good infrastructure.

### [Rwanda's Kigali City sub-area master plans released](#)



Kigali City completed four other Sub-Area Master Plans for the districts of Gasabo and Kicukiro to facilitate further development in the city. The plans valued at about US\$1.6 million, include the 90-hectare Kimihurura Urban Centre which will also include residential, offices and hotels. Other sites are Kinyinya Town Centre in Gasabo, Rebero and Masaka Sectors.

The 200 hectare Kinyinya town, according to the plan, will be the urban centre for the surrounding villages of Gisozi, Nyarutarama and Batsinda, all in Gasabo District while Rebero was reserved for a cultural village, hotels and conferences and retirement housing. Masaka will also be one of the city centres within Kigali which will accommodate over 17,000 people. It will also have four other village centres while the existing Masaka town will be redeveloped.



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## [Rwanda's Kigali Sub Area Plans wins APA Award 2011](#)



Four Kigali Sub Area Plans has won the American Planning Association (APA) National Planning Excellence, Achievement, and Leadership Award 2011. The APA award honours the best international project. About 5,000 projects took part in the competition, most of them from the US.

In an interview with The New Times, Donna Rubinoff, Kigali City Director of Urban Planning and One Stop Centre, said that the prize was based on the quality of the master plan. "It won the award because of its sustainability urbanism (environmental, social and economic urbanism) and how it relates to urban development," said Rubinoff, who is one of the brains behind the city master plan. "It supports development, economic development, safety, public health and social cohesion," she added. Rubinoff also explained that it would not be possible to complete the physical detailed master plan for the two districts this year as previously stated by the Kigali city administration. The city had in its 2010/11 financial year, set aside about Rwf 2.4 billion to complete the detailed master plan for the two districts. "I am working on the strategy where the experts will come here and work with the local staff to develop the master plans. We hope to complete the two master plans in the next financial year (2011/12)" Rubinoff said [Source: Newtimes]

The [Kigali Sub Area Plans](#) (82.12MB) concentrate on green systems including wetlands and urban parkland; water reuse, drainage, and rainwater harvesting; and sanitary issues such as sewers, recycling, and environmental treatment zones. The plan protects wetlands and steep slopes and encourages higher density and mixed-use developments. Four high-priority projects of the Kigali Sub Area Plans represent opportunities to rebuild and economically grow as a nation. The sites include:

- Rebero: The former residence of the ex-president who perpetrated the genocide. This site is being renovated as a resort-conference center with a neighborhood support center.
- Kimihurura: Kigali's gateway to the international airport, it will become the international face of Kigali. The sustainable urbanist design is symbolic of the new Rwanda and will include commercial space, hotels, a mixed-use residential neighborhood, and an extensive greenway system.
- Kinyinya: Located in a newly urbanizing part of Kigali, it is envisioned as a town center that will serve as a prototype connecting sustainable urbanism to alleviating poverty and increasing social cohesion.
- Masaka: Incorporates both large- and local-scale plans along with a prototype neighborhood that incorporates many aspects of sustainable urbanism that have been tailored to an African setting.

## [Rwanda's new ICT plan to target local communities](#)

The National ICT Plan (NICI 3), to run from 2011-2015, will focus more on using Information Communication Technology (ICT) for community service delivery, David Kanamugire, the Permanent Secretary, Ministry in the Office of the President in charge of ICT, has disclosed. The plan will mainly put emphasis on facilitating the shift from an agricultural based economy to a knowledge based one.

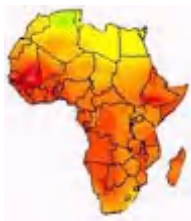
Speaking during a stakeholders' meeting, Kanamugire said that 'NICI 3' would accelerate service delivery and advance the country's development. "Our aim is to empower and transform communities through improved access to information and services using ICT," he added. He stated that after consolidating the enabling environment during the previous NICI plans, the aim is now to maximise returns on important government investments with focus on the delivery of efficient ICT supported services. The NICI 3 builds on the work and lessons learned from the previous NICI 1 (formulating policies) and NICI 2 (Setting up the infrastructure). The ICT plan cuts across five clusters identified to fuel continued growth; skills development, private sector development, community development, e-Government and cyber security.

The forum that brought together national ICT stakeholders was aimed at presenting and validating NICI 3 cluster projects following a wide range of consultations between stakeholders of all the five clusters.

## [Assessment of accuracy of volunteered road map production in western Kenya](#)



The introduction of web based mapping facilities that use satellite imagery offers local people the possibility to map their environment. However, maps need to be accurate, which is the reason why map making is assigned to professionals. In this paper, we investigated the classification accuracy of road infrastructure from high resolution satellite imagery of an urban area in western Kenya achieved by surveyors and non-surveyors alike, with and without local knowledge. Those with local knowledge classified roads with over 92% accuracy on average,



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irrespective of surveying background. Professional surveyors and laymen without local knowledge achieved lower accuracies of 67.7% and 42.9% respectively. We argue that local knowledge is also likely to improve the classification accuracy of many other attributes featured in topographic maps and thus conclude that there is reason to consider engaging local expertise in the production and updating of topographic maps. Authors: de Leeuw, J., Said, M., Ortegah, L., Nagda, S., Georgiadou, Y., and M. DeBlois, 2011. [An assessment of the accuracy of volunteered road map production in western Kenya](#). Remote Sensing 3(2): 247-256. Source: Servir Community Blog.

### **Kenya's T21 Model workshop: Integrating climate change adaptation forecast and national development planning**, 27 February - 9 April 2011, Simba Lodge, Naivasha



Kenyan Government recently launched its long term development blue print Kenya Vision 2030 and its First Medium Term Plan 2008-2012. Their implementation is expected to enable the country to achieve the International Development Commitments such as the Millennium Development Goals (MDGs) as well as transform Kenya into a prosperous globally competitive middle income economy. In implementing the Kenya Vision 2030 and its successive medium term plans, researchers, analysts, and policy makers within the government will need to have at their disposal an array of analytical tools; including both medium and long term economic simulation and forecasting models. These will assist in coming up with optimal policy choices and decisions in order to successfully realize country's developmental goals.

The Ministry of State for Planning, National Development and Vision 2030 in collaboration with the Ministry of Environment and Mineral Resources, African Adaptation Programme (AAP), UNDP and JICA as facilitated by the Millennium Institute organized the T21 model workshop training from 27 February - 9 April 2011 to develop the Kenya version that integrates climate change adaptations and development planning. A total of 25 participants from various government institutions, Ministry of Finance, KIPPRA, CBK, KNBS, DRSRS, NEMA, KFS, KMD, Ministry of Energy, CCS and CPU underwent rigorous one month training at the Simba Lodge, Naivasha. The team forms a champion group that will help in developing the Kenyan version of T21 Model. The vensim software will form a valuable tool for data/information simulation and models development.

T21 is a quantitative tool for integrated, comprehensive development planning. Its purpose is to support the broad process of medium- to long-term development planning by deepening understanding of the key structural relations, and enhancing the analysis of development strategies. T21 can provide insight into the potential impact of development policies across a wide range of sectors and reveal how different strategies interact with one another to achieve planned goals and objectives.

### **2nd AMESD Forum**, 20-23 July 2011, Balaclava, Mauritius



High-level African officials will discuss AMESD services and products for monitoring of the environment. The African Monitoring of Environment for Sustainable Development programme (AMESD) will organize the 2nd AMESD Forum at the InterContinental in Balaclava, Mauritius, from the 20th to 22nd July 2011. Please read the [general objectives](#) of the forum before applying for participation. This second forum will correspond to a new phase for AMESD, namely:

- Delivery of AMESD services and products in each of the five regions,
- Sensitization of decision makers on the usefulness of the environmental data for informed policy making,
- Functionality of RICs as centres of excellence with self-sufficient management structures, and
- Creation of regional thematic networks which will ensure the sustainability of AMESD results

Two types of participants are expected to attend the forum: [Sponsored](#) and [Self-sponsored participants](#). All participants are expected to fill out the [online registration form](#). A letter of invitation will be sent once your participation is approved by the Forum Organizing Committee. The deadline for registration online is 31 May 2011. Also download the latest versions of [AMESD Programme Newsletters](#), [AMESD Newsletters in the IGAD Region](#), [AMESD Newsletter in the IOC Region](#). More about AMESD, visit - <http://www.amesd.org>.

### **Climate Investment Funds (CIF) 2011 Partnership Forum**

The Climate Investment Funds (CIF) Administrative Unit is pleased to inform you that the 2011 Partnership Forum, originally scheduled for Tunisia in March, has been rescheduled and will held in Cape Town, South Africa, on 24-25 June 2011. Applications have reopened for NGOs, Indigenous Peoples and Private Sector representatives from developing countries to be sponsored to attend.





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The annual Partnership Forum is an integral part of the design of the Climate Investment Funds (CIF) and provides a platform for dialogue and knowledge sharing among all CIF stakeholders, including Countries, MDBs, UN and UN agencies, Global Environment Facility, UN Framework Convention on Climate Change, Adaptation Fund, Bilateral Development Agencies, Civil Society, Indigenous Peoples, Private Sector Entities, and Scientific and Technical Experts. The Partnership Forum in Cape Town will be a particularly important opportunity for dialogue about the CIF, now that all CIF funds and programs are underway.

For any queries or for further information, please contact Jack Cornforth ([jcornforth@stakeholderforum.org](mailto:jcornforth@stakeholderforum.org)) or Nicola Williams ([nwilliams@stakeholderforum.org](mailto:nwilliams@stakeholderforum.org)). Both are available on + 44 (0) 207 580 6912.

## **Summer School “Advanced Spatial Data Infrastructures”**, 8 -15 July 2011, Leuven, Belgium

This event organised by the University of Melbourne (Australia), Leuven and Brussels University (both Belgium), and supported by the Global Spatial Data Infrastructure (GSDI) Association will take place at the Irish College in Leuven on 8-15 July 2011. Target group: professionals, academics and students (who have some basic knowledge of spatial data infrastructures). The key objective of the Summer School is to enhance the knowledge about current developments in the field of spatial data infrastructures. Brief summary of activities and subjects are:

- Lectures by respected SDI and spatial data-experts
- Seminars with invited speakers and practitioners from the public and private sectors
- Technological issues (network architecture, geo-standardisation, metadata, web services)
- Organisational issues (division of labour), inter-organisational issues (coordination, task allocation)
- Economic issues (funding, pricing)
- Legal issues (privacy, intellectual property rights, security, liability), EU-Directives (INSPIRE, SEIS, PSI)
- SDI-Roadmap, Development Toolkit, and other SDI-management methods/tools
- SDI-strategy plan: Group work and presentation

You can [register](#) by web for this Summer School. In case visa has to be arranged, deadline for registration is 30 May 2011. Canceling a registration with refund can be done before 15 June 2011.. After this day the amount due has to be paid. Contacts: Abbas Rajabifard at [abbas.r@unimelb.edu.au](mailto:abbas.r@unimelb.edu.au), Joep Cropvoets at [joep.cropvoets@soc.kuleuven.be](mailto:joep.cropvoets@soc.kuleuven.be) or [anneke.heylen@soc.kuleuven.be](mailto:anneke.heylen@soc.kuleuven.be).

For background information, registration, cost, travel and accommodation, and timetable, see <http://www.spatialist.be/201101-school/index.htm>.

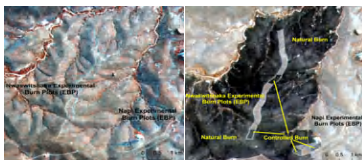
## **AfricaGIS 2011 Announcement**

EIS-AFRICA has issued the following statement regarding AfricaGIS 2011. After discussions with members of the local and international organising committee as well as potential sponsors of AfricaGIS 2011, EIS have had to come to a difficult decision to cancel AfricaGIS 2011 in Cairo, Egypt.

The current political situation in Egypt and uncertainty about the future has forced the EIS esteemed colleagues at NARSS to suspend all preparations to host AfricaGIS 2011. EIS-Africa, the Board of Directors and members of the International Organising Committee has place on public record gratitude to the members of the Local Organising Committee especially the officials of NARSS for their sterling effort. The decision was due entirely to circumstances beyond NARSS's control and in no way reflects on NARSS's professionalism and dedication to making AfricaGIS 2011 a huge success. In terms of protocol, EIS-Africa has made contact with the second bid nation to host AfricaGIS 2011 and will offer this country the right to host the event. Updates on the new host nation, date and venue will follow shortly. Sives Govender (Executive Director EIS-AFRICA).

## **Practical SDI implementation materials from within and outside of Africa**

### **SumbandilaSat providing valuable imagery**



SumbandilaSat is living up to its Venda name as it 'leads the way' in providing South African entities with valuable satellite imagery at no cost, despite earlier technical setbacks. During August and September 2010 SumbandilaSat acquired five high resolution images of the south-western part of the Kruger National Park and neighbouring Bushbuckridge where the CSIR's Dr Konrad Wessels and Navashni Govender and Dr Izak Smit of

SANParks Scientific Services are conducting various research projects. These images would have cost in excess of R40 000 each from a commercially operated satellite, but now SumbandilaSat can deliver the



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imagery (50 x 60 km area per image) for specific projects to local users at no cost. So far 800 images have successfully been taken of targets worldwide (of which approximately 54% are cloud-free) - this translates to four images on an average day. Three to five images can be captured of southern African targets per week. The provision of free and frequent high resolution satellite images of specific areas of interest will revolutionize earth observation in many fields, so that natural events (e.g. fire), natural disasters (e.g. floods) and human activities (e.g. mining, settlements, forestry) can be accurately monitored on a regular basis. The SumbandilaSat images can also be used to map burnt areas, for example, in the Kruger National Park where fire is part of the natural ecology and is used as a management tool by SANParks to manipulate the vegetation to promote biodiversity and influence the balance between grass, shrubs and big trees. The experimental burn plots shown in the SumbandilaSat image (top right) are part of a long-term fire experiment that was set up in and maintained since 1954. The initial objective for this experiment was to investigate and understand the effects of fire frequency (e.g. annually, biennially or every third year) and season of fire (early summer - December, late summer - February, autumn - April, winter - August and after spring rains - October) on the vegetation, e.g. tree, grass and shrub density and height. The SumbandilaSat image clearly shows how the natural fire was excluded from the experimental burn plots, while specific blocks within the plots were burned in August 2010 by SANParks as part of the experiment. After 56 years this valuable experiment is considered a comprehensive scientific trial for understanding the influence of fire on bush encroachment, grazing quality and other fire and herbivore interactions. The satellite imagery can also be used to monitor the recovery of the vegetation in the burnt area and the long-term influence of fire on tree and grass cover. SANParks currently has to rely on very coarse resolution satellite images with 500 m pixel size for regular mapping of burnt areas. SumbandilaSat provides images at 6.25 m pixel resolution and covers a 50x60 km area per image. SumbandilaSat images are available via the CSIR Satellite Applications Centre catalogue (<http://catalogue.sac.co.za>, 'search' SumbandilaSat MSS). New image requests can be directed to sales and customer services at the CSIR Satellite Applications Centre.

### How benefits of mobile technology evade many in developing countries

Have you ever thought about what that smart phone of yours can do? In Tanzania, with the mobile phone penetration that started early in the 1990s communication has become much easier and cheaper. Now many people have smart phones such as the iPhone that offers services like iBook, internet, iTunes store, maps and campas, Google Quick Search, etc. But how much is the nation and individuals benefiting from this technology? Official figures suggest that there are now over 17 million mobile phone users in Tanzania, compared to less than 300,000 a decade ago.

Studies show that where the technology is fully utilised, mobile telephony, especially in developing countries, has the capacity to improve the welfare of people. For instance, research suggests that mobile phone influence general market behaviour. They increase access to information and reduce search costs, which economic theory predicts leads to lower prices across markets, producing a welfare improvement for people. Experts say that the mobile phone, a device that was a yuppie toy not so long ago has now become a potent force for economic development in some of the world's poorest countries. And in a 2008 report, The Economist reported about mobile phone's potential to help end global poverty. Indeed, the mobile phone might be a game changer for developing countries. Yet, apparently, there are few users of the flashy phones in Tanzania, who are utilising them fully to their benefit, or for national development. The reasons vary, but for many, ignorance of how much they could better their lives through the little gadgets, plays a bigger role.

Maselina Johnson, who works at a salon in Kawe, says she has been using a "flashy phone" since 2007, but she has never used it for internet service. "I don't have anything to look for in the internet. I didn't study computers, and from what I know, for one to use the internet you need to have at least used a computer," .

According to a 2010 study conducted by TNS Research International, out of a population of 40 million, only about four million (10 per cent) have access to the Internet. Yet latest statistics by the Tanzania Communications Regulatory Authority (TCRA) show that the number of mobile subscribers increased from about 16.2 million to nearly 17.5 million between September and December, last year. Elsewhere, in Uganda, out of a population of 33 million, about 3.3 million (10 per cent) have a access to the Internet while Tanzania comes last - out of a population of 42 million, only 672,000 people (1.6 per cent) have had an online experience.

### Tanzania's businesses team up to fight malaria using electronic mapping technology

The "SMS for Life" initiative meant to fight malaria was rolled out in Tanzania as part of the World Malaria Day 2011 commemoration. The public-private initiative is meant to increase access to malaria treatment



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through electronic technology, whereby automated short messages are sent to staff at participating healthcare facilities prompting them to check the stock of anti-malarial medicines and reply with an SMS detailing current stock levels.

These messages are collected in a central web-based system that provides the District Medical Officers and other users with real-time stock level information, accessible via the Internet or their mobile phone. Using this information, District Medical Officers are able to re-distribute essential medicines to where they are most needed and coordinate emergency deliveries to health facilities if necessary.

The roll-out follows a successful pilot project where mobile and electronic mapping technology was used to track the stock levels of anti-malarial drugs at health facilities to manage supplies of these essential treatments. Under the auspice of the Ministry of Health and Social Welfare, this roll-out is led by Novartis and supported by Vodacom, Medicines for Malaria Venture (MMV) and the Swiss Agency for Development and Cooperation, all under the umbrella of the global Roll Back Malaria Partnership. "SMS for Life" was launched in 2009 and ran across three districts in Tanzania, ensuring malaria treatments for 888,000 people. 99 per cent of health facilities involved avoided stock-outs of the artemisinin-based combination therapy (ACT), one of the main anti-malarial medicines. But now, "SMS for Life" will be deployed across 5,000 health facilities in 131 districts covering a population of over 40 million.

The Minister for Health & Social Welfare Dr Hadji Hussein Mponda said "Reducing anti-malarial drugs stock-outs saves lives and so we are delighted that the SMS for Life programme that improves stock position information will now be rolled-out across the country. We welcome this innovation." Accurately monitoring the amount of essential medication such as ACTs and quinine injectables reduces the risk of shortages and stock-outs and ensures that treatments are available to malaria patients even in the most remote areas where and when they are needed.

### [Geological mapping reveals more nickel in Tanzania](#)



IMX Resources has identified further new occurrences of magmatic nickel and copper sulphides from exploration activities at its wholly owned Mibango project in Western Tanzania. IMX has committed a \$2.5 million exploration budget to the Mibango project in 2011 to be used to fund a staged exploration programme comprising geological mapping, geochemistry, geophysics, RAB, and RC or Diamond drilling as warranted. Thirteen sulphide bearing intrusions were mapped within the southern tenement area, building on from the three occurrences discovered during 2009 at Lubalisi SE, Ikabulu Hill and Mwese. "All the areas are

particularly significant as they occur outside the known mineralised Kapalagulu Intrusion," the company said in a statement yesterday.

The results represent the first significant platinum group elements (PGE) occurrence outside the Kapalagulu Intrusion, where nickel and PGE sulphides have previously been defined. The results, according to the statement, also highlight the potential of the area which has not previously been explored. The intrusion is the same age as Xstrata's world class Kabanga Nickel camp, located approximately 340km to the northeast. According to the statement, Mibango exploration team field validated over 93 target areas in 2010. The company also collected and analysed over 4,540 rock, soil, stream and petrographic samples during the same year. It states that Mwese remains its top exploration priority in 2011. Three drill ready targets have been defined with a number of other geochemical and geophysical targets expected to become drill targets with some additional field validation during the next field season.

### GIS Tools, Software, Data

#### [PostGIS Geographic Objects for PostgreSQL](#)

PostGIS is a project in open source spatial database technology. PostGIS makes PostgreSQL database support to the geographic data storage. In effect, PostGIS "spatially enables" the PostgreSQL server, allowing it to be used as a backend spatial database for geographic information systems (GIS), much like ESRI's SDE or Oracle's Spatial extension. PostGIS follows the OpenGIS [more..]

#### [Navit a Car Navigation System](#)

Navit is a car navigation system with routing engine. Navit is a modular, support for touch screen car navigation system with GPS tracking, real-time navigation and other functions, supports a variety of formats



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map data. Its modular design is capable of using vector maps of various formats for routing and rendering of the displayed map. [more..]

### [Gpredict a real-time satellite tracking and orbit prediction application](#)

Gpredict is a real-time satellite tracking and orbit prediction application. It can track an unlimited number of satellites and display their position and other data in lists, tables, maps, and polar plots (radar view). Gpredict can also predict the time of future passes for a satellite, and provide you with detailed information about each pass. [more..]

### [GDAL - Geospatial Data Abstraction Library](#)

Posted by GIS PARK on April 28th, 2011

GDAL is a Free and Open Source Software. Project of translation libraries for raster (GDAL) and vector (OGR) data formats, so in this case GDAL = GDAL + OGR GDAL is a translator library for raster geospatial data formats that is released under an X/MIT style Open Source license by the Open Source Geospatial Foundation. [more..]

### [OpenGTS – Open GPS Tracking System](#)

Posted by GIS PARK on April 28th, 2011

OpenGTS (Open sourced GPS Tracking System) provides a basic framework for creating your own Web-based GPS tracking system. It currently uses Google Maps to mapping. And increased through a variety of plug-in GPS tracking devices. OpenGTS not only supports the data collection and storage of GPS Tracking and Telemetry data from remote devices, but also [more..]

### [ERDAS releases ECW for ArcGIS Server](#)



ERDAS announces the introduction of the all-new ECW for ArcGIS Server, which provides a means for ArcGIS Server 10 to deliver Enhanced Compression Wavelet (ECW) data to clients via OGC-compliant Web Coverage Service (WCS) and Web Map Service (WMS). Using components of the ERDAS ECW/JP2 SDK version 4.2, ECW for ArcGIS Server enables ArcGIS Server to support ECW imagery, providing the fastest decompression available. Using minimal memory, ECW can quickly decompress and open massive files, in many cases faster than uncompressed imagery can be opened. Additionally, multi-resolution level of detail is built into the file, eliminating the need to generate or distribute pyramids

or overviews. The ECW technique does not require that immediate tiles (RRDs) be calculated and stored on disk; they are an inherent part of ECW's Discrete Wavelet Transformations (DWT). ECW also supports opacity channels, allowing images to overlay other imagery cleanly without showing compression artifacts around the edges.

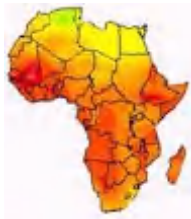
The ERDAS ECW/JP2 SDK technology was developed by ER Mapper Ltd beginning in 1998 and is governed by three patents (US6201897, US6442298, and US6633688). ECW for ArcGIS Server may be installed on a single ArcGIS Server, with or without other ERDAS software installed. However, ECW for ArcGIS Server does require a FlexNet license file from ERDAS. ECW is already supported in traditional desktop GIS, CAD and remote sensing packages such as ArcGIS®, AutoCAD®, ERDAS IMAGINE®, ERDAS ER Mapper, FalconView™, Bentley Microstation®, ENVI® and PCI Geomatica®.

French speaking countries in Africa may call their distributor GEOSYSTEMS France at +33 1 30 43 83 00 or email at [contact@geosystems.fr](mailto:contact@geosystems.fr).

## Geospatial Research, Applications, Reference Material

### [Research on representation methods of geographical features symbol in navigation digital maps](#)

With the rapid growing of automobile industry, in-vehicle navigation systems are obtaining more and more attention both in and out of our country, showing better prospect of development and possessing very great market demand potential. Navigation electronic map plays an important part in navigation systems as a special application of electronic maps, in that it can transmit spatial information, especially road and traffic information, in both visual and audio forms to users, and therefore it is considered as the bridge across road navigation and users Up to now, the development of in-vehicle navigation systems has been in a initial stage in our country. As there is a lot of difference between representation methods of navigation electronic maps



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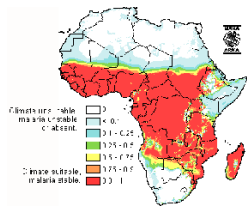


provided by different producers, it is in an urgent need to design a standard for navigation electronic maps, which not only meets needs to standardize their markets but also suits the situation of our country. This dissertation first analyzes both domestic and foreign methods to represent navigation electronic maps, and points out existing problems. We can see these problems in two main aspects, one copying foreign patterns or the representation pattern of paper maps, and the other lacking theories and methods to guide the design of navigation electronic maps. Later, with the help of cognition theory, map symbols theory and color theory, this paper makes research on the content and methods for the representation of geographical features in navigation electronic maps, proposes an effective scheme suiting to the design of navigation electronic maps, and also specifies the methodology to design navigation electronic maps. Furthermore, this paper analyzes special properties of navigation electronic maps in aspects such as map-reading environments and visual variables, designs symbols to represent geographical features by applying theories such as map recognition and taking these properties into consideration, sets special focus on the color design of navigation electronic maps, puts forward color making schemes for navigation electronic maps - three for day, and one for night, finally makes an experiment on the recognition of navigation electronic maps, and selects the most suitable one for our recommendation scheme. The result of this experiment agrees to our expected result.

## [Application of public geological data in description of raw materials for hydrometallurgical processes](#)

This paper describes a method for getting the geological, mineralogical and geochemical information from an ore deposit or prospect area and its ore body. The information is needed to select a suitable hydrometallurgical processing method. Usually the first step is to go through expensive and time consuming field explorations and a number of rock sample analyzing processes. By using existing public deposit information for that purpose, it could be possible to save time and money. A literature study was done about possible sources of public geological information related to world's ore mineral deposits. The study included also a couple of experimental cases where the information-searching procedure was tested in practice. The test minerals were gold and lateritic nickel. The results of the tests show that there are different kinds of mineral deposit databases and that in most cases it is possible to find the needed information. It was found that there are benefits in this type of information gathering system, but there are also some downsides such as the reliability of information.

## [The effects of spatial population dataset choice on estimates of population at risk of disease](#)



Detailed, highly spatially resolved human population data are an essential resource for planning health service delivery for disease control, for the spatial modeling of epidemics, and for decision-making processes related to public health. However, low-income regions of the world where disease burden is greatest, existing datasets display substantial variations in estimated population distributions, resulting in uncertainty in disease assessments that utilize them. Increased efforts are required to gather contemporary and spatially detailed demographic data to reduce this uncertainty, particularly in Africa, and to develop population distribution modeling methods that match the rigor, sophistication, and ability to handle uncertainty of contemporary disease mapping and spread modeling.

This new paper shows the importance of good spatial demographic data when estimating numbers at risk of diseases. The recent construction of a global map of *P. falciparum* malaria endemicity enabled the testing of different gridded population datasets for providing estimates of PAR by endemicity class. The estimated population numbers within each class were calculated for each country using four different global gridded human population datasets: GRUMP (~1 km spatial resolution), LandScan (~1 km), UNEP Global Population Databases (~5 km), and GPW3 (~5 km). More detailed assessments of PAR variation and accuracy were conducted for three African countries where census data were available at a higher administrative-unit level than used by any of the four gridded population datasets.

The estimates of PAR based on the datasets varied by more than 10 million people for some countries, even accounting for the fact that estimates of population totals made by different agencies are used to correct national totals in these datasets and can vary by more than 5% for many low-income countries. In many cases, these variations in PAR estimates comprised more than 10% of the total national population. The detailed country-level assessments suggested that none of the datasets was consistently more accurate than the others in estimating PAR. The sizes of such differences among modeled human populations were related



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to variations in the methods, input resolution, and date of the census data underlying each dataset. Data quality varied from country to country within the spatial population datasets.

### Archaeology and geospatial technologies

Archaeologists are increasingly finding greater uses of geospatial technologies to enhance the efficiency of their processes and value add to the findings. The use of remote sensing offers archeologists the opportunity to detect the impacts of human action upon the environment, a significant component in tracing human history, which are often invisible to the naked eye.

The interrelationship of land and cultural aspect has led to the use of space technology in conjunction with GIS and GPS for archaeological application, says M.B. Rajani, Research Scholar, National Institute of Advanced Studies, Bangalore, India. She adds that the synoptic viewing ability of the space observations facilitates understanding of sites in context of their surrounding and also has the potential to discover new sites. Today's space-based remote sensing has a broad range of imaging capabilities in terms of spatial, spectral, radiometric and temporal characteristics. The imageries, after digital and visual analysis to identify features, can be integrated into GIS. GIS also facilitates analyzing remote sensing data together with ground truthing to derive archaeological information and project the same in the form of thematic maps, while GPS allows navigating and locating sites accurately. Magnetometry, GPR, resistivity, LiDAR and ground-based lasers are also finding place in archaeological processes.

Elaborating on the benefits of geospatial technologies in such expeditions, Professor Vincent Gaffney, Director of Research and Knowledge Transfer, The College of Arts and Law, University of Birmingham, UK and head of the expedition, says that principal benefits include exponential increase in data acquisition through enhanced loggers and better integrated arrays and enhanced spatial accuracy through GPS integration. This provides better data with greater confidence in the validity of results. Collaboration between space research organisations, archaeological expeditions and academic institutions can contribute to a successful application of these technologies in archaeology.

### The application and research of the shortest path algorithm based on WebGIS

Since 1960s, a Canadian expert on survey put forward the concept - GIS, it has been developed well enough in decades. With the popularization of internet, GIS has been widened by the function of WWW, and turned into an implement for the public. From any point of WWW, users can skim through special statistics, draw up specialized pictures, and carry on various spatial research as well as spatial analysis through WebGIS. The purpose of the latter two is to conduct the inquiry and analysis in GIS system so that to offer the information for supporting some decision. This paper begins from the algorithm of shortest path, the essential algorithm in spatial analysis, and makes a comparison with the traditional algorithms of shortest path. By thoroughly analyzing the thinking of various algorithms, the storage of data structure and the complexity of searching time, this paper mean to point out the weakness and shortcomings of the traditional algorithms. On the basic research of a star instructive algorithm in artificial intelligence, an efficiently realized algorithm, instructive searching method with restrictive conditions, is put forward with regard to the problem of shortest path. This algorithm put forward a restrictive condition, i.e., "the straight line between two points is the shortest length" and use binary heaps to sort all nodes which are to be searched. In each searching process, with the help of the restrictive condition, it assesses every node being searched, and finds the best position, from which the destination is reached directly. By orientating the searching to the destination, the number of searched nodes is reduced, and the whole process is shortened. A test shows that the complexity of this algorithm is only  $O(n)$ . This algorithm is put into use in the monitoring system of transportation information in Shanghai. Compared with the traditional algorithms for the shortest path, the searching time of it could be controlled in 2S. Especially when a longer path is being searched, the searching efficiency is much better than the traditional algorithms for shortest path. The narrative process of this paper is as follows: [more..]

### Training Opportunities

Have you signed up to receive [SDI-Africa Newsletter](#) notices? It only takes a minute, and then the GSDI Association can notify you when a new issue of the SDI-Africa newsletter is available, plus alert you to particular GSDI announcements (like a call for GSDI grants, or a call for papers for a GSDI conference). The GSDI Association also hosts an [SDI-Africa E-mail Discussion List](#) with intermittent news and announcements of opportunities (this discussion list is separate from the SDI-Africa Newsletter list).



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- The [SDI-Africa E-mail Discussion List](#) is open and available to anyone to read on the web. To submit messages or to receive submitted comments or notices by e-mail, one first must register.
- To see the collection of prior postings to the list, visit the [SDI-Africa E-mail Discussion List Archives](#).
- To post a message to the list, send an email to [sdi-africa@lists.gsdi.org](mailto:sdi-africa@lists.gsdi.org).

## [African Regional Centre for Space Science and Technology Education in English \(ARCSSTE-E\)](#)

The African Regional Centre for Space Science and Technology Education in English (ARCSSTE-E) is established in Nigeria at Obafemi Awolowo University Campus, Ile-Ife. Within the frame work of its mandate to build capacity in core areas of Remote Sensing and GIS, Satellite Communication, Satellite Meteorology and Global Climate and Basic Space and Atmospheric Sciences Applications.

The Space Education courses comprise a 9-month Post Graduate Diploma programme (January to September) every year; and an optional 12 months MSc degree programme. The list of courses:

- [Satellite Communication \(SATCOM\)](#)
- [Satellite Meteorology \(SATMET\)](#)
- [Remote Sensing/Geo Information System \(RS/GIS\)](#)
- [Basic Space](#)

The Center trains participants mostly from English speaking African countries: Angola, Botswana, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Namibia, Nigeria, Sierra Leone, South Africa, Sudan, Swaziland Tanzania, The Gambia, Uganda and Zimbabwe. Deadline for applications: 30 September of each year.

## [ESRI Technical Certification](#)

Beginning in January 2011, users will be able to test for five certifications. The remaining eight are still in development and will be available later in the year. Establishing an industry recognized benchmark of expertise in using ESRI software will:

- Improve success with GIS by creating a community of professionals proficient in using ESRI software.
- Help organizations maximize their investment in ESRI products by employing a workforce certified in using best practices.
- Create professional development opportunities.
- Provide an opportunity for individuals, partners, consultants, and other organizations to distinguish themselves among their peers.
- Assist hiring organizations in assessing candidate skills and abilities.

Workplace experience, combined with GIS education and ESRI training courses, is the best preparation. The ESRI Technical Certification Web site lists specific skills that will be assessed in each exam, as well as training courses that aid in acquiring and improving these skills. Advice on the best training and preparation for a particular certification is available. [Read more.](#)

## [ESRI South Africa presents a full spectrum of GIS courses: April 2011](#)



- The course covers GIS theory and functionality: The desktop products (ArcView, ArcEditor, and ArcInfo; Server products (ArcGIS server and ArcSDE); Programming to enable customization of the product, ArcGIS extensions, as well as Introductory and advanced courses in ERDAS Imagine Remote Sensing Software'

Various training venues are available at Esri South Africa, for further information contact: 011 238 6300 [Email the training team](#)

## [Free ESRI Courses](#)

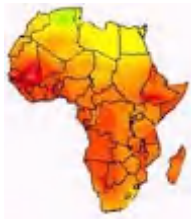
Free online course modules from ESRI's Virtual Campus site. Learn the basics of many of their software packages and extensions or take some concept courses such as a review of projections.

## [ESRI Eastern Africa Hands-on Training for GIS Professionals](#)



The following courses are offered at the ESRI Authorized Learning Centre in UpperHill, Nairobi, Kenya.

<b>Fundamentals of ArcGIS Desktop</b>	Duration (Days)
• ArcGIS Desktop 1: Getting Started with GIS	3
• ArcGIS Desktop 2: Tools and Functionality	4



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- ArcGIS Desktop 3: Workflows and Analysis 3
  - **Data Production and Editing with ArcGIS**
  - Field Data Collection Using ArcPad and ArcGIS Desktop 3
  - Building Geodatabases 4
  - Data Production and Editing Techniques 4
  - Analysis with ArcGIS**
  - Performing Analysis with ArcGIS Desktop 4
  - Cartography with ArcGIS**
  - Creating and Publishing Maps with ArcGIS 4
  - Enterprise GIS**
  - Introduction to ArcGIS Server 3
  - Introduction to the Multiuser Geodatabase 3
  - Managing Editing Workflows in a Multiuser Geodatabase 4
  - Programming with ArcGIS**
  - Introduction to Programming ArcObjects using .NET 4
  - Introduction to Geo-processing using Python 3
  - Added new courses focusing on ENVI: the Image Processing Software for processing and analyzing geospatial imagery.**
  - Introduction to Remote Sensing with ENVI 3
  - ENVI for GIS 3
  - Exploring ENVI 5
  - ENVI for Defense and Intelligence 4
- Contact: ESRI Eastern Africa at: [training@esri.co.ke](mailto:training@esri.co.ke), telephone: +254 20 2713630/1/2 or fax: +254 20 2713633.

## [ITC Education Brochure 2011-2012 online](#)

Read the new ITC Education brochure with all the degree, diploma and certificate programmes in geo-information science and earth observation starting in 2011. More information is available at [www.itc.nl/Pub/Study/CourseFinder](http://www.itc.nl/Pub/Study/CourseFinder)

## [NFP Course List 2011-2012](#)

Short courses in agriculture, forestry and fishery, fellowship provided. Application deadlines: 1 May 2011 and 1 October 2011.

## [L'École Régionale post-universitaire d'Aménagement et de gestion Intégrés des Forêts et Territoires tropicaux \(ERAIFT\) \[Regional School on Integrated Management of Tropical Forests and Territories\]](#) –

l'ÉRAIFT est une école d'avant-garde au service du développement humain et durable de l'Afrique. Elle a pour vocation de former des Spécialistes (DESS & Ph.D) de l'Aménagement et de la Gestion des Forêts et Territoires Tropicaux, par une Approche Interdisciplinaire, Globale et Intégrée, autrement dit Systémique. Contact: [info@eraift.org](mailto:info@eraift.org).

## [Short-courses offered by RECTAS in 2011](#), Ile-Ife, Nigeria



The [Regional Centre for Training in Aerospace Surveys \(RECTAS\)](#) is offering a number of three-week courses. Also note that RECTAS is able to package and deliver customised training for interested organisations. These could be either advanced or other certificate programs. Contact: [info@rectas.org](mailto:info@rectas.org) or [thontteh@rectas.org](mailto:thontteh@rectas.org).

## [RCMRD - Courses offered by the department of Remote Sensing, GIS and Mapping](#)



The Centre offers the following courses in geo-information. The courses last between one week to three months, and offered through out the year.

- Introduction to Remote Sensing & Image Processing
- Introduction to Geographic Information Systems (GIS)
- Introduction to Global Positioning Systems (GPS)
- Application of Remote Sensing & GIS in natural resources management.
- Application of Remote Sensing & GIS in Early Warning Systems for Food Security Application of RS & GIS in Disaster Risk Management





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- Geospatial database development and management for use in planning process and decision making
- Principles of Digital Cartography
- Application of GPS technology in resource surveys and mapping
- Integrated Water Management
- Application of GIS in poverty mapping, health care & good governance
- Land Information Management Systems
- Service and Repair of Survey equipment

## Funding Opportunities, Awards, Support

### [Awards for Presentations: "African Climate Teach-In Day"](#), 3rd June 2011

The [International Climate Change Information Programme](#) (ICCIP), which is organising the first ever "African Climate Change Teach-In Day", is awarding three prizes for the three best presentations, worthy US\$ 500,00, US\$ 300,00 and US\$ 200,00, along with a Certificate of Honour. The "African Climate Change Teach-In Day" will be held on Friday, the 3rd June 2011. The aim of the event is to offer a platform under which lectures on matters related to climate change in Africa can take place, across the continent.

Participation at the African Climate Teach-In Day is simple and consists of three steps:

- Step 1- Please [register on-line](#) so that you can gain access to the database;
- Step 2- Choose a presentation (s) to download. They will be available on the 20th May 2011;
- Step 3- Download the presentation(s) and use them on your lecture(s)

The idea of the African Climate Teach-In Day is to foster a truly global debate on climate change in Africa and the challenges it poses. This means, for example, that a presentation prepared by a university lecturer or professor from Zimbabwe, be used at a lecture in Egypt or Senegal. This interaction within Africa on matters related to climate change is the essence of this unique event, the largest initiative on climate change communication which has ever been organised in Africa. African-based experts or scientists undertaking climate-related research on projects in Africa, are warmly invited to take part and submit a power point presentation on a climate activity, programme or project you may be involved with. Flyers and posters of the event can be ordered by contacting ICCIP: [info@iccip.net](mailto:info@iccip.net).

### [Climate Change, Agriculture and Food Security \(CCAFS\) - Research on climate variability and food security](#)

The CCAFS program is supported by the Consultative Group on International Agricultural Research with the Earth System Science Partnership. CCAFS invites applications for research on how historical climate variability has affected food security (e.g., crop production and prices, consumption and trade, rural incomes, and humanitarian assistance) in East and West Africa, and South Asia. Up to US\$120 thousand is available. Proposals are due 18 May 2011. (TVG Note: CCAFS also posts a call to develop historical meteorological data relevant to agriculture in East and West Africa, with deadline [25 May 2011](#))

### [Development marketplace - Cameroon DM 2011](#)

The Development Marketplace announces the Cameroon DM 2011 to improve citizen participation and governance in health, education, and forest resource management. The competition is open to submissions from innovators within non-profit civil society organizations. Grants are up to US\$20 thousand for one year. The competition is sponsored by the Cameroon Office of the World Bank, in partnership with Catholic Relief Services. The application deadline is [31 May 2011](#).

### [Food and Agriculture Organization - ACP/FLEGT 4th Call for Proposals](#)

ACP-FLEGT makes grants to support Forest Law Enforcement, Governance, and Trade in the ACP (African, Caribbean, and Pacific) countries. The program is funded by the European Commission and administered by FAO's Forestry Department. Eligible applicants are ACP government institutions, civil society organizations, and private-sector organizations. Maximum funding is 100 thousand euros for pilot projects; 50 thousand euros for technical assistance projects; and 25 thousand euros for direct assistance to governments in ACP countries. The deadline for proposals is [20 May 2011](#).

### [TWAS - Grants for International Meetings 2011](#)

The Academy of Sciences for the Developing World (TWAS) makes grants to support the organization of high-level international and regional scientific activities in developing countries by offering financial



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assistance for conferences, workshops, symposia, and special meetings held in these countries. Application deadlines are 01 June and 01 December each year.

## **TWAS - Prizes for Young African Scientists 2011**

The AU-TWAS Young Scientist National Awards are prizes of US\$5 thousand to young (*not over age 40*) African scientists in each of two categories: life and earth sciences; and basic sciences, technology, and innovation. Participating countries are Benin, Burkina Faso, Cameroon, Egypt, Ghana, Guinea, Lesotho, Malawi, Nigeria, Senegal, Sudan, and Zimbabwe. The closing date for nominations is 30 June each year.

## **TWAS - Fellowships 2011**

Each year, the Academy of Sciences for the Developing World (TWAS) coordinates with participating research institutions in the developing world to host visiting research fellows. The 2011 call announces fellowships for post-graduate training; post-graduate training for women only; post-doctoral research; and advanced research. The fields of research include biotechnology, natural sciences, chemical and biological sciences, and others. Partner (host) organizations are located in Brazil, China, India, Kenya, Malaysia, Mexico, Pakistan, and Thailand. The deadlines range from 30 June - 15 September 2011.

## **BBC World Challenge - Global Competition 2011**

World Challenge 2011 is jointly organized by BBC World News Limited and Newsweek to identify projects and small businesses from around the world that feature exceptional enterprise and innovation at a grassroots level. The categories include sustainable farming, energy, water, and environment (among others). The winner will receive a grant of US\$20 thousand; the second and third finalists will each receive grants of US\$10 thousand. The closing date for nominations is 19 June 2011.

## **Council for the Development of Social Science Research in Africa (CODESRIA) - Comparative Research Networks 2011**

CODESRIA supports researchers in African universities and research centers through funding for Comparative Research Networks. The networks address priority research themes within CODESRIA's strategic plan, including:

- Water and Water Resources in the Political Economy of Development and Citizenship;
- Ecology, Climate, and Environmental Sustainability in Africa (among many other themes).

Recent grants range from US\$10 - 35 thousand per network. CODESRIA favors CRNs which are multidisciplinary, gender issues sensitive and inclusive of the younger. Proposals deadline: 15 June 2011.

## **International Livestock Research Institute - Africa Biosciences Challenge Fund 2011**

The Biosciences eastern and central Africa (BecA) Hub announces research fellowships for African agricultural scientists and students. Funding will cover travel, accommodation, stipend, and research costs for short-term projects. Research should focus on food and nutritional security or animal health, using the advanced capacity available at the BecA Hub. The program will accept 15 individuals from the BecA countries (listed in the announcement). Applications should be received before 10 June 2011.

**UNESCO with L'Oreal Corporate Foundation - Young Women in Life Sciences 2012** The UN's Educational, Scientific, and Cultural Organization (UNESCO) and L'Oreal co-sponsor annual Fellowships for Young Women in Life Sciences. A maximum of three young women (under age 35), from each of five geo-cultural regions of the world, are awarded research grants in biology, biotechnology, agriculture, and other life sciences. Each fellowship is up to US\$20 thousand for one year, renewable for a second year. Special attention is given to applications from the least-developed countries. The closing date is 30 June 2011.

## **Academy of Sciences for the Developing World (TWAS) - Grants for International Meetings 2011**

TWAS makes grants to support the organization of high-level international and regional scientific activities in developing countries by offering financial assistance for conferences, workshops, symposia, and special meetings held in these countries. Application deadlines are: 1 June and 1 December each year.

## **2011-2012 Fully Funded CARTA PhD Fellowships, Africa**

The CARTA program draws together disciplines required to address the complex processes that influence health. These disciplines include Epidemiology, Psychology, Biostatistics, Anthropology, Health Economics,



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Health Promotion; Demography, Sociology, Health Systems, Health Policy, Development Studies, and their interfaces with the biomedical sciences. The CARTA multidisciplinary approach will prepare its graduates to better address questions of contemporary policy relevance such as the social determinants of health, and the limited impact of technological advances on health in Africa.

CARTA is currently offering a fully-funded, collaborative doctoral training program in public and population health. This program has been developed in response to the great challenges faced by Africa's institutions of higher education in addressing the training and retention of the next generation of academics in the region. Women are particularly encouraged to apply. CARTA has also reserved a small number of scholarships specifically for doctoral students conducting research on issues of sexuality and reproductive health and rights.

Participating African Universities: Makerere University, Uganda; Moi University, Kenya; National University of Rwanda; Obafemi Awolowo University, Nigeria; University of Dar es Salaam, Tanzania; University of Ibadan, Nigeria; University of Malawi; University of Nairobi, Kenya; University of the Witwatersrand, South Africa

Participating Research Institutes: African Population & Health Research Center (APHRC), Kenya; Agincourt Population and Health Unit, South Africa; Ifakara Health Institute, Tanzania; KEMRI/Wellcome Trust Research Program, Kenya. The deadline for application: 15 July 2011.

### Employment Opportunities

#### **Central Africa Forestry Project Coordinator**, Kinshasa, DRC

WRI is seeking a Central Africa Forestry to support ongoing project implementation in Central Africa under its Forest Information and Governance Initiative. The CAFPC will be responsible for managing day-to-day activities related to remote sensing, GIS, mapping, and forest information management systems conducted on-the-ground in Central Africa and, as planned and pre-approved by the Forestry Director. The main focus of the CAFPC will be in setting up and managing WRI forestry projects in the following six (6) project countries: Republic of Congo, Democratic Republic of Congo, Gabon, Central African Republic, Gabon and Equatorial Guinea. The CAFPC may also, upon request from the Forestry Director, be asked to provide assistance or input to other activities related to WRI's other programs in the region or elsewhere in the world, within the limits of his/her abilities and skills.

This is a challenging but professionally rewarding position requiring solid technical and managerial skills as well a sound character. More specifically, the required qualifications, and skills for this position include:

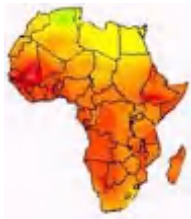
- Educational background and technical expertise: Master's degree (preferable) or equivalent experience in forestry, natural resource management, conservation biology, geomatics or geography; Familiarity with remote sensing, GIS (ArcGIS), cartography and database management; Familiarity with forest issues such as forest concessions, logging, protected areas, sustainable forest management, deforestation and forest degradation, REDD and climate change.
- Managerial: Project management; Budgeting and financial management; Supervisory experience of at least five professional and clerical staff; Drafting technical and financial proposals.
- Language skills: Fluent in both written and spoken French and English, with French being the most important. Spanish considered a plus.
- Experience: A minimum of 10 years of practical and relevant professional experience; A minimum of seven years of experience in developing countries, with at least two of those having been in sub-Saharan Africa; Familiarity with the donor community - particularly with USAID.

The candidate will be hired under a research agreement, e.g. as an independent consultant. This will be a two year contract, with an optional third year. Extension of that period will be dependent on funding.

The ideal date of commencement of the mandate would be June 2011 so to provide a sufficient overlap with the actual Coordinator in order to ensure a fluid and efficient transition. However, WRI is open to discussing a later start date if this timing is too soon for the successful candidate.

#### **National Officer (Programme Management)**, Addis Ababa, Ethiopia

This post is located in the Economic Commission for Africa, Office of the Executive Secretary, Partnership and Technical Cooperation Office (PATCO). Professionalism includes knowledge and understanding of theories, concepts and approaches relevant to the economic and social sector; practical experience in result based funds and project management, good research, budgetary analysis and problem-solving skills, including ability to identify and participate in the resolution of issues/problems; familiarity with and experience



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in result-based monitoring and evaluation methodologies; ability to apply good judgment in the context of assignments given; ability to plan own work and manage conflicting priorities. Planning and organizing: develops clear goals that are consistent with agreed strategies; identifies priority activities and assignments; adjusts priorities as required; allocates appropriate amount of time and resources for completing work; foresees risks and allows for contingencies when planning; monitors and adjusts plans and actions as necessary; uses time efficiently.

- Advanced university degree (Master's degree or equivalent) in business administration, management, economics or a related field. A first-level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree. Knowledge in the area of funds and programme management is highly desirable.
- A minimum of 5 years progressively responsible experience in project or programme management, administration or related area is required. Experience in development, implementation and management of extra budgetary trust funds and projects/ programmes in the economic, social and related sectors are highly desirable.

Closing date: 26 May 2011.

### **Programme Officer (Monitoring and Compliance)**, Nairobi, Kenya

This post is located in the Ozone Secretariat of the United Nations Environment Programme/Executive Office (UNEP/EO) in the Nairobi duty station.

The incumbent will have demonstrated professional competence in environmental protection issues, especially in the subject of monitoring and compliance; Ability to develop, implement and evaluate tasks related to compliance monitoring; documented success in establishing and maintaining relationships with relevant stakeholders to enable compliance with established procedures; creativity in finding solutions to parties' compliance problems and initiating actions to assist Parties' return to compliance.

- Advanced university degree in environmental sciences with focus on atmospheric sciences, environmental management, law or a related area. A first level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree.
- At least seven years of work experience in monitoring and evaluation of environmental project/programmes or related area is required; Experience in providing advice to governments or non-government organizations on environmental compliance issues is a distinct advantage.

All applicants are strongly encouraged to apply online as soon as possible. Online applications will be acknowledged where an email address has been provided. Closing date: 25 June 2011.

### **Coordinator (Infrastructure)**, Monrovia, Liberia

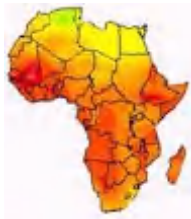
UNDP is supporting the security and justice sector in Liberia through the implementation of its Annual Work Plan (AWP) for 2011 for the Justice and Security Programme. The Justice and Security Programme have identified a number of infrastructures related projects to enhance access to justice. The Infrastructure Adviser will work closely with the Justice and Security Programme under supervision of the Chief Technical Adviser (CTA) and overall guidance of the Deputy Resident Representative for Programmes (DRR/P) to effectively deliver the project outputs in a timely manner. Summary of Key Functions:

- Infrastructure component planning, management, monitoring and oversight.
- Technical guidance and leadership.
- Coordination and strategic partnerships.

Professionalism: Demonstrated ability in managing large scale engineering civil works projects; ability to supervise engineers and manage project contractors.

Required Skills and Experience:

- Master's degree in Engineering, Urban Planning or Civil Works related field, including professional training in infrastructure related project management.
- Minimum 7 years of relevant professional development work experience in engineering projects at national and international level.
- Experience with public international organizations, particularly with UN agencies or UNDP in the area of recovery and reconstruction activities.
- Post conflict work experience in civil works - construction, reconstruction and rehabilitation projects setting in the African region.
- Experience with UNDP regulations in procurement of civil works contractors and contract management in the ECOWAS region is an advantage.



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- Experience in working with local community groups, security related agencies and ensuring gender sensitive designs in construction project planning and execution.
- Experience in coordinating and reporting on multi donor projects.
- Must have proven technical knowledge in planning, implementation and monitoring multiple civil works projects ensuring quality and timely delivery of outputs.
- Sound and proven technical work skills including good team work, communications and problem-solving skills.
- Experience in use of computer applications in preparation of technical reports

Deadline for applications: 16 May 2011.

### [Climate Change Adaptation and Global Gender Advisor](#), African Region, Denmark

CARE Danmark (CDK) is seeking an Advisor for the CARE International Poverty, Environmental and Climate Change Network (PECCN) to further develop and strengthen CARE's climate change adaptation work in the African Region. Starting date is 1st of August 2011 or as soon as possible with initial contract period of two years.

#### Responsibilities and tasks

- Support implementation of the Adaptation Sub-strategy of the CARE International CCSP with particular emphasis on programme development; knowledge management; capacity building; and external relations in the Africa region
- Enhance the integration of gender and women's empowerment into CARE's climate change adaptation programming and advocacy portfolio
- Strategic programme development in cooperation with the Adaptation Coordinator, Adaptation Theme Team, CARE International Members, the Africa-Regional Management Units and Country Offices within Africa
- Coordinate CARE's knowledge management and capacity building in the Africa region, under the overall guidance of the PECCN Global Adaptation Coordinator, and in close collaboration with the PECCN Community of Practice (CoP) Coordinator and Africa Adaptation Learning Programme (ALP)
- Develop relationships with relevant organisations and explore possible partnerships within the Africa region to maximize CARE's influence and impact on poverty and social justice in the context of climate change

#### Profile:

- Minimum qualification of a Master's degree in a relevant discipline
- Minimum 3 years of relevant working experience, experience from a developing country, NGO experience an advantage

Please contact CARE Danmark's Programme Director Lisbeth Moller at [lmoller@care.dk](mailto:lmoller@care.dk). Apply on-line at <http://www.care.dk/english/jobs> and use the "Apply online" button in the ad to enter the application form. Closing date for applications: 23 May 2011.

### Other

#### [Africa to bid for world's largest telescope](#)

Africa is bidding to host the world's largest Telescope that would make the continent a major hub for astronomy in the world. The Minister of Environment Science and Technology of Ghana, Ms Sherry Ayittey, said on Tuesday (March 8, 2011) that, if Africa won the bid to be announced in the middle of 2012, the Square Kilometre Array (SKA) Project, which would be one of the largest scientific research facilities in the world, would consolidate Africa as a major hub for astronomy.

#### [Climate change TV map of interviews by Country delegation](#)

A new visual tool on the Climate Change TV website shows the last three years of interviews from the climate change talks by country. It's meant to make interviews more accessible. Click on the caption on the map to view the interview location and select the interviewee to listen to the video discussion.

The next interview will take place at the US World Affairs Council (2nd May), Washington, following their programme on Climate Change and Clean Energy. As part of the US State Department's [International Visitor Leadership Program](#), a multi-regional group of fifteen will discuss climate change, conservation, and clean energy development.



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## [Options for REDD+ Voluntary Certification to ensure net GHG benefits, poverty alleviation, sustainable management of forests and biodiversity conservation](#)

A newly published article assesses the options of voluntary REDD+ certification. The article analyses ten different forest carbon standards and gives practical recommendations on their application. The objective of the study was to compare and evaluate the practical applicability to REDD+ of ten forest management, social, environmental and carbon standards that are currently active worldwide: Climate, Community and Biodiversity (CCB), CCB REDD+ Social and Environmental Standards (CCBA REDD+ S&E), CarbonFix Standard (CFS), Forest Stewardship Council (FSC), Global Conservation Standard (GCS), ISO 14064:2006, Plan Vivo Standard, Programme for Endorsement of Forest Certification (PEFC), SOCIALCARBON Standard and the Voluntary Carbon Standard (VCS). A framework for evaluation of these standards relative to each other using four substantive criteria was developed: (1) poverty alleviation, (2) sustainable management of forests (SMF), (3) biodiversity protection, (4) quantification and assessment of net greenhouse gas (GHG) benefits; and two procedural criteria: (5) monitoring and reporting, and (6) certification procedures. REDD programs require assessment of GHG benefits, monitoring, reporting and certification. The analysis shows that only the Voluntary Carbon Standard (VCS) treats these three criteria comprehensively. No standard provides comprehensive coverage of the social and other environmental criteria. FSC, PEFC and CarbonFix provide comprehensive assessments of the sustainable forest management criterion. CCBA REDD+ S&E, CCB, and GCS provide comprehensive coverage of the biodiversity and poverty alleviation criteria. Experience in using these standards in pilot projects shows that projects are currently combining several standards as part of their strategy to improve their ability to attract investment, but costs of implementing several certification schemes is a concern.

## [Land deals in Africa: What is in the contracts?](#)



Over the past few years, agribusiness, investment funds and government agencies have been acquiring long-term rights over large areas of land in Africa. Government concerns about food and energy security and private sector expectations of increasing returns from agriculture underpin much recent agricultural investment. Together with applicable national and international law, contracts define the terms of an investment project, and the way risks, costs and benefits are distributed. Who has the authority to sign the contract and through what process greatly influences the extent to which people can have their voices heard. And the terms of the deals can have major and lasting repercussions for agriculture and food security in recipient countries. Yet very little is known about the exact terms of the land deals. Negotiations usually happen behind closed doors. Only rarely do local

landholders have a say in those negotiations. Few contracts are publicly available.

This report analyses 12 land deals and their wider legal frameworks. Limited access to contractual documentation means that the analysis is preliminary and incomplete. The aim is to discuss the contractual issues for which public scrutiny is most needed and to promote informed public debate about them. The report examines the contracts through a sustainable development lens. In this perspective, for host countries, attracting investment is not an end in itself, but a means to an end. The ultimate goal is to improve living conditions whilst protecting the environment. Because of this lens, key issues discussed in the report relate to participation in the contracting process, to economic fairness between investor and host country, to the distribution of risks, costs and benefits within the host country, to the degree of integration of social and environmental concerns, and to the extent to which the balance between economic, social and environmental considerations can evolve over contract duration.

In relation to many of these issues, there are real concerns that some contracts underpinning the recent wave of land acquisitions may not be fit for purpose. A number of the contracts reviewed appear to be short, unspecific documents that grant long-term rights to extensive areas of land, and in some cases priority rights over water, in exchange for seemingly little public revenue and/or apparently vague promises of investment and/or jobs. Also, a number of the deals are being negotiated in legal contexts where safeguards for local interests are weak, and some contracts appear not to properly address social and environmental issues.

As a result, there is a substantial risk that local people may internalise costs without adequately participating in benefits and that environmental issues are not properly factored in. Some contracts feature better terms. Decisions taken now will have major repercussions for the livelihoods and food security of many people for decades to come. Land deal negotiations are unfolding fast and behind closed doors. But secrecy and haste are no friends of good deals. [Read more..](#)



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## Clamor for change in Tanzania: key question is land ownership

As the process for the writing of a new Constitution gathers pace, calls have been made to ensure land ownership rights are enshrined in the mother law to help reduce poverty and propel the country forward economically. Activists argue that the time has come for Tanzania to allow individuals to own land and use as they deem it fit to advance their personal and community gains. This would also help avoid a serious crisis caused by a massive grab of huge chunks of land by “investors”.

In the current scenario, individuals do not have the right to own land because it belongs to the State. Those wishing to use it acquire it from the government for a specified period of time, maximum 99 years and pay rent. In that sense, land is basically acquired and rent paid, but the government, using relevant laws, can take back the same land. Article 24 of the current Constitution only provides for the right to own property that is on land, but not land itself. In a forum organised by the Land Rights Research and Resources Institute (HakiArdhi) in Dar es Salaam recently, stakeholders said the current reform debate should take into consideration modalities on how land rights issues should be included in the mother law.

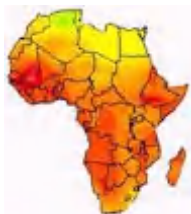
A retired University of Dar es Salaam law lecturer, Prof Issa Shivji, says that as far as socio-economic rights go, everybody has equal rights to own land without segregation. And that should be made clear in the new Constitution. This is because land is a major resource in people’s lives. It is the source of life, cultural identity, dignity and the source of independence and comfortable life. Prof Shivji says the arrangement of putting land ownership under the tutelage of the government was more conducive during the Arusha Declaration because leadership ethics forbade leaders accumulating wealth. But as now even leaders can acquire wealth, including land, denying other people’s land rights can cause problems.

“In the absence of legal land ownership rights people become vulnerable to land plundering by the rich and the powerful. We have witnessed village land being taken away by the so-called investors for cultivation of biofuels, leaving villagers landless,” Prof Shivji says. To avoid further problems Prof Shivji proposes economic and productive systems should be created to guide the land and its resources in the current constitution reforms. “Land ownership and village resources should be under cooperative councils such as the village assembly”. On the other hand, he insists on the transparency over the contracts among the government and investors. “Contracts in resources such as minerals, fuel, water, rivers, mountains, forests and land, should be published on public news papers so that people in a particular area would debate and have a say in them. The contracts must also be ratified by the parliament”.

## Conferences, Events

Items newly added to this listing of events since the last SDI-Africa issue are marked **\*NEW\***

Date	Location	Event
<b>May 2011</b>		
2-5 May 2011	Addis Ababa, Ethiopia	<a href="#">2nd Session of the Committee on Development Information Science and Technology (CODIST- II)</a> Contact: Thierry Amoussougbo at <a href="mailto:codist@uneca.org">codist@uneca.org</a> or Andre Nonguierma at <a href="mailto:codist@uneca.org">codist@uneca.org</a> .
3-8 May 2011	Antalya, Turkey	<a href="#">Gi4DM 2011 – GeoInformation for Disaster Management</a>
9-11 May 2011	Tipaza, Algeria	<a href="#">7th WOSSPA</a> The 7th International Workshop on Systems, Signal Processing and their Applications
9-13 May 2011	Sun City, South Africa	<a href="#">5<sup>th</sup> International Wildland Fire Conference (WildFire 2011)</a> Contact: <a href="mailto:info@wildfire2011.org">info@wildfire2011.org</a> .
11-13 May 2011 <b>*NEW*</b>	Gaborone, Botswana	<a href="#">IST-Africa 2011 Conference</a> Contact: <a href="mailto:secretariat@IST-Africa.org">secretariat@IST-Africa.org</a> .
11-13 May 2011	Orlando, USA	<a href="#">2nd International Conference on Disaster Management and Human Health: Reducing Risk, Improving Outcomes</a>
18-20 May 2011	Morelia, Mexico	<a href="#">3rd. International and 12th. National Socioeconomic and Environmental Research Conference on Livestock Farming</a>
18-22 May 2011	Marrakech, Morocco	<a href="#">FIG Working Week &amp; XXXIV General Assembly</a> Contact: FIG Office, <a href="mailto:fig@fig.net">fig@fig.net</a> .



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20-22 May 2011	Agadir	<a href="#">Climate Change, Agri-Food, Fisheries, and Ecosystems: Reinventing Research, Innovation, and Policy Agendas for an Environmentally and Socially-Balanced Growth</a> Contact: Dr. Mohamed Behnassi at <a href="mailto:behnassi@gmail.com">behnassi@gmail.com</a> .
22-26 May 2011	California, USA	<a href="#">World Environmental and Water Resources Congress</a>
25-27 May 2011	Dar es Salaam, Tanzania	<a href="#">6th International Conference on ICT for Development, Education and Training</a> Contact: <a href="mailto:info@elearning-africa.com">info@elearning-africa.com</a> .
30 May- 2 June 2011	Capetown, South Africa	<a href="#">AfricaGEO2011</a>
<b>June 2011</b>		
3-5 June 2011	Bonn, Germany	<a href="#">Resilient Cities 2011 congress</a>
6-9 June 2011 <b>* NEW *</b>	Kakamega, Kenya	<a href="#">International Conference on Tropical Forest Resources</a>
24-25 June 2011 <b>* NEW *</b>	Cape Town, South Africa	<a href="#">Climate Investment Funds (CIF) 2011 Partnership Forum</a>
<b>July 2011</b>		
3-7 July 2011	Windhoek, Namibia	<a href="#">2011 World Conference - Windhoek, Namibia, Sustainable Value Chain Agriculture for Food Security and Economic Development</a>
3-7 July 2011	Cape Town, South Africa	<a href="#">Call for Papers: 9th Colloquium on Environmental Law</a> Contact: Glaudin Kruger at <a href="mailto:kruger@kruger-associates.com">kruger@kruger-associates.com</a> or Tumai Murombo at <a href="mailto:Tumai.Murombo@wits.ac.za">Tumai.Murombo@wits.ac.za</a> . Deadline for abstracts submission: 28 February 2011.
3-8 July 2011 <b>* UPDATED *</b>	Paris, France	<a href="#">25th International Cartography Conference (ICC 2011)</a> Contact : Comité Français de Cartographie +33-1-4562-7175, Fax : +33-1-4562-7176, Email: <a href="mailto:lecfc@lecfc.fr">lecfc@lecfc.fr</a> .
11-14 July 2011	Lisbon, Portugal	<a href="#">Global Conference on Global Warming (GCGW-11)</a> , Contact: Conference Secretariat at <a href="mailto:info@gcgw.org">info@gcgw.org</a> .
18-21 July 2011	Tunis, Tunisia	<a href="#">4th IAA African Conference &amp; 2nd Mediterranean Conference: Youth &amp; Space Application</a>
20-23 July 2011 <b>* NEW *</b>	Balacava, Mauritius	<a href="#">2nd AMESD Forum</a>
July 29- 4 August 2011	Banos, Ecuador	<a href="#">2011 International Biodiversity Conference</a> , Contact: Dr. Barker at <a href="mailto:barkerb@wildspotsfoundation.org">barkerb@wildspotsfoundation.org</a> .
<b>August 2011</b>		
3-4 August 2011 <b>* UPDATED *</b>	Kampala, Uganda	<a href="#">1<sup>st</sup> Conference on Advances in Geomatics Research (AGRC2011)</a> Contact: <a href="mailto:agrc2011@tech.mak.ac.ug">agrc2011@tech.mak.ac.ug</a>
15-17 August 2011 <b>* NEW *</b>	South Africa	<a href="#">10th Information Security for South Africa (ISSA) 2011</a>
15-19 August 2011 <b>* NEW *</b>	Nairobi, Kenya	<a href="#">Applied Geoinformatics for Society and Environment (AGSE) 2011 Conference</a> Contact: Franz-Josef Behr at <a href="mailto:franz-josef.behr@hft-stuttgart.de">franz-josef.behr@hft-stuttgart.de</a>
21-25 August 2011	Merida, Mexico	<a href="#">SER2011 World Conference on Ecological Restoration</a>
22-26 August 2011	Wellington, New Zealand	<a href="#">5th International Symposium on GIS/Spatial Analyses in Fishery and Aquatic Sciences</a>
23-25 August 2011	Perth, Australia	<a href="#">The 7th International Symposium on Digital Earth (ISDE7)</a> Theme: 'The Knowledge Generation', Contact: <a href="mailto:melissah.johnston@walis.wa.gov.au">melissah.johnston@walis.wa.gov.au</a> or <a href="mailto:walis@walis.wa.gov.au">walis@walis.wa.gov.au</a> Abstract submission deadline: 28 February 2011.
<b>September 2011</b>		
4-8 September 2011	Cape Town, South Africa	<a href="#">The 6th Science Centre World Congress</a>
12-16 September 2011	Denver, USA	<a href="#">Call for presentations for FOSS4G 2011</a>





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12-16 September 2011	Ticino, Switzerland	<a href="#">3rd Symposium on Environmental Weeds &amp; Invasive Plants (Intractable Weeds and Plant Invaders)</a>
13-15 September 2011 <b>* NEW *</b>	Livingstone, Zambia	<a href="#">10th IEEE AFRICON 2011</a> The top-event of IEEE in Africa
19 - 23 September 2011 <b>* NEW *</b>	Cape Town South Africa	<a href="#">2011 ACSEAC</a> 2011 African Conference on Software Engineering & Applied Computing (ACSEAC)
26-28 September 2011	Mombasa, Kenya	<a href="#">Call for papers and exhibitors - 4th African Leadership Conference on Space Science and Technology for Sustainable Development (ALC2011)</a> : Building a shared vision for space in Africa,
26-30 September 2011	Aberdeen, Scotland	<a href="#">World Conference on Marine Biodiversity</a>
<b>October 2011</b>		
3-7 October 2011 <b>* UPDATED*</b>	Cape Town, South Africa	<a href="#">International Astronautical Congress 2011</a> Contact: <a href="mailto:enquiries@iac2011.com">enquiries@iac2011.com</a> . Contact: <a href="mailto:enquiries@iac2011.com">enquiries@iac2011.com</a> , Tel: +27 21 460 9357.
4- 6 October 2011	Saly, Senegal	<a href="#">Call for Abstracts and Scientific Symposium on “Contribution of ocean data and information to sustainable development in Africa”</a>
5-6 October 2011	Port Harcourt, Nigeria	<a href="#">Seventh International Conference on Sustainable Development</a>
5-7 October 2011	Beach Resort, Zanzibar	<a href="#">6th ESRI Eastern Africa User Conference</a> Submit abstract by 29 July 2011 on any of the available tracks at <a href="mailto:events@esriea.co.ke">events@esriea.co.ke</a> .
10-14 October 2011	Kimberley, South Africa	<a href="#">International Wildlife Ranching Symposium</a>
10-21 October 2011	Changwon, Korea	<a href="#">UNCCD COP 10</a> , Contact: UNCCD Secretariat at <a href="mailto:secretariat@unccd.int">secretariat@unccd.int</a>
12-14 October 2011	Coimbra, Portugal	<a href="#">WG II/4 &amp; ICWG II/IV 7<sup>th</sup> International Symposium of Spatial Data Quality</a>
16-21 October 2011	Cairo, Egypt	<a href="#">AfricaGIS 2011 Conference</a> Contact: <a href="mailto:africagis2011@narss.sci.eg">africagis2011@narss.sci.eg</a> or <a href="mailto:info.africagis2011@narss.sci.eg">info.africagis2011@narss.sci.eg</a> .
19-21 October 2011	Bloemfontein, South Africa	<a href="#">1st International Conference on Clays and Clay Minerals in Africa and 2nd International Conference on Geophagia in southern Africa</a>
<b>November 2011</b>		
1-3 November 2011 <b>* NEW *</b>	Beirut, Lebanon	<a href="#">Esri Europe, Middle East and Africa User Conference</a>
7-12 November 2011	Worldwide	<a href="#">1st Call for Papers: Worldwide Online Climate Conference (CLIMATE 2011/KLIMA 2011)</a>
16 November 2011 <b>* NEW *</b>	Nairobi, Kenya	<a href="#">GIS Day</a>
16 - 18 November 2011	Delft, Netherlands	<a href="#">2nd International Workshop on 3D Cadastres</a> , Contact: <a href="mailto:P.J.M.vanOosterom@tudelft.nl">P.J.M.vanOosterom@tudelft.nl</a>
21-23 November 2011 <b>* NEW *</b>	Mbale, Uganda	<a href="#">International Conference on East Africa Mountains (ICEAM) 2011</a> , Theme: Reconciling Resource Demands, Climate Change and Conservation. Submit abstract online. Contact: <a href="mailto:info@iceam2011.org">info@iceam2011.org</a> .
28 November- 9 December 2011	South Africa	<a href="#">17<sup>th</sup> Conference of the Parties to the UNFCCC and 7th Meeting of the Parties to the Kyoto Protocol</a> Contact: UNFCCC Secretariat, <a href="mailto:secretariat@unfccc.int">secretariat@unfccc.int</a> .
<b>December 2011</b>		



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<b>13-15 December 2011</b>	Shah Alam, Malaysia	<a href="#"><u>Third International Conference on Management of Natural Resources, Sustainable Development and Ecological Hazards</u></a>
<b>2012</b>		
<b>21-27 May 2012</b>	Vilnius, Lithuania	<a href="#"><u>12th World Congress on Environmental Health: New Technologies, Healthy Human Being and Environment</u></a>
<b>2-6 July 2012</b>	Galle, Sri Lanka	<a href="#"><u>MMM3 : Meeting on mangrove ecology, functioning and management</u></a>
<b>8-12 July 2012</b>	San Diego, California USA	<a href="#"><u>ESRI User Conference</u></a>
<b>8-12 July 2013</b>	San Diego, USA	<a href="#"><u>ESRI International User Conference</u></a>
<b>5-10 August 2012</b>	Brisbane, Australia	<a href="#"><u>34th Session of the International Geological Congress (IGC 34)</u></a> Enquiries: <a href="mailto:info@34igc.org"><u>info@34igc.org</u></a> .
<b>2015</b>	Durban, South Africa	<a href="#"><u>14th World Forestry Congress for SA</u></a>
<b>1-31 August 2016</b>	Cape Town, South Africa	<a href="#"><u>35th International Geological Congress</u></a> Registration deadline: 30 June 2016.

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