Spatial Data Infrastructure – Africa Newsletter

GSDI
Global Spatial Data Infrastructure

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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 25th 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

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SDI News, Links, Papers, Presentations

Mapping humanitarian action in Africa - a fast-developing sector

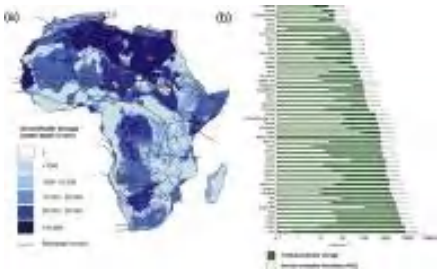
To improve the International Committee of the Red Cross (ICRC) response to people's needs in humanitarian operations it is increasingly turning to geographic information systems (GIS). The ICRC has been using GIS for around 15 years. When it comes to delivering water to people facing a shortage, for example, ICRC absolutely need to know where they and where the water sources are, and the staff need to be familiar with the terrain. The ICRC's water and habitat engineers therefore collect data using their GPS devices and then upload it onto maps. Before 2003, the ICRC staff occasionally used this technology in the field. Then GIS specialists were hired who joined the teams of ICRC delegates. Since 2006, the water and habitat unit has been providing mapping services to any ICRC department that requests them.
The ICRC often works in poorly mapped areas. For example, they have a project to repair and expand the water-supply system in Walikale, a town in North Kivu province in eastern Democratic Republic of the Congo. But before they embarked on the project, they needed to know how the population was spread over the territory and where to lay the pipes, dig the reservoirs and deliver the water. They needed a detailed map. So they bought a satellite image of the town and asked the Humanitarian OpenStreetMap community

of volunteers (openstreetmap.org), people who live all over the world, to digitize the location of buildings and roads in order to draw up an accurate map. This is a real crowdsourcing project as everyone was able to contribute gathering onformation throught the internet and creating the digital map, thereby helping the ICRC to prepare its project. In effect they called upon "e-volunteers" who complemented the work of the staff on the ground. This collaboration not only was able to restore the water supply, but also provide the Walikale authorities with an up-to-date map of the area.
ICRC has recently set up an online geoportal that enables all her staff members to produce their own tailor-made maps. The geoportal provides a geographic depiction of a range of key data, such as the location of warehouses, stock levels and aid-distribution sites. GIS tools and collaborative approaches drawing on data gathered by networks of volunteers are becoming increasingly important for humanitarian organizations. These tools and methods make it possible to gather and exploit invaluable local and worldwide data that was previously non-existent or too complicated to process. This helps us improve the ICRC's efforts to come to the aid of those in need.

Geo-information tools for participatory spatial planning: Fulfilling the criteria for 'good' governance?

The last few decades have seen increasing attempts to foster 'collaborative' and 'participatory' approaches to spatial planning and decision-making, with a more sophisticated conceptualisation of the contested term, participation. Participatory, 'bottom-up' geo-information technologies have been concurrently developing and these are expected to strengthen participatory spatial planning; important among these has been the transformation of conventional mapping and GIS tools into Participatory GIS (PGIS).
This paper explores the potential contributions of participatory geo-information tools towards participatory spatial planning, in terms of the principles and criteria of good governance. Five fundamental principles of 'good' governance: accountability, legitimacy, respect, equity, and competence is discussed, and the potential of geo-information tools to contribute to, and detract from, such principles; although we focus especially on participation and the recognition and validation of local knowledge. Criteria for the five principles have been derived, and a range of evaluation questions identified which can be operationalised so as to interrogate the criteria for judging the contribution of participatory tools and participatory spatial planning activities. In conclusion, the potentials of participatory geo-information tools, particularly participatory mobile GIS, participatory 3-dimensional modelling, and visualisation features in PGIS has been summarily assessed.

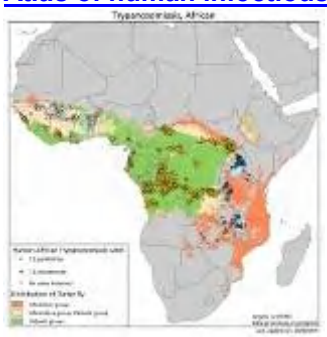
Africa's vast groundwater reserves mapped



Researchers from the British Geological Survey and the University of London estimate that there are 0.66 million cubic kilometres of groundwater stored under Africa. For millions of people across Africa, getting clean drinking water can be a daily struggle. But now researchers say they have found a ... (Resource: Africa Sitting on Sea of Groundwater Reserves), Researchers have found that Africa has huge reserves of water underground, which they estimate are more than a hundred times the annual renewable freshwater resources.
Their findings, published in the academic journal Environment Research Letters, show that the largest reserves are in aquifers in the North African countries of Libya, Algeria, Egypt, Chad and Sudan. The scientists used existing data, but for the first time this data were collated to give a continent-wide picture. They estimate that there are 0.66 million cubic kilometres of groundwater storage under Africa. However, the researchers emphasise that it is important to take into consideration the rate at which this stored water can be replenished. Whilst the largest reserves lie across the arid region of North Africa, these were filled five thousand years ago when the region was much wetter. There is plenty of water under this area, about seventy five meters deep, but whatever is taken out is not replenished. Other factors to be taken into account are the geological characteristics of the underground water reservoirs. For example, if the groundwater is very deep underground it cannot be accessed by hand pump.
The researchers find that "for many African countries appropriately sited and constructed boreholes will be able to sustain community hand pumps and for most of the populated areas of Africa, groundwater levels are likely to be sufficiently shallow to be accessed using a hand pump". There is certainly a large amount of water under Mozambique, and the paper estimates that there are 6,290 cubic kilometres of groundwater stored under the country, with particularly large reserves under Maputo province.

The groundwater in Mozambique is replenished at a rate of between 25 and 100 millimetres per year, and is stored relatively close to the surface. The paper shows that the aquifer productivity for much of Mozambique is high. The British Geological Survey has also been undertaking a one year research project funded by the British government's Department for International Development, looking at the resilience of African groundwater to climate change. That research found that "groundwater possesses a high resilience to climate change in Africa and should be central to adaptation strategies".

Atlas of human infectious diseases released



The Atlas of Human Infectious Diseases is a collection of up-to-date maps presenting the status of major human infections around the world. Dr Heiman Wertheim, one of its editors, reflects on the reasons for compiling the atlas and on the necessity of good data for a better understanding of infectious diseases.
"There is a pressing need for good maps with verifiable sources. And collecting all of these infectious disease maps together in one book would allow the reader to leaf through and discover similarities between diseases and ecological niches, which help in understanding their distribution". "The map-making began in 2007; several maps made at that time needed an update by the end of 2010. As the distribution of infectious diseases adjusts to a shifting environment (war, deforestation, flooding and other changes), maps need periodic updates". Therefore, this atlas should be seen as a starting point and a living document.
Besides showing the status of infectious diseases through to 2011, the atlas also helps explain why diseases occur where they do, by showing the driving forces behind them. This atlas should inspire health professionals to submit their own epidemiological data when they see it has not been included. In particular, data from Africa is often absent due to lack of good diagnostics or of any incentive to publish findings. It is worrying that most countries on this vast continent are regularly depicted in the grayscale of 'No data', except when it concerns HIV, malaria, poverty or lack of sanitation, said Dr. Heiman. "We hope this will change in the near future with the help of this atlas". Too often the aetiology of disease syndromes is based on data from the 'developed world'. This is often misleading: for instance, Streptococcus suis is a common cause of adult bacterial meningitis in several South-east Asian countries, where it is more frequent than the Streptococcus pneumoniae or Neisseria meningitidisthat typically cause the disease in Western countries. This kind of information has important consequences for treatment.

Study links drought in East Africa to pacific sea temperature

Researchers in the United States have found a link between low rainfall in East Africa during the March-May rainy season, and changes in sea surface temperature in the tropical Pacific Ocean. The region endured a catastrophic drought last year. The lack of rain in 2010 during the October-December rain season - known as the 'short rains' - was widely anticipated due to an established link between these rains and El Nino and La Nina events.
But researchers say last year's failure of the region's other key rains - the so-called 'long rains', which tend to fall between March and May - was much harder to anticipate. "Historically, the long rains have not shown a strong relationship to El Nino and La Nina the way the short rains do," said Bradfield Lyon, a co-author of the study and climate scientist at Columbia University's Earth Institute. Lyon and colleague David DeWitt have now identified a link between the 'long rains' and ocean temperatures in the Pacific.
They noted that in 1999, there was an abrupt change in Pacific Ocean surface temperatures. The western Pacific surface became warmer, while surface temperatures in the eastern Pacific became cooler. Historical climate observations were combined with climate model experiments, and the authors concluded that these changes were strongly linked to "a similarly abrupt decline in East African long rains that occurred around that time". Their findings were published in Geophysical Research Letters in January. Link to abstract in Geophysical Research Letters. The researchers did not find an explanation for the change in ocean temperatures. And long-term climate change, which their study did not address, "may further complicate the picture", Lyon said. They also warn that the disruption to the 'long rains' may continue for a few more years. "The slowly varying nature of these ocean conditions suggests that the current pattern may persist for several years to come," Lyon said, although he added there may be variations from one year to the next.

Chris Funk, a climatologist with the Famine Early Warning Systems Network (FEWS NET), said this was "an excellent study". The paper "makes an eloquent case that it has really been changes in the central-western Pacific that have been most important" in affecting the long rains, he said, adding "it will likely lead to improved forecasts". Funk said his own research, motivated by the study, had shown that seven of the past eight failed 'long rains' were linked to Pacific sea temperatures. "This research is already influencing climate forecasting and food security preparedness in a positive way," he added.

South Africa and Australasia may have to 'share' SKA

Speculation is growing that South Africa and Australia may be asked to join forces in building and operating the Square Kilometre Array - the world's most powerful radio telescope - following a decision to delay an announcement on where it will ultimately be based.
Scientists hope the telescope will help answer fundamental questions about the universe, including its origin and evolution, and whether it contains life beyond our planet. Both countries had previously been asked to submit separate bids for the telescope, which is likely to cost at least $US2 billion, and whose 3,000 receptors have been designed to make the telescope 50 times more sensitive to radio waves than any existing facility. The SKA Organisation - the international consortium responsible for the project - had been due to announce which bid had been successful, but at the end of a two-day meeting in the Netherlands, it issued a statement on 4 April saying that its members had recognised that it was "desirable to maintain an inclusive approach".
The statement added that the members considered it to be "important to maximise the value from the investments made by both candidate host regions". As a result, a small scientific working group has been set up "to explore possible implementation options that would achieve this". Officials from the organisation have declined to elaborate further or to provide any further details on what these options might be, citing the need to keep the negotiations confidential. One possibility that has been raised is that receptors built in South Africa, Australia and New Zealand - which is a partner to the Australian bid - might be programmed to operate jointly. However other commentators question whether the two sets of receptors can look at the same part of the sky simultaneously, given that Australia and South Africa are on opposite sides of the Southern hemisphere.
Unconfirmed reports in the Australian media have suggested that a panel of scientific experts had given their preference to the South Africa bid, which would involve building receiving stations in at least eight other African nations. South Africa's Science Ministry has strongly rejected suggestions that this option represented a "sympathy decision". Officials insist the country has the capacity to host the facility, and supporters of the South African bid have also emphasised the potential role of the SKA project to boost the image of science and technology in Africa. Relevant Links: International Radio Astronomy Project to Benefit Africa, International Board to Discuss Radio Telescope Bid, Govt Confident of Hosting Massive Telescope, SKA Host Decision 'To Be Negotiated', DA Calls for End to SKA Bid Announcement Delays.

Tunisia need better maps to build a better interior nation

The geospatial information technology is a broad field and transcends the standard geospatial information products we all know. Airborne Light Detection and Ranging (LIDAR) technology and 3D point cloud systems, for example, are not sought after by everyday consumer. The former measures the distance to, and between, objects, and the latter maps the contours of surfaces in 3D. And they do so with astounding precision. What relevance does the most cutting-edge geospatial technology have for Tunisia as it seeks to revitalize industry and infrastructure throughout the country?
At the first ever Geospatial Conference in Tunisia (GCT), held from February 9th to 10th, the consensus was loud and clear: Tunisia must revamp its cartography with the latest geospatial innovations if it wants to develop efficient industries and infrastructure projects across the country. In his welcome address at the conference, Stefan Oeldenberger, managing director of 3G affirmed that the questions on “locations, weather patterns, topography and environs among others can be accurately answered by the latest geospatial information technologies and "[save] the people of a country millions of hours of searching for locations, lost time and gasoline wasted." These pressing questions are pertinent to a promising industry. Tunisia’s southern interior of Tunisia has historically been marginalized, with roads in poor condition, and no other major means of transport available. While all major Tunisian political parties have made development of the interior a talking point, no development may be possible without reliable geospatial data. "Cartographic data

for the most underdeveloped regions are not updated - almost 70 years old. To develop these regions, we must first update the data," said Mahdi Chakroun, manager of the Tunisian Association of Expert Surveyors, during a conversation at the conference's business-to-business (B2B) area.
But before such data can be gathered and the potential benefits reaped, Tunisia must first face a ghost from the country's repressive past. According to Oeldenberger, "restrictive data handling," restriction of cartographic information, in Tunisia remains a major challenge to the deployment of geospatial technologies. It remains legally unclear, for example, whether or not aerial surveying by non-government agencies is permissible in Tunisia, and no clear judicial framework concerning geospatial data acquisition exists. Previously, said Oeldenberger, such data could only be accessed by the military, something which may have put Tunisia twenty or thirty years behind the curve. According to Oeldenberger, US and European information laws could serve as a model if Tunisia wishes to reform. The Geospatial Conference in Tunisia boasted a full agenda of presentations from leading companies and academics in the industry. It was organized by the German Chamber of Commerce (AHK) and the German GeoConsultants Group (3G) - a consortium of associated companies that provide geospatial consulting and services in Europe, North Africa, and the Middle East. From the very start of the GCT, its organizers were sure to emphasize the connection between geospatial information technology and economic growth. "Geospatial data is a catalyst and a necessary management tool to design, build and maintain a new infrastructure for the 21st century - with new roads, railroads, harbours, airports and industries that will provide jobs for millions of people in the region," stated Oeldenberger.

Etisalat and ESRI partner on polio monitoring APP in Nigeria

Etisalat announced its partnership with the Economic and Social Research Institute (ESRI) to deploy android based Geographic Information Systems (GIS) applications for the mapping of polio risk areas and tracking of routes covered by Polio immunization teams during vaccinations in Nigeria.
The polio tracking application is designed to help achieve safe threshold of vaccinating at least 85% of the child population in risk areas, a threshold that public health scientists consider sufficient to prevent further polio recurrence. The first phase of this application will be deployed to polio high risk areas in the Northern parts of Nigeria. The application, which depends on Etisalat's reliable data services and its Gaga Smartphones, tracks areas covered by vaccinators in high risk polio locations and upload acquired tracks into an Esri ArcGIS server, via GPS. Uploaded server information are used for map creation (risk mapping) and generation of automated reports, which can show the distribution of risk, success, activities, findings, and plans, for polio teams, programme managers, donors, and other stakeholders.
Speaking on the partnership, Chief Commercial Officer, Etisalat Nigeria, Wael Ammar, commended the efforts made so far by the federal, state and local governments as well as individuals and NGOs in ridding the country of the polio disease. He highlighted the importance of the polio monitoring application which helps in tracking the risk areas. Relevant Links: Two New Wild Polio Cases Found in Sokoto, Polio Claims One Million Children Annually - Anyim, Polio - 40 Monitors Fired for Negligence, Niger Records First Polio Case in Three Years, Wild Polio Virus Re-Appears in Niger State.

Nigeria to launch cube satellite

Chief Executive of the Centre for Satellite Technology Development (CSTD), Dr. Spencer Onuh, in this interview with NGOZI OBOH, says arrangements are in top gear to deliver Nigeria's cube satellite (Cubesat), a type of miniaturized satellite for space research that usually has a volume of one litre (10cm cube), a mass of not more than 1.33kg, and typically uses commercial off-the-shelf electronics components. Cubesat is a satellite of the size of a cube: 10cm X 10cm X 10cm. It is functional satellite depending on the payload you have: it could be imaging; it could be earth observation; it can sensor; you can test and it is used a lot for scientific purposes. One of the projects CSTD is working on is reaction wheel. You can use this reaction wheel on your own cubesat. When it is space qualified, you can then know what to use it for. You can use it on other satellites. It depends on the agility of the reaction wheel. Cubesat is for scientific research purposes; if you want to study atmospheric pressure, density in the high end there, those are the things you use. They serve meteorological purposes but they are not 15-year or five-year life span type of satellite. They do not last long. It depends on the robustness of the design. Some last for about 18 months, some six or two

months but that can give you enormous information which you can use for further development of your sub-system which you have designed.
Normally, it will cost about $30 million to build pico satellites for such size but Nigeria is looking at spending $80million considering other logistics associated with it. The economic impact is enormous because you are looking at satellites that can generate information worth than N1billion in a year when fully operational. This will be generated from sales of satellite imagery. Images will be needed for the Nigerian and African economy. Images are those required for emergency management, monitoring of projects like the MDGs. Images of how a particular location where the project is sited will be provided and after the project the image will be taken also. So with the satellite imageries they can compare with images submitted by the contractors. The satellite will be programmed in such a way that it passes through Nigeria four times a day.
When you look at the projection for Nigeria's MGDs office alone, they will need images worth about N3billion alone in a year. That is just a sector in Nigeria; then National Emergency Management Agency (NEMA), and others that use Geographic Information System (GIS). The project is looking at generating about N5billion annually from Nigeria alone. Other African countries are also market. The satellites will be useful for emergency management especially for disaster. It can be used to monitor ecological problems like oil spillage and flooding.

Partnership helps rarest ape through technology in Nigeria

The Cross River gorilla was considered extinct until the 1980s, when it was sighted in its only known habitat, the mountainous rain forest along the Cameroon-Nigeria border. With fewer than 300 individuals of this unique subspecies remaining, it is the most endangered African ape. But there is good news as governments and conservation groups work to protect the gorilla and its habitat. In cooperation with international partners, efforts to conserve the Cross River gorilla are supported by the New York-based Wildlife Conservation Society (WCS), the U.S. Agency for International Development (USAID), and the U.S. Fish and Wildlife Service (USFWS) through its Wildlife Without Borders program's Great Ape Conservation Fund.
"The Wildlife Without Borders program works at the species, regional and global levels to leverage conservation actions designed to help restore at-risk species, enhance local people's capacity to conserve wildlife and collaborate with partners to identify critical conservation issues of mutual concern," USFWS Director Dan Ashe said. "This program provides crucial assistance to government agencies and organizations in Cameroon and Nigeria in developing a coordinated approach among Cross River gorilla partners," Ashe said.
Encroachment of human settlements and farms upon gorilla habitat has isolated and fragmented the Cross River gorilla's population and poses a major threat. Diseases and hunting for "bushmeat," sold for food, also threaten these apes, making protection measures urgent. At a February multipartner meeting, "we prioritized a number of forest areas that, if adequately protected and managed, can serve as corridors between groups of gorillas that would otherwise become increasingly isolated," WCS gorilla expert Liz Macfie said in an email interview. Isolation could lead to local extinction, she said. Conservation strategies include establishing sanctuaries where gorilla protection is strictly enforced; educating the local populace about the importance of gorilla conservation; and involving villagers in conservation programs that generate sustainable livelihoods. Cameroon's Takamanda National Park, a transboundary protected area adjoining Nigeria's Cross River National Park, was established after years of work by WCS and the Cameroonian government. The sanctuary is a base for research and outreach to local communities.
Good news about Cross River gorillas came recently when the results of a scientific study were published in the online journal Oryx. Scientists from WCS, the North Carolina Zoo, Cameroon and Nigeria used satellite images and ground surveys to assess the gorilla's range, finding that the gorillas roamed more than 50 percent more territory than previously thought. Data collection in the remote area was simplified by GPS technology and CyberTracker software. Park rangers use a touch-screen system that was originally designed for illiterate trackers to monitor wildlife in South Africa. It enables precise location mapping and on-site data recording. "A large number of local people are involved in the conservation efforts of these gorillas," Macfie said. In Nigeria's Mbe Mountains, a community-managed wildlife sanctuary employs local "ecoguards" who monitor the gorilla population with CyberTracker. She added that Cameroonian rangers plan a visit "to exchange lessons learned and see the system in operation before rolling out a similar program in Cameroon."
Grants from the USFWS Multinational Species Conservation Funds help conserve African elephant, rhinoceros and tiger populations and Asian and African elephant and marine turtle populations in their range countries around the world. According to USFWS, the status of some species has improved as a result,

although much more must be done to conserve critically endangered species. Fifty-one new grants from the Great Ape Conservation Fund in 2011 total nearly $4 million in leveraged funds for projects in Africa. USAID funds gorilla conservation in Cameroon through USFWS. USAID's Central Africa Regional Program for the Environment (CARPE) has invested more than $60 million to promote sustainable natural resource management in the Congo Basin, including great ape conservation in Cameroon and Nigeria.

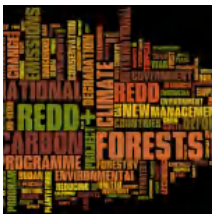
Accountability tool launched in Liberia to track service delivery

On April 19, 2012, the Liberia Media Center launched a new web-based application design to monitor, track and score government's progress in the implementation of the 150days Action Plan. The Action Plan was adopted on 1st February, as an interim development policy framework for the Government of President Ellen Johnson Sirleaf. The system works by gathering reports on progress around each of the 83 development action steps (promises) and illustrating the progress through a statistically supported web-based graphical application. The design concept allows for tracking progress at promise, sub-pillar and pillar levels through graphical representation. The reports or evidence of progress are typically collected as news reports, field reports, or official reports solicited through FOI Request.

Launching the tool, IREX Chief of Party Tilly Reed said the “tracking barometer of the government’s deliverables, in our view lends support to IREX Year Three Theme ““Fighting corruption, promoting gender and youth development and reconciling Liberians”, as a more transparent Liberian government is pivotal to achieving each component of this theme. She said the tool is a “useful platform for policymakers to track progress on government’s successes without necessarily doing much leg work of their own. They would be able to see, via a single interface, the performance of different sector agencies.”

With this application, the statistical system will automatically upload to the site the data that has been keyed in from the field. The site has three main interfaces. The home and loading page loads the application and presents overall percentage of progress based on the performance at promise level. The pillar group status loads and presents overall progress at pillar group level and the sub pillar group level, which loads and present overall progress at that level. The next level is the promise level, which captures the status of progress across the promise level and is represented as a fraction of the total percentage. The goal of the initiative is to improve service delivery through improved oversight from non-state actors including civil society and the media.

Tanzania’s carbon measurement plan succeeds



In the thicket of Masito-Ugalla forest, a group of young- men are struggling to use a set of modern gadgets, including a global positioning system (GPS), tapes, calibrated rulers and several other tools to pinpoint location, trunk size and the height of trees for purposes of carbon measurement. Most of the young men (women are not participating because of the nature of the job) are primary school leavers and their main activities until recently were farming, fishing, carpentry, masonry, charcoal making and illegal logging. But all that has changed. They have undergone basic training in forest carbon measurement under the Jane Goodall Institute's (JGI) REDD Pilot Project involving seven villages of Kigoma Rural district.

Reducing Emissions from Deforestation and Forest Degradation (REDD) is a United Nations (UN) touted carbon trading scheme that seeks to compensate forest owners, including local communities, for keeping their forests intact as carbon sinks to mitigate the impact of global warming. Scientists argue that deforestation and forest degradation which is common in developing countries account for about 20 per cent of greenhouse gas emissions. Much of the forest degradation is caused by human activities such as farming, timber processing and logging, often done by neighbouring villagers, which is why the JGI’s project is targeting to sensitize communities by providing skills that support them to survive without cutting trees.

At Pansiasi College for Wildlife in Mwanza, the Forester Monitors (FMs) spend some three months learning basic techniques of wildlife conservation, protection and additional skills such as forest carbon measurement. According to JGI’s REDD Project Director, Edwin Nssoko, the FMs have been trained by experts in forest carbon measurement from Sokoine University of Agriculture (SUA), University of Dar es Salaam (UDSM), and the Ministry of Natural Resources and Tourism. Additional training on forest carbon measurement was provided to the forest monitors by the National Forest Resources Monitoring and Assessment (NAFORMA) experts so that they can be able to continue undertaking the work when the project finally comes to an end. So far the JGI REDD pilot project has given one GPS gadget to each of the seven villages involved plus a

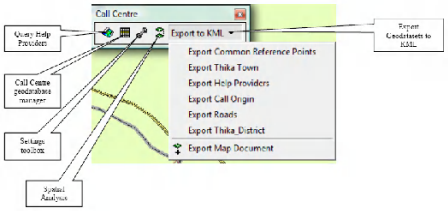
set of supporting equipment to be used in the complicated exercise that many would think is the domain of graduate scientists. Additional GPS's and supporting equipment will be provided to villages later this year.
"Anyone with some basic reading and writing knowledge can do this," said Dr Eliakimu Zahabu of SUA who has been involved in training of the Kigoma Rural villagers. Dr Zahabu said SUA has been undertaking such forest carbon measurement training for villagers since 2000 to enable them to acquire vital skills to do the work of carbon measurement on their own rather than seek services from external consultants who would demand hiked fees. "Over the course of the three year project, JGI will develop methodologies and provide technical training to communities and local and national government partners to undertake inventory, monitor and manage their forests," said a statement released by the Institute soon after receiving funding from the Norwegian government in 2010. JGI will use a number of cutting edge technologies in partnership with Woods Hole Research Centre, Google Earth, ESRI and Digital Globe, such as a mobile Android/ODK application running on Android smart phones, tablets and Web-based mapping systems along with GIS and high-resolution satellite imagery. "By using geospatial technologies and the Internet, local communities will be able to interact directly with the global carbon marketplace and demonstrate unequivocally the concrete benefits of their efforts to protect the forest," said Dr Lilian Pintea, Director of Conservation Science at the Jane Goodall Institute, in a statement. Norway has provided 80 million US dollars (approx. 127.4bn/-) over five years since 2008, towards REDD initiatives in Tanzania.

Chinese to help map mining potential in Ethiopia

The Ministry of Mines (MoM), in collaboration with the Mines Bureau of Chongqing State, China, is to prepare various maps for mining investment covering 120sqkm of land in southern and south-western Ethiopia. This collaboration was born out of a memorandum of understanding, (MoU) signed in December, 2011, between the Bureau of Mines & Minerals Exploration Development of China, the Ethiopian Geological Survey (EGS), and the Ministry of Mines (MoM), which was an outcome of Prime Minister Meles Zenawi's visit to Chongqing in August of the same year, meeting with Bo Xilai, the state's secretary of municipal committees, in the company of Sufian Ahmed, minister of Finance & Economic Development (MoFED).
Geological experts from the Chinese Bureau presented a project proposal, following their own preliminary study, to the top management of the MoM, including Sinkinesh Ejigu, the minister, on Tuesday March 28, 2012, at the MoM's head office along the road to CMC. "Since it is a joint project, we need to review it," Masresha Gebreselassie, general director of EGS, said, commenting that the proposal would be referred to the MoFED within two weeks' time. A binding contract will be signed following a nod from this Ministry. This project will take five years, fieldwork beginning in 2013. The Chinese Bureau will put 40 of its experts and 10 million dollars into it, three million of this in the first year alone.
The project includes developing geological, mining, and geophysical maps of the area, based on various studies, including some test drilling, if necessary. The maps will provide basic geoscience information for private investors that wish to involve in mineral development and exploration. "The study will be conducted in areas that are not being developed by companies," Maseresha said. The Ministry, which to date has given around 200 licenses, including 56 exploration and seven production licenses last year to 100 local and international companies, has ceased issuing licenses for the past five months. Most of the existing concessions are situated in northern and western Ethiopia, for which better basic geological information is available. More than half of the 56 licences issued are located in Oromia and Benishangul Gumuz regional states. The Geological Survey of China prepared maps for these two areas.
Investors have incurred additional costs to conduct basic studies on their own, according to Melaku Beza, CEO of National Mining Corporation (NMC), which recently announced the largest ever finds of gold reserves in Ethiopia, in Oromia and Tigray regional states. "Because there was no basic data in the north, we were obliged to carry out the study at our own expense," he said. "Since the country did not have the skilled manpower in the sector to collect and analyse data, it has been a challenge for companies." The new study is part of the government's plan to increase the coverage of geological related mapping from 50pc to 100pc in the five-year period, ending in 2014/15, as well as increasing evaluated and delineated areas of potential industrial exploration from 48 to 77. Deposits of 22 different minerals, including some industrial minerals are available at the 48 sites, EGS data shows. Some, such as phosphate, gypsum, and shale oil, are already being extracted. The government plans in its Growth & Transformation Plan (GTP) to increase foreign currency generated from minerals from 108 million dollars to 277 million dollars, by the end of the period. During the past six months alone, mining investment has contributed 48.3 million dollars, achieving 97pc of what the Ministry planned of 50 million dollars, according to data of the MoM. The Ministry has collected 62.2

million Br in the form of royalties from 16 companies, of which MIDROC Gold Mine Plc has paid the highest, at 60.1 million Br.

Kenya National Domestic Violence Call Center (K-NDVCC): Prototype and pilot implementation



David Ndegwa Kuria (Department of Geomatic Engineering and Geospatial Information Sciences, Kimathi University College of Technology, Kenya), Moses Murimi Ngigi and Moses Karoki Gacharia (Department of Geomatic Engineering and Geospatial Information Systems, Jomo Kenyatta University of Agriculture and Technology) and John Gitau Kahiu (SERVIR-Africa, Regional Center for Mapping of Resources for Development, Kenya).

Domestic violence can involve men to women, men to children, women to children and sometimes women to men. Domestic violence in Kenya is mostly prevalent in middle-income and lower-income levels of the society. In this paper, a prototype system is implemented to administer and manage a national domestic violence call center. This is a GIS-based call center system supporting distress calls by: (i) automatically identifying callers' locations, (ii) Quickly assessing accurate spatial information from its database about nearby advocate resources and reporting back to the caller, the identified advocate, and (iii) publishing maps in Keyhole Markup Language for viewing in software supporting open standards such as Google Earth. The system was validated using sample data collected from Juja location. This prototype shows promise of being able to offer rapid and timely responses to domestic violence (and other) distress requests utilizing geospatially enabled technologies. 2012 International Transaction Journal of Engineering, Management & Applied Sciences & Technologies. Available online.

New Reports: Spatial Data Infrastructure in Uganda - Feasibility study and report on monitoring development outcomes using SDI

These reports, part of the Spatial Data Infrastructure for Development (SDI4MDGs) project supported by the Korean Trust Fund on ICT for Development, explore the role of spatial data infrastructure in Uganda. View the full series of publications in the SDI4MDGs project at the GIS topic page.

infoDev has released two new studies exploring the role of spatial data infrastructure in Uganda:

Feasibility Study for a National Spatial Data Infrastructure in Uganda. This report proposes visions and goals for a sustainable Spatial Data Infrastructure in Uganda. It explores the national mapping organizations/agencies, industry, the role of the private sector marketing and promotion of national SDI initiatives; data issues which refer to standards, availability of digital datasets in the country; problems of inadequate technology, availability of trained manpower, policy and other issues like metadata which involves thematic datasets, fundamental datasets, and data clearing house issues.

The communication strategy for UGSDI awareness creation and information dissemination is also discussed in this study, including the overall strategy, communication process objectives, target audiences both Primary and Secondary Audiences. The general talking points in the UGSDI messages will be having specific themes, with opportunities and tactics which facilitate delivery to the targeted audience. Some of the strategies will involve publications, email, website, PowerPoint presentations workshop, seminar, conference, activities and other public, opportunities, face-to-face meetings with key partners and stakeholder groups. The Implementation plan for UGSDI involves stages and outcomes these stages are divided in quarters within a period of 5 years, each stage yields an outcome that is used in the next stage, issues, goals and proposed actions are also discussed in this chapter with the expected outcomes.

Spatial Data Infrastructure for Monitoring Development Outcomes in Uganda

This report draws lessons from international SDI trends to navigate and propose a long-term architecture for a National Spatial Data Infrastructure in Uganda. SDI has been identified as an effective tool for monitoring development outcomes, including MDGs, in Uganda, this can be best applied by the Land Information Systems, National cadastres, environmental management, the electoral process, education, healthcare, e-government services and transportation planning . Common to programme planning across many of these services is the setting of quantitative and qualitative objectives and regularly measuring progress towards them. There are a number of isolated activities and initiatives in Uganda that are directed to the realization of SDI objectives. These include using GIS tools to collect, analyze and publish data as well as setting up

programs. While the longer-term architecture and application areas of an SDI will be generic and cross-disciplinary, focus initially on specific application areas that address well-articulated needs. When concrete application areas are absent, SDI initiatives tend to lose traction. A Mitigation plan for technological challenges during the early phases of SDI implementation activities should also be taken care of with legislation as a powerful SDI enabler. All stakeholders therefore, need to be engaged and encouraged to remain at the NSDI table.

Rwanda has now digitized over 4.6 million land parcels

Rwanda Natural Resources Authority (RNRA) has digitalized 4,611,824 parcels of land countrywide, according to an official. Parfait Karekezi, the Geographic Information System (GIS) Specialist at RNRA, said the process is moving on well despite the fact that it's labour intensive and very time-consuming. "We are trying our level best to digitalize all pieces of land before this year ends. We have so far finished Kirehe District as well as all districts in Kigali City," he said.

Karekezi pointed out that the process is important because it helps to correct errors or distortions in the original maps at the time of land demarcation and adjudication. The land body has so far demarcated and adjudicated 9 million parcels of land countrywide. He said that the modernization of land records by digitalizing the cadastral maps leads to better land management for future reference in case of land conflicts.

According to Thierry Hoza Ngoga, Division Manager, Land Technical Operations at RNRA, the process enables the institution to have all plots of land put in digital archives. "The digitalization process assists us to effectively manage and safely keep our records. As our country moves from analogue to digital, we need to have all the information digitalized in electronic format," he noted. Ngoga pointed out that the institution is moving away from working on paper. The digitalisation of parcels also helps to update the land registration database.

Namibia urged to strengthen early warning system for floods

There is an urgent need to strengthen early warning, monitoring and response mechanisms to prepare for future floods in Namibia. This is one of 19 recommendations proposed in the National Response to the 2011 Flood Disaster Report launched by Deputy Prime Minister Marco Hausiku. The Flood Emergency Management Co-coordinating Office (FEMCO) received about N$2.5 million for its operations during the floods after President Hifikepunye Pohamba declared the floods a state of emergency on 29 March 2011.

FEMCO was established following a Cabinet decision on the same day, with the purpose to provide effective and efficient responses to flooding. Another recommendation is to shift away from emergency response to disaster risk reduction, incorporating integrated approaches within the different Government sectors, as well as in the work plans of various development partners. The report further stressed that uniform reporting formats for future flood responses are critical, while permanent relocation from flood-prone areas, and enhancement of floodwater movement through its natural routes can immensely reduce the flood effects. An estimated 111 people drowned during the 2011 floods in the north and north-eastern regions of the country. Forty percent of all drowning deaths were reported in the Oshana Region. By June/July 2011, a total of 138 295 people were affected by the floods, and 17 555 people were relocated to 97 relocation centres in May last year. Most of the people, who were relocated, are from the Caprivi Region. During the launch of the report Hausiku said the Government intends to organise a workshop soon to discuss the practical mainstreaming of the recommendations made. The north and north-eastern regions were severely affected by flooding last year.

Protocol on Global Navigation Satellite Systems (GNSS) set up in Mozambique

The mining company Rio Tinto Coal Mozambique signed a cooperation protocol on Friday with the Mozambican Ministry of Agriculture on establishing and maintaining permanent GNSS (Global Navigation Satellite Systems) stations in Mozambique. These stations make it possible to improve GPS (Global Positioning System) signals, thus allowing greater efficiency and precision in collecting geo-referenced information. According to a Rio Tinto press release, the purpose of the protocol is to define forms of technical and scientific cooperation in setting up, using and maintaining Permanent Satellite Stations in Mozambique. The Protocol will be managed by the National Mapping and Remote Sensing Centre (CENACARTA).

Currently the GNSS network in Mozambique has only four permanent stations, in the cities of Maputo, Inhambane, Nampula and Pemba. "To ensure coverage of the entire national territory, other stations must be built in the interior of the country", said the release. Rio Tinto had already set up a station of its own in Tete province, where it is operating a gigantic open cast coal mine. This week Rio Tinto handed management of

the station over to CENACARTA. It claims that the Tete station increases the capacity of the network by 50 per cent. Further stations are planned for Beira, Quelimane and Lichinga. Construction should be concluded by the end of the year, and between them the stations should provide total coverage of Mozambique. The Permanent Satellite Stations are owned by the Mozambican state and the information they provide is for public access. "This will be fundamental for improving the collection of geographical data for developing structured plans for urban planning, 4-D monitoring systems, and control of dredging, among others", added the release.
Through the protocol, Rio Tinto and the Ministry of Agriculture pledge to promote joint studies to improve the skills of local technical staff, and consolidate their capacity to intervene in development projects. Mozambican universities will also be supported in promoting such disciplines as surveying, geomatics and geography in general. The Chief Executive Office of Rio Tinto in Mozambique, Eric Finlayson, said "This protocol is an important landmark in the efforts of Rio Tinto to promote cooperation with the Mozambican government in order to develop the country". He added that the partnership "will place CENACARTA in the technological vanguard", and would drive the development of Tete, and eventually of the rest of Mozambique and of SADC (Southern African Development Community).

Villagers to be trained safe demining method in Zimbabwe

The Zimbabwe National Army demining campaign over the past six years has cleared over 33 560 out of an estimated three million landmines that were planted by Rhodesian forces along Zimbabwe's borders. The figure translates to 270 kilometres. In an interview on the progress of demining exercise underway in Gonarezhou Transfrontier Park, Deputy Commander of Zimbabwe National Army Engineers Corps, Lieutenant Colonel Aaron Edwards said lack of equipment was slowing down the exercise. "Landmines that were planted cover 850 kilometres meaning we still have 580 kilometres of land to be cleared," said Lt Col Edwards. "Some of the landmines have been destroyed by animals and weather action over the three decades."We do not have exact figures of the planted landmines but investigations by our deminers and also the number of landmines that we are uncovering per kilometre show us that roughly there might be 3 million."
Lt Col Edwards said maps that show the exact areas where landmines are and their pattern were taken by the Rhodesians when they left the country. Mukumbura locals were going to be employed by HALO Trust a non-governmental organisation that has come to the aid of ZNA. "We told HALO Trust that they must bring in few expatriates when they start demining operations. This will ensure that our people who have suffered from the effects of landmines have something to smile about.
"The locals know the landmines and some are even removing them on their own as they farm in their fields. They however will be trained on the safest way to do it using latest equipment. "The coming of this organisation is a morale booster to our troops and the nation as we would be able to confront this daunting task from two different fronts," he said. ZNA deminers are clearing landmines in Gwaivhi along the Zimbabwe, South Africa and Mozambique border where they are confronted with a 54-kilometre double stretch minefield.

Esri Eastern Africa User Conference, 3-5 October 2012, Naivasha Sopa Lodge, Kenya

The Esri Eastern Africa User Conference will be held in Kenya from 3 to 5 October 2012 at Lake Naivasha Sopa Lodge. The shoreline of Lake Naivasha, a fresh water lake in the Great Rift Valley, will provide the ideal setting for Esri software users from across Eastern Africa to learn more about the latest technology and to share their experiences.
Esri software users are invited to present a paper which will showcase the use of Esri software in their particular field of work and/or further the science of GIS. All papers presented at the conference are eligible for publication in the conference proceedings. Get more information on how to submit your paper presentation and the requirements needed.

AARSE 2012 International Conference, 29 October- 2 November 2012, El Jadida, Morocco.

The Conference Theme: Earth Observation & Geo-information Sciences for Environment and Development in Africa: Global Vision and Local Action Synergy.
The 9th AARSE International Conference, AARSE 2012, on Earth Observation & Geo-information Sciences for Environment and Development in Africa: Global Vision and Local Action Synergy will be held in El Jadida, Morocco, at the Faculty of Science, Chouaib Douakkali University from October, 29 to November 2, 2012. The conference will be a major event in the African and international community of Earth observation and geo-spatial information science in

2012; organized by the African Association of Remote Sensing of the Environment (AARSE) and the Chouaib Douakkali University, Faculty of Sciences (CDU_FS), in partnership with the International Islamic Organization for Education, Science and Culture (ISESCO) and the Moroccan Association of Remote Sensing of the Environment (MARSE).
Paper selection is based on abstract and full paper peer review following the guidelines provided in the "Call for Paper" document downloadable from the conference website: www.aarse2012.org. Abstract submission opens on 2 January to 30 April 2012. Questions regarding abstracts should be e-mailed to abstracts@aarse2012.org.

- **AARSE AWARDS** - All presenters are invited and encouraged to enter the AARSE award-winning competition for best paper presentation and best poster.
- **IEEE GRSS/AARSE TRAVEL FELLOWSHIPS** - To support travel costs, accommodation and registration fees to attend conferences of the two societies in the field of Earth observation by remote sensing. The beneficiaries of these conference fellowships shall be African scientists or students who have their paper accepted for oral or poster presentation at the AARSE biennial conference.

Practical SDI implementation materials from within and outside of Africa

Satellites and Google Earth: A potent conservation tool

Armed with vivid images from space and remote sensing data, scientists, environmentalists, and armchair conservationists are now tracking threats to the planet and making the information available to anyone with an Internet connection.
An upcoming special issue of the journal Environment and Urbanization will tell their stories. One paper describes mapping in Epworth, a slum suburb of Harare, the capital of Zimbabwe. Residents "armed with tape measures and paint" located the boundaries of every plot, marking hedges, wells, and toilets, as well as roads, drainage ditches, and other infrastructure, before digitizing the information and superimposing it onto satellite images from Google Earth. Then, says Beth Chitekwe-Biti of the Dialogue on Shelter for the Homeless in Zimbabwe Trust, a Zimbabwean NGO, they took the digitized data to planning officers as part of a campaign to get their tenure in the squatter colony officially recognized in law.
Similar projects are documented in slums in Cuttack in the Indian state of Orissa, Nairobi in Kenya, and several cities in Uganda. The journal's editors conclude that when officials no longer see slums as hostile, unknown territory - when they recognize them as places where real people have lived for decades, building communities, improving their streets, and running businesses, then they will begin to see the point of preserving and investing in them, rather than sweeping them away. Similarly, the hope is that once rainforest inhabitants are seen as custodians of the forests rather than destroyers, then their rights too may be more easily secured. Read more...

GPS technology maps land rights for Africa's 'forest people'

In the lush rainforests of Africa's Congo Basin, hundreds of thousands of indigenous people live as hunter gatherers, depending on the forest's natural resources for their survival. Yet most have no legal rights to the land that has been their home for millennia.
But GPS technology is helping indigenous people map the land they call home and produce documents that can help preserve their access to the forest that is their lifeblood. Rainforest Foundation UK (RFUK) is one group that organizes "community mapping" projects in central Africa's Congo Basin. Spread across six countries, and covering more than 1.3 million square miles - the Congo Basin includes an expanse of rainforest second only in size to the Amazon. It is also home to 40 million people, including up to half a million hunter-gatherer people, often referred to as "pygmies," whose lives are intimately linked to the rainforest.
RFUK's "Mapping for Rights" program trains forest people to map their land using GPS devices, marking the areas they use for activities such as hunting and fishing - as well as their sacred sites - and the routes they use to access these vital areas. The GPS information is used to create a definitive map of the land used by these semi-nomadic communities, which can be used to challenge decisions that see them excluded from areas of forest. Once the indigenous people have the map they must be supported to have discussions, negotiations with the decision makers. "The map is not an end; it's the beginning of the process,"

The maps provide objective evidence that people rely on the land, and that continued access to it is essential for them. But is not just logging, mining and palm oil plantations that threaten the forest people; they can also find themselves excluded from land designated as a conservation area. See also: Digital Defenders: Tribal people use GPS to protect their lands.

Penguin census, completed from space, yields surprise

A new study using satellite mapping reveals there are twice as many emperor penguins in Antarctica as previously thought, scientists say. “We are delighted” with the findings, said geographer Peter Fretwell at British Antarctic Survey. “This is the first comprehensive census of a species taken from space,” said Fretwell, who is the lead author of the study, published in the research journal PLoS One. “We counted 595,000 birds, which is almost double the previous estimates of 270,000-350,000 birds.”

Researchers said the results provide key information for monitoring the impact of global warming on the iconic bird, which breeds in remote areas that are hard to study because they’re often inaccessible. Temperatures in those regions fall as low as minus 58 degrees Fahrenheit. The scientists used high-resolution satellite images to estimate the number of penguins at each colony around the coastline of Antarctica. Using a technique called pan-sharpening to boost the image resolution, they were able to tell apart birds, ice, shadow and penguin poo, or guano. They then used ground counts and aerial photography to calibrate the analysis. On the ice, emperor penguins with their black and white plumage stand out against the snow and colonies are clearly visible on satellite imagery. This allowed the team to analyze 44 colonies around the coast of Antarctica, and seven previously unknown colonies.

“The methods we used are an enormous step forward in Antarctic ecology because we can conduct research safely and efficiently with little environmental impact, and determine estimates of an entire penguin population,” said co-author Michelle LaRue from the University of Minnesota. “We now have a cost-effective way to apply our methods to other poorly-understood species in the Antarctic, to strengthen on-going field research, and to provide accurate information for international conservation efforts.” “Current research suggests that emperor penguin colonies will be seriously affected by climate change. An accurate continent-wide census that can be easily repeated on a regular basis will help us monitor more accurately the impacts of future change,” added British Antarctic Survey biologist Phil Trathan, another co-author.

Scientists worry that in some regions of Antarctica, earlier spring warming is leading to loss of sea ice habitat for emperor penguins, making their northerly colonies more vulnerable to further climate change. The new census unfortunately doesn’t change that basic outlook, Trathan said. “The effects of warming around Antarctica are regional and uneven. In the future, we anticipate that the more southerly colonies should remain, making these important sites for further research and protection.”

After generating reliable geophysical data in Nigeria, what next?

For many years the absence of reliable geophysical data has been seen as one of the many challenges hindering the development of the Mining sector in Nigeria. These challenges have stood as bottlenecks against the development of the sector and have also been one of the put-offs towards getting foreign investors to come in, as many have argued that investing in economies without reliable bankable data is a risk no investor is willing to take.

The Project Coordinator, Sustainable Management Minerals Resources Project (SMMRP) Linus Adie asserted that "that is now a thing of the past as the Nigeria Geological Survey Agency (NGSA) in collaboration with the SMMRP has generated bankable geophysical data which is already yielding amazing results". He said one of the programmes of the SMMRP was to develop geosciences information for the mining public and government, of which SMMRP/NGSA did Geophysics of 56 per cent of the country including the Niger Delta. Adie said the first aspect of developing the information was to fly and collect data while the second aspect was to do the interpretation "sometimes ago, we did the public presentation of the flying data and now we are presenting the interpretation of results." The implication of the current geodata is that it will ascertain the type, quantity and value of mineral deposits (including oil) which the Nigerian economy has. Adie said, "One of the best tools in minerals exploration is geophysics, because it determines the structures which in most cases are host to minerals. He maintained that "the interpretation results as presented by the NGSA were extremely exciting. What amazes me, even though I am at the head of the mining reforms in Nigeria, is to sit down and look at the tremendous information and progress we have made in mining within this short period, because the mining gestation period is about eight years, but within five

years which we commenced the reform process, there are many exploration companies now operating in Nigeria and many with exciting finds as a result of findings by the NGSA".
The Minister of Mines and Steel Development, Mohammed Musa Sada reiterated that "it was gratifying to note that the Nigerian Geological Survey Agency had reasonable information on Nigerian Minerals to give confidence to investors" With the new geodata, investors can access information and data on mineral availability directly from the geological survey that have the capacity and the empowerment to make available the data. Sada maintained that through the World Bank, the SMMRP and the ministry had undertaken financing of certain critical geosciences data generation projects in the country and added that the flagship of the projects included the airborne geophysical survey of Nigeria, Phase 1 and 2, will cover 100 per cent of the country's land mass, which would enable Nigeria detect its major resources. The minister maintained that all the states of the country have at least one natural resource, and that government was making sure that it utilised the opportunity as the country could now boast of over 3600 airborne geophysical maps of different scales and products aimed at mineralized targets across the country. He opined that the presentation of the data was of great importance as Nigeria for the first time had carried out airborne geophysical survey coverage of the oil rich Niger-Delta region to make assessment of petroleum depositional environment easier to assess". Sada added that he had confidence that the mining sector would take its rightful place in contributing immensely to the nation's sustainable development as government was building the capacity of the country's local miners which was critical to the pyramid structure of mining development.
National President, Association of Dimension Stone Operators, Kabir Hamayaji Umar, says the lack of geophysical data is the result of governments' failure to invest in the sector, which has hindered the development of the mining sector, compelling investors and stakeholders to work with unreliable, and in some cases no data at all. He said if more attention was given by government in promoting an enabling environment in mining, the future will be brilliant despite all the odds, including a breakdown of peace and other difficulties we may have.

GIS Tools, Software, Data

Get on the Map! For Women and Girls
Launched on International Women's Day, March 8, 2012 in partnership with Virtue Foundation and in collaboration with the Center for Geographic Analysis at Harvard, Get on the Map! For Women and Girls is a new interactive online mapping tool that showcases projects that support women and girls around the world. Through this pilot platform, organizations can share information, videos and photos about their work. Once fully populated, this tool will serve as a transformative development resource. The aim of the map is to provide a single portal where you can go to learn about organizations and projects empowering women and girls around the world.

WWF data downloads
The Conservation Science Program is developing its capacity to make available more of the data that WWF have created and/or improved. Currently this site only has a few datasets but our plan is to increase the available datasets on a regular basis. These data are available for use for valid scientific, conservation, and educational purposes and we request that the proper citations are used. Any modification of the original data by users should be noted.

- WildFinder Database
- Marine Ecoregions of the World
- Terrestrial Ecoregions Base Global Dataset
- Terrestrial Ecoregions of the World
- HydroSHEDS (global hydrological database)
- Global Lakes and Wetlands Database (GLWD)
- Global 200 Ecoregions

Atlas of Global Religions - http://worldmap.harvard.edu/maps/usefulglobal/CYM

Old Maps Online - http://www.oldmapsonline.org

Regional Centre for Mapping of Resources for Development data centre

The RCMRD Data Centre has a large LandSat Data Archive, dating back to 1972, for all African Countries. It is also a Reseller Agent in Africa for Digital Globe for QuickBird and WorldView 1/2 High-Resoultion Satellite imagery. The Centre also supplies data from GeoEye (GeoEye 1/2, Ikonos & Orbview Imagery), SPOT Image (SPOT 2.5m, SPOT 5m & SPOT 10m), USGS (Landsat MSS, Landsat TM & Landsat ETM+) amongst other active and passive satellite imagery products Datasets for Africa archived at the Centre are available at subsidized rates. Other low resolution imagery datasets (90m SRTM, NOAA, MERIS, MODIS), scanned maps and vector data for Africa are also available.
The center in collaboration with European Space Agency (ESA) and EUMESAT has established a facility for direct satellite reception for MERIS, MODIS, NOAA and EUMESAT Second Generation Meteosat data.These datasets amongst others can be accessed online via: http://www.rcmrd.org/geonetwork or via email to remote sensing(at)rcmrd.org.

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).

- 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.

Short courses by Continued Education
Courses presented in 2012 by Continued Education at UP (www.ceatup.com) and the Centre for Geoinformation Science (www.up.ac.za/cgis) on the main campus of the University of Pretoria, in Pretoria, South Africa. Enquiries and registration: Mickaele Jenkins mickaele.ce@up.ac.za.

- Introduction to GIS Standards - 10 and 17 September

Call for application for postgraduate diploma in applied Geo-Information
The National University of Rwanda through its centre for GIS and Remote Sensing (CGIS-NUR) wishes to call for 2012 intake application for its Postgraduate Diploma Programme in Applied Geographic Information Science: Geographic Information System, Remote Sensing, and their various applications.
Further information, keep visiting us on websites: www.nur.ac.rw and www.cgisnur.org. The program is run at Kigali or Butare, as evening or day program depending on the availability of students. All about postgraduate diploma programme or guidlines for filling and submitting the application information is available on:http://www.nur.ac.rw/spip.php?article30.

Institute for Capacity Development: 2012 Training Workshops
The training courses are held in Namibia (Head Office); South Africa and Zimbabwe. For the past years, ICD has been conducting international capacity building workshops for national, provincial and local officials, elected representatives, members of boards, personnel of projects as well as bilateral & multilateral agencies. A large number of high profile persons have participated in the programmes in the past and you are welcomed to one or more of the upcoming programmes in 2012.
For the full 2012 training calendars or check out the website on www.icdtraining.com. Institutions sending at least 5 participants qualify for group discounts. Contact Mr. Kenias on coordinator@icdtraining.com.

ESRI Technical Certification
ESRI has set the industry standard for GIS technology and is now establishing benchmark standards for individuals who use Esri software with the recently launched Esri Technical Certification Program. The ESRI Technical Certification Program recognizes qualified individuals who are proficient in best practices for using Esri software and are awarded in different areas of expertise at both an Associate and Professional level. The program is open to ESRI users worldwide and consists of 13 certifications recognizing expertise in desktop, developer, or enterprise use of ArcGIS. Users achieve certification by successfully completing computer-based examinations, which are offered in more than 5,000 testing locations in 165 countries.

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. ESRI is available to advice you on the best training for a particular certification and also offer you the training that you need to prepare for your certification. Read more..

ESRI South Africa presents a full spectrum of GIS courses: May 2012

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

GIS and Remote Sensing courses at Esri Eastern Africa

ESRI Eastern Africa is now offering update courses to conform to improvements in ArcGIS 10 and ENVI 4.8, conducted with skilled and experiences instructors together with conducive and state-of-the-art training facilities. Courses in the following tracks are offered:

- Fundamentals of ArcGIS Desktop
- Data and Map Production
- Geoprocessing and Analysis
- Enterprise GIS
- Multi-user Geodatabases
- Remote Sensing

Make plans and take advantage of the courses offered at the Authorized Learning Centre in Nairobi, Kenya. Arrangements can also be made for client's site training on request for 12-16 students. Download our course catalogue and current class schedule at http://www.esriea.co.ke/index.php/instructor-led-training. To register, visit http://esrieatraining.cloudapp.net/. For more information, contact by email: training@esriea.co.ke, telephone: +254 20 2713630/1/2 or visit the offices located on 3rd floor, KUSCCO Centre, Kilimanjaro Avenue, Upper Hill, Nairobi, Kenya.

University of Twente - ITC Faculty of Geo-Information and Earth Observation: Registration for courses (2012-13)

Apply online for courses starting in the academic year 2012-2013. Browse by programme (degree, diploma, and certificate), course domain (disaster management, earth sciences, geoinformatics, governance, land administration, natural resources, urban planning and water resources) or location in the course finder at www.itc.nl/CourseFinder. For printed copy of the study brochure, email: (alumni@itc.nl).

Short-courses offered by RECTAS, 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 intrested organisations. These could be either advanced or other certificate programs. Contact: info@rectas.org or 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
- 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

Scholarship: PhD in Land Governance Reform in central Africa

Countries/Region- Burundi, Rwanda, South Sudan, Netherlands Africa Studies Centre, and Nijmegen and Wageningen University jointly announce the call for application for 2 Phd Scholarships on Land Governance Reform in central Africa . The candidate will work in a team with 2 other PhD-candidates and a Post-doc researcher to investigate how land governance evolves in post-conflict situations, as an outcome of the interaction between multiple stakeholders, including government, traditional authorities, NGOs, and local people. The research will focus in particular at how decentralization influences relations of governance, how it impacts the legitimacy and authority of local institutions, and how it affects the resolution of land conflicts. A central aim of the project is to foster learning and stimulate exchange on this theme between academics, development organizations, local community institutions, and local governments.
Preferably, the research project will be carried out in Burundi, yet proposals for research carried out in DRC, Rwanda, or South Sudan will also be considered. The research includes several periods in the Netherlands for proposal writing and training (6 months) and thesis writing (6 months). For the rest of the time you will be based at your field work site. PhD candidates from non-Anglophone countries are required to submit an internationally recognized Certificate of Proficiency in the English Language (TOEFL or British Council, IELTS). Deadline for submission: 15 May 2012.

Women's Leadership Program in Education (2012) - Rwanda

Request for Applications (RFA) is invited for women's leadership Programme in education in Rwanda. This request for application is announced by Higher Education for Development (HED), in association with the United States Agency for International Development in Rwanda (USAID). HED expects to make one award of $1,080,000 for the period from October 1, 2012 to June 30, 2015 for a higher education partnership between one or more higher education institutions in the United States and the Kigali Institute of Education (KIE) in Kigali, Rwanda.
The main aim of the partnership is to support the Government of Rwanda and USAID/Rwanda's education development goals which promote gender equality and female empowerment. This partnership is part of an innovative effort known as the Women's Leadership Program, whose objective is to encourage national as well as local development goals which promote gender equality and female empowerment. Subject to the availability of U.S. government funding, HED anticipates issuing a total of five RFAs for higher education partnerships under the Women's Leadership Program in Rwanda, Paraguay, South Sudan and Armenia. Deadline: 9 July 2012.

Short course on Climate Change in South Africa

The CSAG Winter School is a two-week intensive course aimed for mid-career professionals engaged in decision and policy development which may involve issues related to climate change and adaptation.The initial phase of the project involved a large part in developing all the course curriculum and teaching materials. The course is very focused on the needs of developing countries especially in Africa, and case

studies are based around these. The course aims to address the needs of participants from these countries and understand some of their constraints.
The course facilitators are a mix of CSAG staff and researchers and specialist from other institutions including the Stockholm Environmental Institute (SEI), South African National Botanical Institution (SANBI), Council for Scientific and Industrial Research (CSIR) and City of Cape Town. A limited number of sponsorships are available for applicants especially from African countries. Deadline: 20 May 2012.

Academy of Sciences for the Developing World (TWAS) - Best Practices in Using Innovative S&T for Development
TWAS in collaboration with ISTIC (Innovation Center for South-South Collaboration) invites scientists, entrepreneurs, and others to present case studies of how innovations in science and technology have contributed to economic development. The best entries will be presented at a workshop in Malaysia later in the year, and three of them will be selected to receive cash prizes. Abstracts need to be submitted by 15 May 2012.

Australian Government - Australia Leadership Awards 2012
The Australian government makes a significant contribution to the education of talented individuals in the developing countries through its Leadership Awards. The subject areas for study correspond to priorities of Australia's aid programs by regions and countries -- and include agriculture, energy, natural resources, and environment. The deadlines for Development Scholarships and Leadership Award Scholarships are in February, March, April, and May - varying by country.

Bill and Melinda Gates Foundation - Grand Challenges to Protect Plant Crops
The Bill and Melinda Gates Foundation supports the Grand Challenges Explorations to reward innovative ideas in global health. Round 9 includes the challenge to "Protect Plant Crops from Biotic Stresses from Field to Market." Proposals should align with the priorities of the Gates Foundation in its program of agricultural development. Grants can be made to anyone from any discipline and from any organization. Initial grants are US$100 thousand. Proposals in Round 9 are due no later than 15 May 2012. Link2

Egide Association (France) - French-Egyptian Research Collaboration
"Imhotep 2013" calls for bilateral French-Egyptian research partnerships in themes that include renewable energy, agriculture, environment, biodiversity, the water cycle, and others. The program is open to applications from university research programs, research institutes, and private companies. Preference is for proposals that feature young researchers (i.e., less than five years since thesis completion). The application deadline is 31 May 2012.

ERA-ARD Transnational Call for Agricultural Research for Development
The ERA-ARD is a program of 17 European research partners to improve livelihoods in Sub-Saharan Africa through research on sustainable and climate-smart intensification of agricultural systems. Proposals are invited from transnational teams comprising at least three legal entities from at least three countries, including developing countries (i.e., in Sub-Saharan Africa). The available funding will depend on the financial contribution from each member country in the ERA-ARD. The deadline for proposals is 22 May 2012.

European Commission (EC) - Cross-Border Collaboration, Italy and Tunisia
The European Neighborhood and Partnership Instrument (ENPI) will allocate over €8 million for the current round of Italy-Tunisia cooperation to promote regional integration, sustainable development, scientific and cultural cooperation, and support to local NGOs. Reference EuropeAid/132-784/M/ACT/Multi. The deadline for concept notes is 14 May 2012.

Euroscience Association - Travel Grants for Young Researchers to Euroscience Open Forum (ESOF) 2012
Several organizations are collaborating to offer travel grants to young researchers for participation in ESOF2012. The event will bring together over 5,000 scientists and other individuals in July 2012 (Dublin, Ireland) to address global scientific challenges related to energy, climate change, food security, and others.

Early-stage researchers may apply for travel grants. The grants are open to all nationalities, but the researchers need to be working in European countries. The deadline for applications is 10 May 2012.

International Tropical Timber Organization - Thematic Programs Spring 2012

The ITTO makes grants in support of its thematic programs. The current call is open in three themes: (i) Reducing deforestation and forest degradation, and enhancing environmental services in tropical forests (REDDES); (ii) Forest law enforcement, governance, and trade (FLEGT); and Trade and market transparency (TMT). Applications are invited from organizations in ITTO's member countries. In each theme, grants are up to US$150 thousand for projects of up to two years. The application deadline is 08 May 2012.

Peoples Trust for Endangered Species - Worldwide Grants

The PTES makes grants to scientific researchers and conservationists for work that helps preserve endangered species, either through research or applied field work. The program offers small grants between £2 thousand and £8 thousand for projects of up to two years. It also offers continuation grants of £10 thousand to £25 thousand for follow-up projects of two to five years. PTES invites grant requests from applicants in the UK and its overseas territories, and from countries that the World Bank does not classify as high-income. The next deadline for small grants is 10 February 2012; the next deadline for continuation grants is 11 May 2012.

University of Cape Town - CSAG Winter School 2012

The Climate Systems Analysis Group (CSAG) at the University of Cape Town invites applications for its "winter school" intensive course in July. The course is presented by facilitators from within CSAG and other institutions. The course aims to take participants through the full spectrum of topics related to climate and climate change. The course fee (excluding accommodation) is US$2,300 -- CSAG may be able to provide a certain number of sponsorships. The application deadline is 20 May 2012.

Employment Opportunities

Information Systems Project Officer, Vacancy Reference Code UNDACP /VA/2012-027

The United Nations Framework committee on programme coordination (UNDACP) is the focus of the Political process to address Climate Change. The Information Technology Services programme is a central service provider for information and communication technology infrastructure and user support services, as well as for information systems development, maintenance and application support within the UNDACP.

Responsibilities: Under the general supervision of the Manager of Information Systems Delivery (ISD) and the direct supervision of the Information Systems Programme Officer, the incumbent is responsible for the architecture, design and implementation of activities related to complex systems including integration and maintenance of related information systems. In particular the incumbent: a. Manages projects involving conceptualization, analysis and design and of complex information systems by:

- Analyzing needs, developing software and hardware specifications of information and process management systems;
- Monitoring infrastructural components of information systems and suggesting options to improve designs;
- Liaising with staff in business units, external IT specialists, governing bodies, and provides specialized advice to users after analyzing users. requirements;
- Overseeing and monitoring activities aimed at improving the software programmes on a continuous basis; b. Develops detailed systems and other functional specifications for integration and linkage of information systems and monitoring performance by:
- Performing impact analysis and change control and manages implementation of the changes in liaison with internal and external stakeholders;
- Providing advise on use of new techniques, monitoring transactions between the systems to measure performance and continued effectiveness;
- Ensuring data security and access controls considering both local and wide area issues.

Contact person: Smarth Faithaur/recruitment@undacp.org/Application. Deadline: 30 june 2012.

Data collection and indicators officer, Vacancy Reference Code UNDACP /VA/2012-0217

Data collection, analysis and research is a foundation of all evidence- and results-based programming, an essential element for public awareness-raising, advocacy, policy development, service delivery, and monitoring to foster improvements and accountability (UNDACP Global Strategy on Violence against Women 2008-2011).
Reliable and regularly collected data is crucial for determining the extent of the problem, the level of violence against women, but also for developing indicators to assess the effectiveness of policies. Without data, advocates and policy makers do not know what interventions are successful in combating VAW. Recognizing the importance of data collection to addressing the problem of gender based violence, the 2006 report of the UN Secretary General on Violence against Women advocated for creating a set of international indicators on violence against women using comparable methods to define and measure violence. (http://www.un.org/womenwatch/daw/vaw/v-sg-study.htm)
The consultant is expected to develop a background paper on data collection initiatives in Southeast Europe, with priority given to Albania, Bosnia and Herzegovina, F.Y.R. of Macedonia and Serbia, and make a proposal for a framework of indicators that may be used to assess effectiveness of policies against VAW in SEE. The consultant is also expected to participate in an expert meeting and support the follow up to the meeting. Concretely, under the direct supervision of the UNDACP CEE office, the consultant will undertake the following tasks:

- Develop a questionnaire for mapping the available data sources on violence against women in Southeast Europe, including which public services collect data, what type of data is collected and with what regularity;
- Write a background paper of about 10,000 words taking stock of the existing practices of data collection on VAW in Southeast Europe, reviewing criteria for assessing reliability and comparability of data on VAW, and formulating recommendations for a framework of indicators on VAW to monitor effectiveness of policies against gender based violence in SEE;
- Develop a summary list of indicators, their means of measurement and institutions that may provide the data;
- Give a presentation of the findings at the expert meeting;
- Input the development of the final report of the expert meeting. Competencies Corporate Competencies;
- Commitment to the core values of UNDACP to promote gender equality and women's empowerment;
- Commitment to the goal of ending violence against women;
- Respect for difference and diversity. Functional Competencies;
- Excellent knowledge of the issue of violence against women;
- Excellent knowledge of gender inequality issues in Southeast Europe;
- Excellent knowledge of social research methodology;
- Managerial competences and ability to organize and meet deadlines.

Contact person: Smarth Faithaur/recruitment@undacp.org/Application. Deadline: 30 june 2012.

Other

World Bank to discuss land policy for Mozambique

A policy paper was presented at the annual World Bank conference on land and poverty in Washington DC in the United States, which focuses on the confrontation between peasant producers and investors in the Mozambican province of Zambezia. Written by Simon Norfolk and Joseph Hanlon, the paper looks at divisions in the Mozambican government over whether it should support foreign investment to promote a technological leap in agriculture, or if it should support small scale farming to increase productivity. The paper shows that current agricultural productivity is very low in small farms, with only five per cent using irrigation, four per cent using chemical fertilizer, three per cent using pesticides and two per cent having access to credit. It states that the farms are small because the farmers mainly use hoes, with only eleven per cent using animal traction and two per cent using tractors.
However, the paper argues that this means that it is possible to greatly boost productivity, increasing the income of the peasant farmers. In support of this, it gives the example of a project supported by the Cooperative League of the USA, CLUSA, at Hoyo Hoyo in Lioma, Zambezia province. The project supported 5,000 farmers in 112 farming associations, which provided soybeans for local chicken farmers. The authors used this example because it is the scene of serious conflict with the Portuguese company, Quifel, who have been given a concession to farm 10,000 hectares in the same area, which overlaps with land already used by 244 of the CLUSA supported farmers.

The paper draws out many of the shortcomings of the Quifel project: the lack of real investment compared with the amount promised; the belief that Quifel has focused on land already cleared by the previous farmers; problems in the consultation process; and disagreements between local and district authorities on one hand and the provincial government on the other. Another example used in the paper highlights that even the most ethical and environmentally caring investor can find large scale projects difficult. The Global Solidarity Forest Fund, GSFF, was founded by the Nordic churches and has been joined by the pension fund of Dutch teachers to invest in forestry in Mozambique. It began to develop several forests in Niassa and Zambezia growing teak, pine and eucalyptus. However, this project has had severe difficulties, including the authorities finding that it had illegally occupied 32,000 hectares of land and that its community consultation process was "often intentionally falsified".
The authors consider that the Strategic Agriculture Plan 2011 - 2020 sets out a major shift in policy, with donors and foreign investors hardly receiving a mention. In its place, the stress is on domestic investment and making small and medium scale farmers more productive and competitive through support from the state in the form of rural extensionists, agronomic research, domestic seed production, input supply and the local production of fertiliser. The paper concludes that this policy shift "comes at a time when there is substantial rethinking caused by Mozambique's failure to reduce poverty and a realisation that production of agrofuels, food, and many export crops would create more livelihoods and do more to reduce poverty if they were done by smaller commercial farmers rather than large plantations".

Kigali comes up with new land use guidelines

The Rwandan government is crafting a set of regulations aimed at curbing rising land speculation across the country. The first set of guidelines targets agriculture investors seeking land for development. Investors will now be required to sign a binding contract for land use that will incorporate a detailed project development plan based on the investor's business plan, covering key project milestones and realistic timeframes for the rate of capital investment and job creation.
In addition, the development plans will have to be explicitly binding for continued access to land, with clear processes and penalties and lease termination in case of delays or underperformance. "We want to make sure that there is regular monitoring to encourage land use - land is a very limited resource in our country and should not be used for speculation," said Tony Nsanganira, head of agriculture development at the Rwanda Development Board. Mr Nsanganira is currently spearheading the taskforce crafting a Client Charter for leasing agricultural land in the country. The new land use guidelines in the Client Charter focus on the complex procedures involved in acquisition of private, state, Kigali city and district land.
With a high population density of over 230 people per sq km and with close to 80 per cent of the population involved in agriculture, land in Rwanda is currently used for low-output subsistence agriculture. However, the government wants to make its use more efficient and also discourage subdivision of land into smaller units that make farming uneconomical. As a result of speculation, land prices are between 15 and 25 per cent per annum. "The cost of housing/real estate is going to go up because of delayed development of acquired land as the cost of inputs involved in development is also increasing," Mr Haba said. Land speculation is rife particularly in areas expected to host strategic government investments, especially in the eastern province of the country - Bugesera - where a new $600 million airport is to be constructed. Land prices in the area have increased dramatically since the announcement. This is in addition to areas around Kigali city where the Special Economic Zones are being developed. But according to Dr Emmanuel Nkuririziza, Director General of the Rwanda Natural Resources Authority, while the land law indicates that land should be repossessed if it is not developed within three years after acquisition, enforcement is still lacking.

Nigerian scientist invents computer software to track criminals

A computer scientist and former deputy governor of Anambra State, Dr. Chinedu Emeka, has developed a computer software that could be used to track criminals and check their activities in the country. Emeka, who was deputy governor under Governor Chinwoke Mbadinuju's administration, said he decided to embark on the research and develop the system as criminals were not being punished for offences committed.

Emeka, who just bagged a Phd in computer science from Nnamdi Azikiwe University, Awka, said if criminals were caught and punished, prospective criminals would have a rethink before venturing into crimes. He said there was a need for a national data base of criminals, such as the one he developed, that would be easily accessible to security agencies in the country. He called on government and private institutions to patronize the Ivory Towers when seeking for solutions to challenges such as provision of power supply, computer software, alternative raw materials/ enhancement of existing raw materials and staff training.

Conferences, Events

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

Date	Location	Event
May 2012		
7-9 May 2012	Rio de Janeiro, Brazil	4th International Conference on GEographic Object Based Image Analysis (GEOBIA) 2012
14-17 May 2012	Québec City, Canada	Call for Papers: Global Geospatial Conference 2012, GSDI World Conference, 14th GEOIDE Scientific Conference, Canadian Geomatics Conference and 7th 3D GeoInfo Conference.
21-23 May 2012	Boston, Massachusetts	Global Conference on Oceans, Climate and Security Call for Abstracts: Deadline 15 October 2011.
21-27 May 2012	Vilnius, Lithuania	12th World Congress on Environmental Health: New Technologies, Healthy Human Being and Environment
13-18 May 2012	Dublin, Ireland	IWA World Congress on Water, Climate & Energy 2012
14-16 May 2012	Rio de Janeiro, Brazil	UN Conference on Sustainable Development (INCSD), Rio+20
21-23 May 2012	Boston, USA	Global Conference on Oceans, Climate and Security
23-24 May 2012	Taza, Morocco	International conference of GIS users, Taza GIS-Days 2012
23-25 May 2012	Cotonou, Benin	eLearning Africa
28-30 May 2012		International Conference on Green Technology & Ecosystems for Global Sustainable Development
June 2012		
13-15 June 2012	Columbia University, New York	ICELW 2012 - The Fifth Annual International Conference on E-learning in the Workplace
18-22. June 2012	Albena, Bulgaria	4th International Conference on Cartography and GIS & EU Seminar on EW & CM, Deadline for abstract submission is 10. January 2012.
July 2012		
2-6 July 2012	Galle, Sri Lanka	MMM3: Meeting on mangrove ecology, functioning and management
3-6 July 2012	Sundvolden Hotel, Oslo	3rd International Statistical Ecology Conference (ISEC2012), Abstract submission deadline: 20 January 2012
3-6 July 2012	Salzburg, Austria	Geomatics Forum, Linking GEovisualisation, Society and Learning
6-8 July 2012	Cairo, Egypt	10th International Internet Education Conference and Exhibition
8-12 July 2012	San Diego, California USA	ESRI User Conference
16-21 July 2012	Obergurgl, Austria	ESF research conference: Energy Landscapes - Grants to attend
August 2012		
2-10 August 2012	Brisbane, Australia	34th International Geological Congress

5-7 August 2012	Kampala, Uganda	**8th Annual International Conference on Computing and ICT Research**
5-10 August 2012	Brisbane, Australia	**34th Session of the International Geological Congress (IGC 34)** Enquiries: info@34igc.org.
22-25 August 2012	Freiburg Germany	**Experience-based Geography Learning, IGU-CGE Precongress**
26-30 Aug 2012	Köln, Germany	**32nd IGU International Congress**, University of Cologne, Theme: 'Down to Earth'
29-31 August 2012	University of Basel, Switzerland	**Third International Sustainability Conference ISC 2012**, Theme "Strategies for Sustainability: Institutional and Organisational Challenges"
September 2012		
3-5 September 2012	Gaborone, Botswana	**2nd IASTED African Conference on Health Informatics**
5-7 September 2012	Gaborone, Botswana	**International Conference on Water Resources Management**
16-18 September 2012	Columbus, Ohio, USA	**AutoCarto 2012, an international research symposium on computer-based cartography**
30 September–5 October 2012	Columbus, Ohio, USA	**EcoSummit 2012, Ecological Sustainability: Restoring the Planet's Ecosystem Services**. Abstract submission deadline, 20 January 2012
October 2012		
2-4 October 2012	Gauteng, South Africa	**GISSA Ukubuzana 2012: Conference and exhibition of geo-informatics, ICT, surveying, remote sensing and location-based business**
3-5 October 2012	Naivasha Sopa Lodge, Kenya	**Esri Eastern Africa User Conference**
15-19 October 2012	Chengdu, China	**International Conference on Mountain Environment and Development**
29 October-2 November 2012	El.Jadida, Morocco	**AARSE 2012 International Conference**, Theme: Earth Observation & Geo-information Sciences for Environment and Development in Africa: Global Vision and Local Action Synergy. Abstract submission - 2 January to 30 April 2012.
November 2012		
December 2012		
2013		
8-12 July 2013	San Diego, USA	**ESRI International User Conference**
2015	Durban, South Africa	**14th World Forestry Congress for SA**
1-31 August 2016	Cape Town, South Africa	**35th International Geological Congress**. Registration deadline: 30 June 2016.

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