

## SWALIM Wins Big!

by David Dion

Former CTA, Gadain at WSIS Forum, receives SWALIM recognition as Champions in the C-17 Agriculture Category



During the week of 2-6 May, 2016, the SWALIM CTA was in Switzerland to receive the coveted WSIS award as a “Champion” in the category of “e-Agriculture”. The WSIS prize, organized by the International Telecommunications Union (ITU), recognizes innovative and successful efforts to harness ICTs in development work around the world. SWALIM’s breakthrough work in mobile data gathering, remote monitoring and dynamic mapping brought the attention of the award committee.

The Somali Water and Land Information Management project (SWALIM), initiated in 2001, is now approaching the end of its fifth phase (February 2013 to January 2017), which has focused on improved information outreach, wider dissemination and access, and intensified capacity development among partners and the stakeholder community.

The award from the World Summit on the Information Society (WSIS) is a clear indication of the importance and leading edge work that SWALIM has brought to the development of water and land management capacity in Somalia following years of civil

strife and weak or non-existing government institutions.

In 2014, the project launched the Information, Communication and Knowledge Management (ICKM) Strategy, which laid the groundwork for many new initiatives in both data gathering and information diffusion. In 2015, the SWALIM web site ([www.faoswalim.org](http://www.faoswalim.org)) was rebuilt from the bottom up to provide more direct access to important features and a powerful search system to locate documents from SWALIM’s archives.

Among the new features on the SWALIM web site are the updated Flood Risk and Response Management Information System (FRRMIS) (<http://systems.faoso.net/frrms/>), and the dynamic “Live Map” platform, which presents complex data sets on an easy-to-understand map interface (<http://systems.faoso.net/imms/fmt/maps/website/227>). The Live Map system is currently being expanded to include data on soils and land degradation, infrastructure interventions and other important information for decision makers.



### In this issue

SWALIM Intensifies Capacity Building in Geospatial Data Management.....Page 11

Farewell Hussein.....Page 3

The other side of El Niño Phenomena in Somalia .....Page 4

**Feature article:** Juba and Shabelle River Importance.....Page 5

SWALIM Support NRM Activities in Somalia.....Page 8

SWALIM Completes Galmudug Water Sources Survey.....Page 9

FRMMIS Revamped.....Page 10

Pictorial... ..Page 12

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Continued on Next Page

## Continued from Previous Page

In anticipation of the effects of heavy El Niño rains in late 2015, SWALIM developed an SMS-based mobile phone application to capture information about impending flood situations and to warn vulnerable Communities along

the Juba and Shabelle rivers. This system, known as FRISC/Digniini (from the Somali word for “warning”), was also used to alert fishing vessels and coastal communities about two cyclones that swept across the northern coast of Puntland in December, saving lives and averting severe property damage.

The FRISK/Digniini system is now being adapted and expanded to gather rainfall data throughout Somaliland and Puntland, as well as the central and southern areas of the country. The rainfall data, like the river level information, is being fed directly into the on-line FRRMIS system to provide near-real-time updates on potential floods and inundations.

The WSIS Forum in 2016 represents the world’s largest annual gathering of the “ICT for development” community. The Forum is co-organized by [ITU](#), [UNESCO](#), [UNDP](#) and [UNCTAD](#), in close collaboration with all WSIS Action Line Facilitators/Co-Facilitators ([UNDESA](#), [FAO](#), [UNEP](#), [WHO](#), [UN Women](#), [WIPO](#), [WFP](#), [ILO](#), [WMO](#), [UN](#), [ITC](#), [UPU](#), [UNODC](#), and [UN Regional Commissions](#)). Further information on the WSIS

and its activities can be found here:

<http://www.itu.int/net4/wsis/stocktakingp/en>.

SWALIM was encouraged to provide a submission to the 2016 WSIS award committee by colleagues in FAO Rome who were impressed with the advanced ICT applications employed by the project. During the final months of 2015, SWALIM staff, together with colleagues in Rome and Geneva, prepared the documentation which was later reviewed by the expert group judging the prize.

The SWALIM submission focused on four different initiatives undertaken by the project in the current Phase V (February 2013-January 2017):”

- The Live Map platform, used for presenting complex data sets on a simple to read map interface
- Land and Water data collection using low-cost smart-phones
- Remote monitoring to observe large swathes of territory
- An SMS/mobile-phone-based flood early warning system for vulnerable communities in the Shabelle and Juba River valleys.

## SWALIM Holds Planning Workshop

by Njeru Jeremiah



The workshop took place between 7<sup>th</sup> and 9<sup>th</sup> March 2016 at the FAO Somalia Nairobi offices at Ngecha road and brought together 24 SWALIM staff working under three themes – water resources; land resources; information, communication and knowledge management; and capacity development.

The workshop was guided by the project result based design as documented in the project logical framework where the activities implemented under each of the four results are documented. The four result areas include maintenance and further development of water and land monitoring networks; provision of demand driven information requests; capacity development of Somali public institutions; and expansion of use of SWALIM information products and services through implementation of an elaborate information, communication and knowledge management strategy.

Early this year, the SWALIM Nairobi and field team came together for a planning workshop for 2016, the last year of the fifth phase of SWALIM, which started in February 2013 and comes to an end in January 2017. Being the last year of the current phase, 2016 work plan is critical for the successful completion of the project and therefore the planning workshop sought to evaluate the progress made under each activity planned within the four results areas of the current phase.

The three day workshop provided the opportunity to objectively assess the progress made by the project but also to identify areas that required attention and focus in this last year of the project. Action points were identified under all four result areas and numerous recommendations made to ensure that the project phase is completed successfully by January 2017.

## SWALIM CTA Leaves for Prominent New Role in Cairo

by Ugo Leonardi

It is said that every ending is also a new beginning. In the case of Chief Technical Advisor Hussein Gadain, who will be ending his work at SWALIM to take on a new posting as FAO Representative in Egypt, we expect it will be a bright new beginning for all concerned. Mr. Gadain is a seasoned international professional in water resources engineering and management, with 25 years of work experience in East Africa, including a stint with the United States Geological Survey (USGS), before joining the Food and Agriculture Organization (FAO). He has been working with SWALIM for more than ten years, the first six as Water Unit Coordinator and the last three as the CTA.

Under Mr. Gadain's leadership, SWALIM expanded its technical capabilities in support of the Somali people and institutions, providing partners and stakeholders with up-to-date information concerning their vital land and water resources, as well as helping to build the capacity of counterparts to eventually take over this work directly.

Under Mr. Gadain, SWALIM has expanded the national agro-meteorological network in Somalia and set up monitoring stations on the major rivers, facilitating improved disaster-preparedness and ensuring timely early warning in the event of floods. Due to the uncertain security situation in much of the country, SWALIM has developed an advanced remote sensing capability to track events through satellite imagery.

The tight-knit SWALIM team will surely miss his extensive professional experience in the Somali context, but perhaps even more his personal human guidance and leadership and his deep commitment to the project and the goals of development.

As the Chief Technical Advisor to the project, Mr. Gadain managed and supported all aspects of SWALIM's work, including the work in the SWALIM Liaison Offices in Hargeisa and Garowe.

While his experience and recognized leadership will no doubt be a great boon to the new FAO Country Office in Egypt, the staff at SWALIM, FAO Somalia as a whole, and all of our partners, counterparts and stakeholders will not soon forget the presence of our friend, our mentor and SWALIM's leader.

Former CTA, Gadain, receives a farewell gift from FAO colleagues



***"Hussein is so special, he has gift of memorizing names," said Abdulle Osman, head of the Puntland office. "If you go with him to a ministry, he is able to recall the name of the driver, or the secretary or the Director of the department. He is able to make the environment friendly and conducive. That is why we gave him the nickname 'chiave inglese' or 'the Master Key'. He was able to open all doors and all locks."***

***"I am one of those SWALIM members that have worked with Hussein for the longest period," added Simon Mumuli, the Land Resources Officer. "Having been in SWALIM for over 10 years now, I have known Hussein as a 'high sense of humour' person. Hussein enjoys light moments in his active professional life. Professionally, I always remember him for the phrase, 'Give it your undivided attention', a phrase Hussein used whenever urgent delivery of work was required."***

***"Apart from the leadership, communication and overall professionalism, the most important thing I have learnt from Hussein is how to be a good human being and taking tough decisions which have positive impact on the employees. His courage and energy will always be missed by the whole organization," said Danson Ndirangu of the administrative and operational group of SWALIM.***

***Jeremiah Njeru, in charge of Capacity Development and one of the longest-serving SWALIM staff, said, "It is not easy to navigate Somalia. It requires more than technical expertise and Hussein has done a good job in bringing all the facets necessary to deliver quality results in an extremely complex environment."***

***"Working with Hussein," (as Mr. Gadain is familiarly known within the SWALIM family), "was a great professional experience as I could improve my skills both from the technical and the managerial point of view. It was had the chance also to appreciate his outstanding human relational skills and never-ending support," remarked Ugo Leonardi, the SWALIM Remote Sensing specialist.***

***"I found Hussein unique in bringing together compassion and strength that solidify the team towards SWALIM's high standards", said Saleem Ullah, the Natural Resources Advisor of the project.***

## The other side of El Niño Phenomena in Somalia

by Joshua Ngaina and Peris Muchiri

A strong El Niño that was expected to soak Somalia in rain fell short of its promise, leaving the northern parts of the country stuck in severe drought and the southern parts of the country recording heavy rains that led to floods in some areas. El Niño, a climate pattern marked by warmer-than-average ocean water in the central Pacific, affects weather patterns in Somalia and is traditionally associated with heavy rains, as witnessed in Somalia in 1997/98 and in 2006. However, according to the climate experts, all El Niño events are different and there is a lot of variability. The 2015 El Niño ended up being one of the outliers in the region.

As of April 2016, the drought conditions caused by El Niño put hundreds of thousands of people in communities in the north of Somalia at risk from hunger, water shortages, and disease, as well as having a devastating impact on agricultural areas and food security. Both Puntland and Somaliland authorities declared a state of disaster as early as January, 2016, following another failed rainy season. The El Niño associated drought was also experienced in the Ethiopian highlands which generate most of the water in the Juba and Shabelle Rivers inside Somalia. The hydrological drought left a larger stretch of the Shabelle River literally dry - something that has not been witnessed in a very long time.

SWALIM has been at the forefront of drought monitoring and early warning activities in Somalia. During all these time the project took lead in drought analysis, owing to the project's rich technical expertise and long experience in drought monitoring in Somalia. According to the analysis carried out by SWALIM, the 2015-16 failure of three consecutive rainy seasons seriously worsened the drought severity in the northern regions, as seen in the map. Further analysis indicates that the Shabelle River experienced a hydrological drought in the months of January to Mid April 2016.

Over the course of this period, water resources and pasture conditions deteriorated, triggering livestock migration and increasing competition among pastoralists for the already scarce pasture and water resources. This was seen especially in the southern part of Awdal and Woqooyi Galbeed Regions (in the Northwest Agro-pastoral livelihood zone) and in parts of Sanag, Sool, Nugaal, and Bari Regions (the Northern Inland Pastoral Livelihood Zone). In general, pasture conditions are now very poor throughout northern Somalia, with the exception of southern parts of Togdheer, and Sool Regions (Guban pastoral) where good rains were recorded towards end of the previous Deyr season.

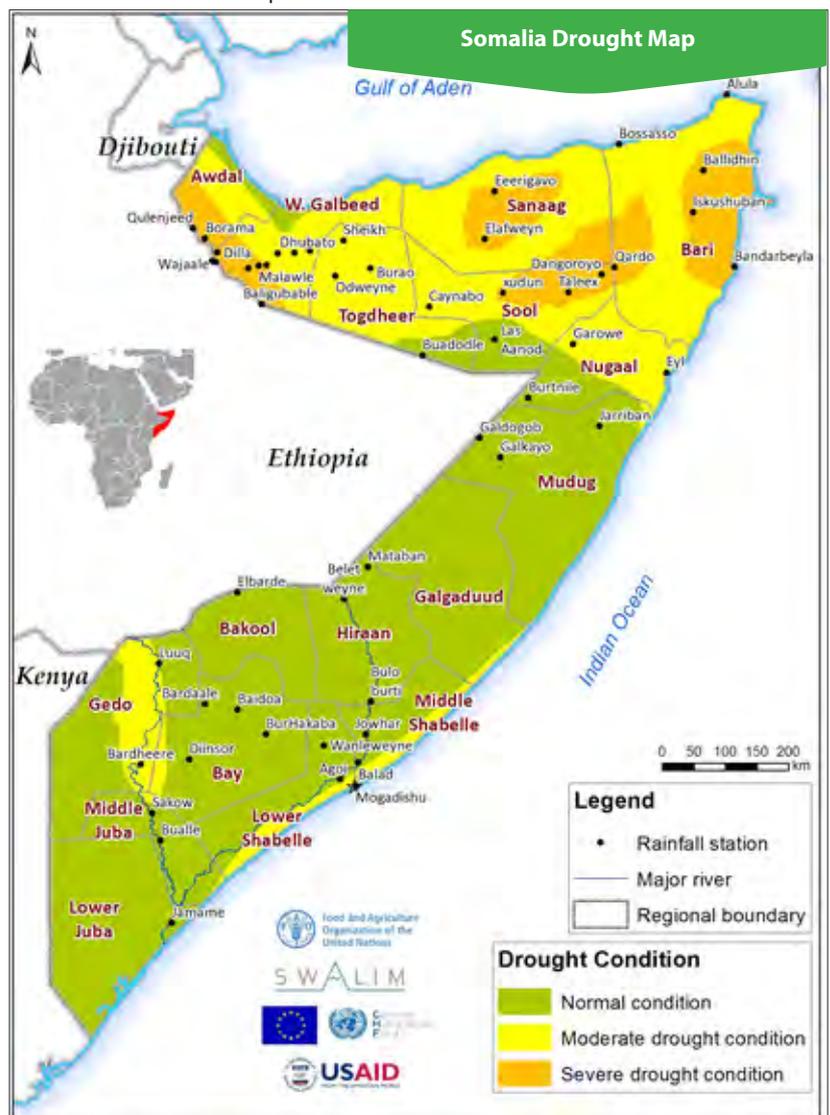
The river levels along the entire Shabelle River from January to mid-April 2016 were reportedly at the lowest historical levels on record since 1963. This was attributed to below normal rains, which were also associated with the El Niño phenomena in the Ethiopian highlands

during the last rainy season of 2015, leading to hydrological drought conditions within the Shabelle basin both in Ethiopia and inside Somalia.

The Shabelle River is partially regulated upstream in Ethiopia by the Melka Wakana 153 MW hydroelectric project, which was completed in 1988, as well as dams on two downstream branches, which together control 40 percent of the catchment area and around 50 percent of the discharge. Analysis from satellite imagery showed a significant decline of the water volume in the Melaka Wakana dam owing to the drought.

This has changed since the start of the on-going Gu 2016 rainfall season which has been significantly plentiful. The river flows are above average, with cases of over flow being reported in areas where the river was previously affected by the hydrological drought. Riverine flooding has also been reported along the two major rivers and SWALIM continues to monitor and provide early warning information to the vulnerable communities and other stakeholders.

The Gu rains also came as a relief in the northern parts of the country, which have so far received very good rains. This has led to an immediate relief for pastoralists, farmers and other sectors which are water dependant.



## Juba and Shabelle River Importance to Somalia

by *Flavian Muthusi*

The Juba and Shabelle rivers are unique in Somalia. They are the only perennial rivers in the country, but 90% of their flow originates from a neighbouring country - Ethiopia. The two rivers sustain agricultural production not only by providing the much needed irrigation water, but also through the very fertile flood plains where a variety of crops are grown for domestic and foreign markets.

**The Juba River** has three main tributaries in its upper catchment in Ethiopia, namely: the Dawa, the Genale and the Weyb, all of which flow south-eastwards. The Weyb and the Genale unite to form the Juba River just north of Doolow in Ethiopia; while the Dawa tributary joins the Juba River at Doolow Town, just after the Somalia-Ethiopia border. The total length of Juba River is 1,808 Km, with a catchment area of about 210,010 Km<sup>2</sup>. On average, 186 cubic meters (186,000 litres) of water flow every second down the Juba River at Luuq station.

**The Shabelle River** emerges on the eastern Ethiopian highlands at an altitude of about 4,230 Meters above Mean Sea Level (m.a.m.s.l.). It has two main tributaries in the Ethiopian catchment: the Fanfan

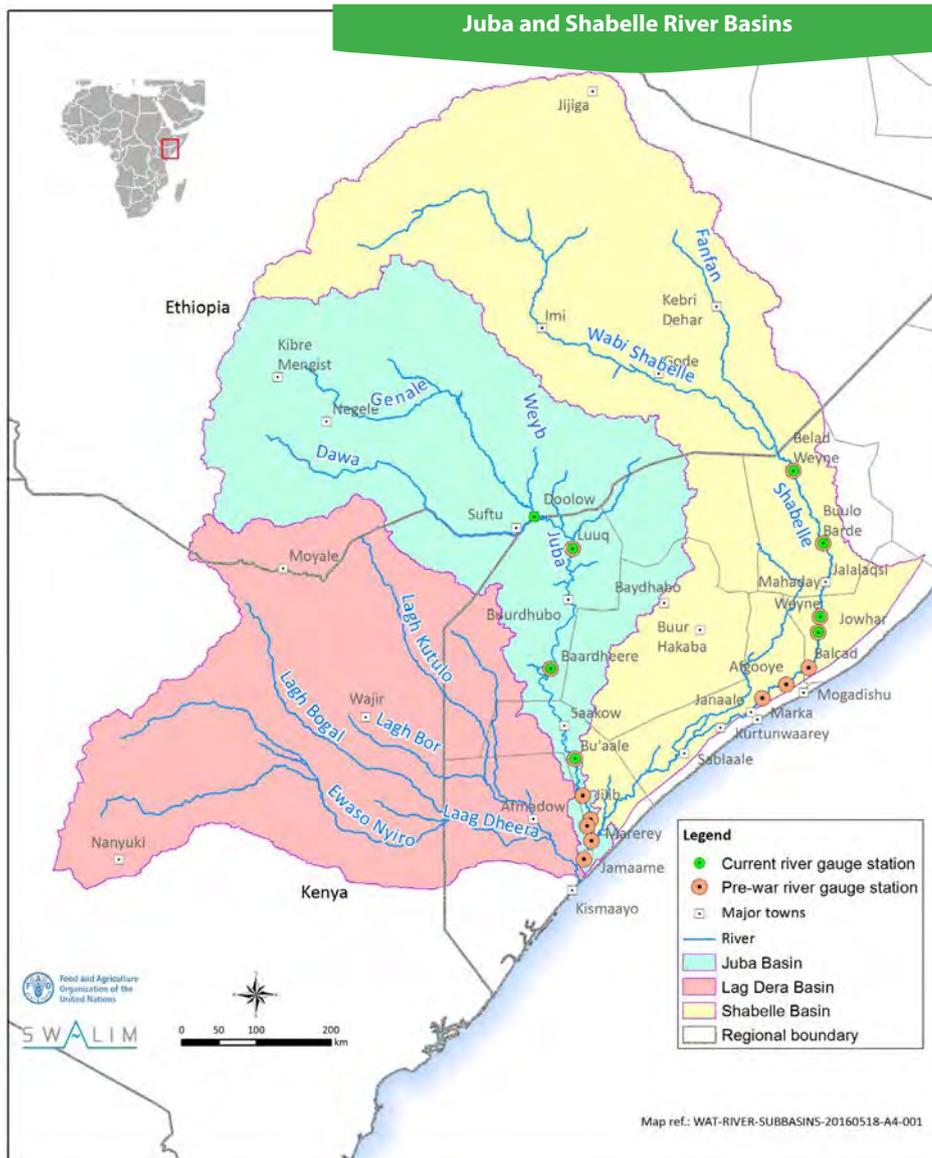
and the Shabelle. The flows of the Fanfan tributary are intermittent, and only join the Shabelle during high rainfall seasons. The river is 2,526 Km long, with a catchment area of 283,054 Km<sup>2</sup>. The average flow of the Shabelle River at Belet Weyne Station is 75 cubic meters (75,000 litres) per second. The graph below shows the annual flow of Juba and Shabelle rivers at different stations and in different seasons, based on the historical data.

The water flow along the Juba and Shabelle decreases as the rivers flow downstream through Somalia, due mainly to factors such as: the minimal contribution of tributaries from the Somali catchment areas, "bank full" spillage of flood water into the flood plains, natural and man-made flood relief channels, river diversions for irrigation - during both low and high flow periods - and natural losses due to evaporation and infiltration/recharge of the groundwater along the rivers.

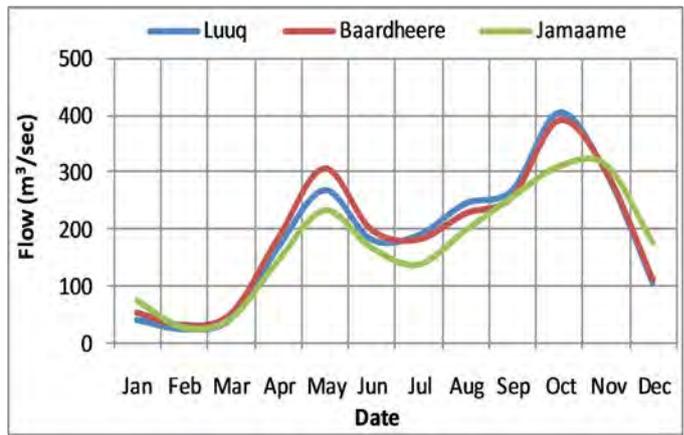
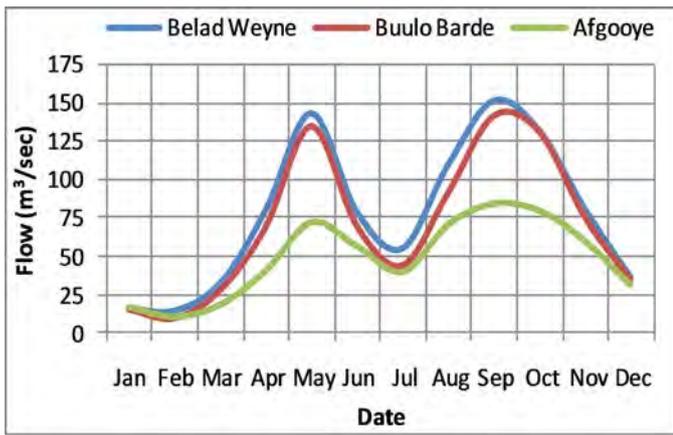
### The Economic Importance of Juba and Shabelle

The alluvial plains of the Juba and Shabelle Rivers have been described as the breadbasket of Somalia. For several decades irrigated agriculture has been practiced along the plains, producing food not only for local consumption but also for export. Available records indicate that before the collapse of the former Somali government in 1990, over 220,000 hectares of land along the flood plains of the two rivers were under either controlled irrigation or recession farming. Maize, sesame, fruits and vegetables were some crops grown for local market, while sugarcane and rice were grown for local and foreign markets.

At present the story is different. A recent study by SWALIM and Mott McDonald (2015) in Middle Shabelle identified that the irrigation infrastructure is in poor operational condition, a status which also applies to other regions along the rivers where irrigated agriculture was practiced. This has significantly affected the agricultural production in the region. However, the potential of the flood plains remain, and all that is required for their full exploitation is to restore the dilapidated infrastructure to its original state.



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Long term mean flow for the Shabelle and Juba Rivers

### Water Resources Management and Monitoring Systems

Water resources management of the Juba and Shabelle Rivers involves two major issues, namely the dual imperatives of managing floods and providing a steady supply of irrigation water. According to the Somali traditional local customs, the right to use water depends on the access to land along the rivers, and no approval was needed for one to extract water. During the former Somali government, water legislation institutionalized water management through laws that regulated the functioning of the institutions involved. An example is the Natural Water Resources Law of 1984, which ensured the regulated access to and use of the Juba river waters. Water exploitation at the national and regional level was regulated through legal and institutional structures set up by the central government. Systems were also put in place for irrigation and flood water management. In Middle Shabelle for example, flood waters were diverted to a huge natural depression which could hold up to 200 million cubic meters of water (the Jowhar Off-Stream Storage Reservoir – JOSSR) thus controlling flooding downstream. During low river flows, the diverted water at the JOSSR would be re-directed back to the river, providing the much needed water for irrigation downstream and contributing to much lower rates of drought during that period.

The gains made in flood and irrigation water control and management were quickly eroded with the collapse of the Somali government. The institutions put in place could no longer function, while the installed flood and irrigation infrastructure collapsed due to vandalism and lack of maintenance. As a result, flooding again became a frequent problem in the riverine areas of Juba and Shabelle with consequent huge economic losses.

Over the last two decades, a lot has been done by different humanitarian and development agencies to restore the collapsed systems for water resources management in Somalia. Some gains have been made towards achieving this goal, but a lot more needs to be done. FAO, through the SWALIM project, has supported the recovery process by providing partners with information crucial in designing intervention projects in Somalia.

Since its inception in 2002, SWALIM has recovered the available historical data and collected valuable new data on water and land

resources to support sustainable management of the Juba and Shabelle river basins. SWALIM has also set up a hydrometeorology monitoring network, comprising 7 river gauge stations at key locations along the Juba and Shabelle rivers, and a larger number of rain gauges. Data coming from these stations is used for flood and drought monitoring and early warning. Additionally, SWALIM has adopted new technology in remote sensing analysis to monitor river breakages and flooding along the Juba and Shabelle rivers and to support more timely action to avert disasters.

### Challenges and Opportunities

The development and management of the Juba and Shabelle water resources is faced with many challenges, which if not adequately addressed could derail the ongoing efforts to revive the sector. These include, but are not limited to:

- Insecurity and lack of access:** many areas in South Somalia, through which the Juba and Shabelle Rivers pass, are not accessible to development agencies and their partners for intervention activities. There have been remarkable gains by the Somali authorities, international peacekeepers and regional partners in stabilizing the areas, but it may take a while to restore order and allow unlimited access by intervening agencies.
- Sparse data / information and limited monitoring network:** Data and other information required for the development and management of water resources in Somalia is sometimes missing, or where available may be scattered and outdated, in large part because of security issues. Many of the data collection networks collapsed with the central government in 1990 and it takes time to restore them to full operational status. SWALIM has done a lot to re-establish the monitoring network; but opportunities exist to further improve the data collection network and make them sustainable.
- Trans-boundary issues:** the trans-boundary nature of the Juba and Shabelle drainage basins complicate proper planning, development and management of the water resources. More than two-thirds of the joint Somali-Ethiopian drainage

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basin lies in Ethiopia. Some is in Kenya. However, there is little information available in Somalia on weather, river flows and abstractions in the upper catchments in Ethiopia. In early 2016, the Shabelle River in Somalia became dry, which is very unusual for that time of year. This opened a lot of speculation into the cause of the dry river, but there was no information coming from the Ethiopian side. Information sharing between the two countries would go a long way in overcoming this challenge.

- d) **Lack of resources:** With the current state of irrigation and flood infrastructure along the Juba and Shabelle, significant resources are needed to bring them to their original operational status. This includes setting up relevant institutions for the management of the water resources. A recent study by FAO in Middle Shabelle, for example, identified that over 100 million US Dollars is required for an integrated water resources management system in the region. The Somali Government, donors, the international community and local partners will all need to work together as a team and pool resources for this

goal to be attained.

### Moving Forward

There is huge potential for the development of water resources in the Juba and Shabelle basins. Such development should focus on better management of the water resources in the river basins to address the problems of extremes - "too much" or "too little" water - and must involve infrastructure rehabilitation and the re-establishment of national and regional institutions for water resources management.

With respect to floods, an integrated flood management approach should be adopted for both the Juba and Shabelle rivers. The integrated flood management approach would reduce the effects of flooding while at the same time preserving the natural resources of the flood plain. Trans-boundary issues arising from the use of water from the two rivers should also be addressed through this integrated and holistic approach.

## Mogadishu Mission to Somalia Disaster Management Agency

by Peris Muchiri



A two-day meeting was held to fast track capacity development activities carried out between SWALIM and its FGS partners in Mogadishu in March, 2016. The participants were drawn from the Ministry of Electricity and Water, the Ministry of Agriculture,

the Ministry of Livestock, Forestry and Range and the Somalia Disaster Management Agency (SODMA), who have been key in the implementation of SWALIM activities in the southern and central parts of Somalia.

## SWALIM Supports Natural Resources Management Activities in Somalia

by Simon Mumuli

The rapidly increasing human population in Somalia, coupled with protracted civil strife, continues to exert heavy pressure on the land and environment, resulting in a rapid depletion of the country's natural resources. The current situation is unsustainable, in that resources are being extracted more quickly than they can regenerate, leading to the gradual loss of these important biological assets. The principle threats to biodiversity in Somalia include commercial land use practices, like deforestation for timber and charcoal production, soil depletion through over-harvesting, and changes in climate, which have led to decreased rainfall.

Over the years, FAO SWALIM has been a champion in NRM-related activities in Somalia. FAO SWALIM has the infrastructure, trained experts, hardware and software to collect and handle natural resource data. Using Remote Sensing and GIS techniques for natural resource inventory and mapping, coupled with scientifically authenticated field observations, SWALIM's NRM-related activities have been cutting edge. The overall strategy has been to strengthen Somali technical staff by offering training in scientific approaches to NRM work.

In this context, and due to the availability of technical capacity under the FAO Resilience Programme 2013-2015, FAO SWALIM was mandated to support Natural Resource Management (NRM) activities in Somalia. The aim, under this programme, is to establish a one-stop-shop for data and information by developing a modern and comprehensive database for natural resource planning. This will improve the management of existing natural resources by facilitating the identification and formulation of appropriate development policies which support sustainable and equitable development. Better information will permit optimum utilization, co-ordination and management of natural resources and the environment, as well as strengthening the cooperation between local communities and other stakeholders.

FAO SWALIM activities under the programme were focused on four pilot districts: Doolow, Burco, Owdweyne and Iskushuban. In each

of the four districts, the aim was to establish a community tree nursery and generate data and information on soil nutrient levels, land cover, land use, and Safe Access to Fuel and Energy (SAFE) in the humanitarian context. It is hoped that the tree nurseries will provide seedlings for woodlot planting and also provide fruit trees for the agro-pastoralists. Community natural resource management plans would also be produced under the programme.

The programme activities were concluded in Doolow (with databases and a draft report ready), while work is on-going in the other localities. Nevertheless, in Owdweyne and Burco, the NRM inventories were completed and the results were incorporated in the Diagnostic Land Resources Report of Somaliland, which was produced by FAO SWALIM and put into the public domain for use in



Focus group discussions on SAFE activities in Somalia.

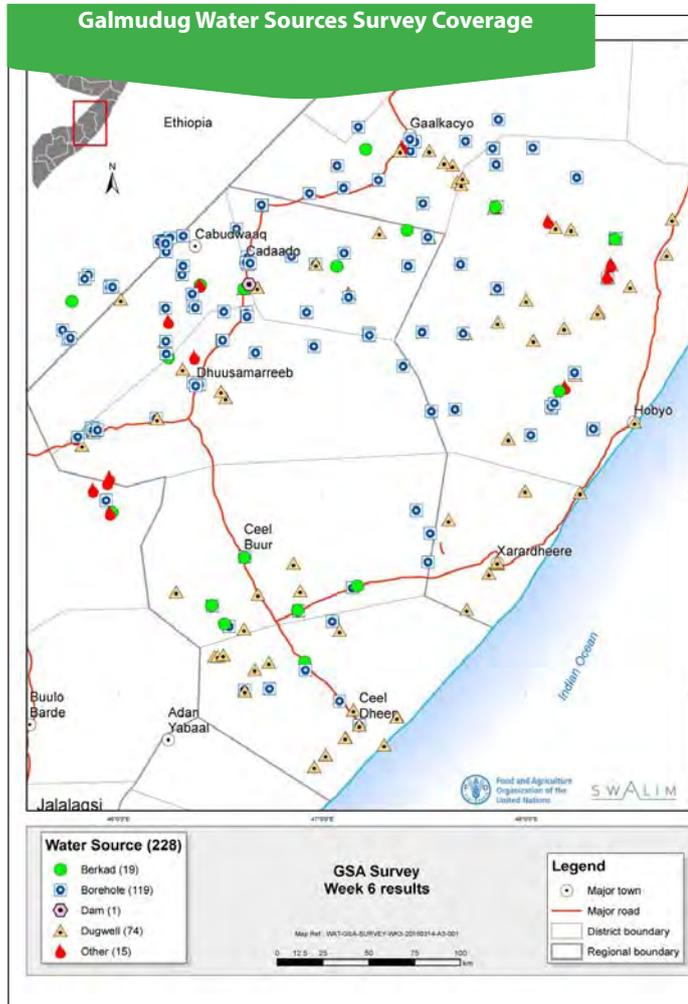
natural resources planning and management.

Under the SAFE initiative, a mission composed of technical staff from FAO Somalia office, FAO Headquarters in Rome and the Regional Forestry & Climate Change Office in Addis-Ababa visited Hargeisa and Doolow to conduct focus group discussions with the communities on SAFE-related activities. Following the baseline field surveys discussions, a first draft of a SAFE strategy for Somalia was developed. The strategy includes details on conflict resolution, gender-based violence and health issues related to access to fuel and energy. Organisations involved in SAFE initiatives in the targeted communities were also characterized and mapped.

# SWALIM Completes Galmudug Water Sources Survey

by *Flavian Muthusi*

After previous attempts thwarted by lack of access, SWALIM has finally managed to carry out a water sources survey in Galmudug State in Central Somalia through a local NGO. The survey covered the strategic water sources in nine districts within Galgaduud and Mudug Regions ( see Figure below)



The survey was carried out using SWALIM-developed tools for water sources data collection and monitoring, including an Android mobile phone-based data collection kit (ODK – Open Data Kit), standardized SWIMS (Somalia Water Sources Information

Management) data collection methodology, and an online platform for data viewing and downloading.

The survey was focused on the strategic water sources – primarily boreholes, which supply water to communities in the area for most of the year. In total, 228 sources were visited (119 boreholes, 74 dug wells, 19 berkads, 1 dam and 15 other water source types. For each source visited, detailed information was collected on their current operational status, physical characteristics, usage, ownership, etc. Basic water quality parameters, such as salinity, total dissolved solids and pH, were tested in the field, and samples were taken for later detailed laboratory analysis.

From the initial survey results, the average borehole depth in the region is about 170 meters, with a maximum recorded depth of 305 meters. Hobyo District, the north-eastern part of Adaado in Gaalkacyo District and Xarardheere District have deep aquifers, while Cabudwaaq, Dhusamareb and Ceel Dheer Districts have relatively shallow boreholes. The maximum recorded borehole yield in the region is 27m<sup>3</sup>/hr. The yield is generally higher in Gaalkacyo, Hobyo and the north-eastern part of Adaado compared to Ceel Dheer and Abudwaaq Districts.

Poor water quality is a major concern in Central Somalia. The basic water quality tests carried out in the field indicate that groundwater is not within the recommended range for drinking water. Salinity is particularly high, with some sources recording over 10,000µS/cm, far above the 2,500µS/cm considered safe for drinking.

A report has been developed out of the survey, detailing the survey methodology and key findings. The report is in the review stage and will be made available through the SWALIM web repository once finalised. However, data collected from the survey can already be accessed from the Somalia Water Sources Live Map through the link: <http://systems.fao.org/imms/fmt/maps/website/227>. Somali government water authorities, humanitarian aid agencies, and local NGOs will benefit from the products of this survey to plan and carry out drought-related and other interventions in the region.

## Did You Know?

Somalia's annual average rainfall is 282 millimetres with 75% of the rain falling during Gu rainy season and 25% during the Deyr rainy season?

Somalia has 6 river basins namely: Juba, Shabelle, Ogaden, Darrar, Gulf of Aden and Nugaal

SWALIM has a total of 7 weather alerts and bulletins issued before, during and after the rainy seasons?

## Subscribe / Unsubscribe

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# FRMMIS Revamped

by Stephen Waswa

The SWALIM Flood Risk and Response Management Information System (FRMMIS), originally developed and launched in 2013, has been revamped and improved to give users a better experience and provide more timely information. The FRMMIS is a web-based information dissemination and sharing platform that brings together essential information related to floods in Somalia under a single user interface. The new system uses a SWALIM custom web mapping technology and contains a variety of flood information presented in multiple formats. The FRMMIS is part of an overall strategy to promote flood preparedness and contingency planning, as well as supporting rescue and response operations.

The new page, found under the Water section of the SWALIM web site, is divided into five main sections;

**Main:** This page gives a quick overview of the current situation, with a map of Somalia's principle rivers and the latest data on river levels and flood risks from SWALIM's gauge readers in the field. "Rolling over" the river station icons on the map will show the latest river level readings. Clicking on the station icons (or the names on the table), will call up a chart showing the historical mean river levels at that station as well as levels where the flood risk is moderate, high, or imminent (bank full).

**River levels and Flood information:** This provides information on the current and historic river levels at the gauging points, as on the main page. In addition, there is information on the Shabelle and Juba Riverine Basin Population Displacement Estimates, custom maps and useful SWALIM documents on floods and flood preparedness.

**River breakages:** One of the newest features, this tab shows the latest available data on riverbank breakages and the areas of potential flooding along the Juba and Shabelle Rivers in southern Somalia. Soon we will be presenting historical information on this important subject, as well as tools to help planning interventions and

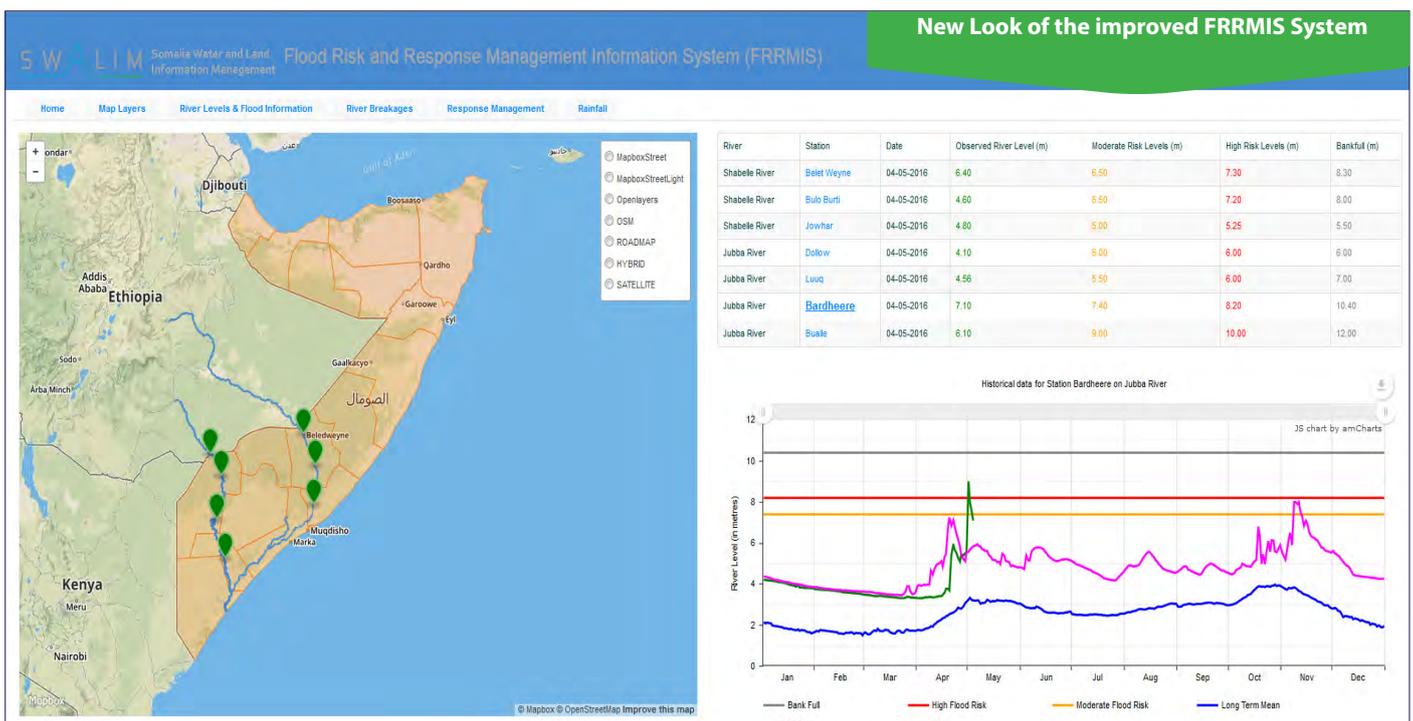
mitigation efforts.

**Rainfall data:** A rainfall chart updated every day with rainfall data from across the country. The data on this page is coming from rainfall readings in over 60 locations in Somalia. In most cases, the readings are reported on a daily basis.

**Map layers:** This is comprised of a base layer map of Somalia with background information and several map layers which can be overlaid on top. Six different base maps are available. The 20 different map overlays are categorized into seven types: Administrative capitals and boundaries, Rivers, Floods and Transportation Infrastructure. Users can overlay one or more of the map layers to get a visual picture representing a vast store of information.

The ultimate aim of the FRMMIS is to reduce the impact of floods on the Somali population and their livelihoods. This will be achieved through:

- **Prevention:** Sharing information on the potential flood areas and rainfall forecasts to allow people to prepare and prevent damage and loss of life in the flood-prone areas;
- **Protection:** Helping stakeholders take appropriate measures to reduce the likelihood of floods and/or the impact of floods in specific locations where breaks in the river banks are detected or known to occur;
- **Preparedness:** Informing the population about risks and what to do in the event of a flood;
- **Emergency Response:** Providing the authorities in the affected regions, as well as emergency services and aid agencies, with crucial and timely information on floods and potential floods. Also provides a platform to share emergency response plans in the case that floods occur.



# SWALIM Intensifies Capacity Building in Geospatial Data Management

by James Ngochoch and Ugo Leonardi

Geospatial data makes up a huge bulk of the information SWALIM produces, serving numerous Geographic Information System (GIS) products and services used by Somali institutions, NGOs and other agencies to implement development projects in Somalia. However, due to the intrinsic nature of these datasets, users need to be effectively trained on the skills required to directly apply, maintain and update climate, water, land, natural resource and environmental information contained in the GIS-based systems developed by SWALIM.

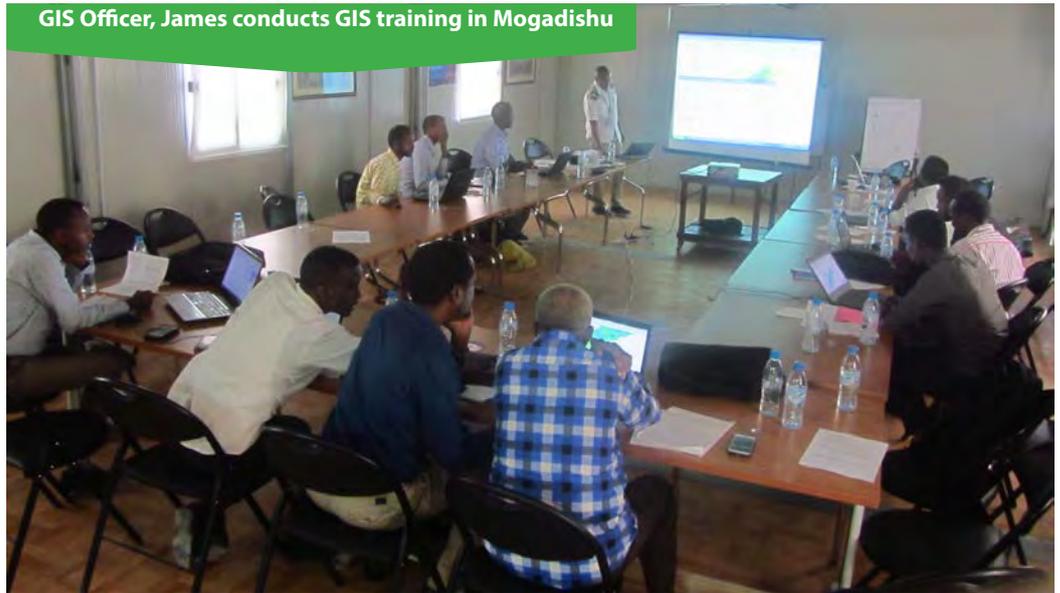
Consequently, SWALIM has been working on expanding the capacity of government line ministries and partner agencies on the use of geospatial data with the aim of having these institutions fully proficient to undertake their roles in Somalia with minimal support. So far in 2016 alone, SWALIM carried out three separate capacity building exercises on geospatial data management and remote sensing, in Garowe and Mogadishu, benefiting 53 trainees from different institutions. Two more courses are scheduled for Hargeisa and Nairobi in May and June, 2016 respectively.

All the recent courses have been hands-on and focused on the use of free open-source software (*Quantum GIS*), combining field

data collection techniques, map production, and data analysis. The practical training has also focused on the use of *GPS* devices coupled with the use of the *Google Earth* free web-based GIS platform. Practical examples of land degradation assessments and river breakage monitoring through different satellite imagery were covered during these sessions.

The reception to the training has been very good, with most trainees describing the courses as very important to their activities. Participants say that knowing how to take advantage of geospatial data and technologies will greatly improve their performance. Given the relatively short time allocated to the courses, most wanted them to go further and cover more advanced topics.

GIS Officer, James conducts GIS training in Mogadishu



## SWALIM Website to offer Somali Language Content

by Shaie Musse

**S**WALIM is pleased to inform all visitors and users of the SWALIM web site that the project will now soon be providing articles and features in Somali language on its web pages. The site will provide Somali readers with useful information on the extensive collection of data, documents, maps and other information on Somalia's water and land resources that SWALIM has collected and produced over the past 10 years.

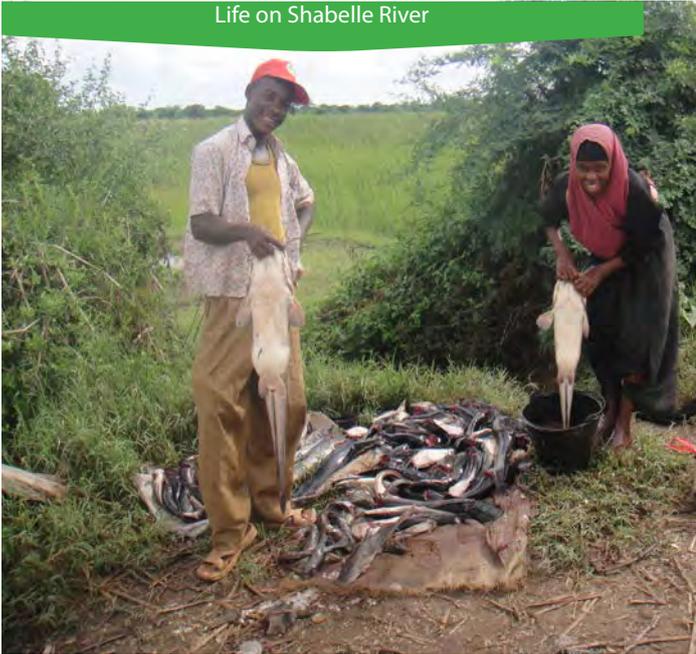
**T**his translated information is being prepared to reach and satisfy the demand of the wider Somali community that does not speak English. The new Somali content will provide Somalis with reliable information on the actual situation of their natural resources and help them understand the growing problems associated with unmanaged water and land use. SWALIM also provides information on measures required to ensure the sustainable use of these resources, and to prevent irreversible damage to the environment.

### Training/Events Timetable - May-August 2016

Course	Date	Location
Open-source GIS, Land Degradation and Land Cover Mapping training	May	Hargeisa
Open-source GIS, Land Degradation and Land Cover Mapping training	June	Nairobi
Information Day	June	Nairobi

## Pictorial

Life on Shabelle River



Flooding at Belet Weyne



Former SWALIM CTA Gadain and other WSIS Prize Champions with ITU Secretary General Houlin Zhao



Comments?

The Editorial Staff of SWALIM Update invites letters, comments and opinions from readers. Address your comments to:

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