

SWALIM Update

SWALIM Completes Survey of Irrigated Agricultural Areas in Puntland

by Simon Mumuli, Osman Abdulle & Mohammed Saeed

Few people know that Puntland has a large number of small scale irrigated farms that provide vegetables and fruits all year round. These farms are located all over Puntland wherever there is adequate amount of water to support irrigated vegetable and fruit farming. To gain a better understanding of the potential of these farms and to provide the data required to improve their production, SWALIM and the Puntland Ministry of Agriculture and Irrigation commissioned a survey of these farms as part of SWALIM's goal of maintaining up to date comprehensive land resources information for Puntland.



Surveyor interviewing an irrigated date palm farmer
Inset: Hon. Abdi Ismail Boss Minister for Agriculture and Irrigation, Puntland

As it was not possible to visit each and every farm, the survey started with looking at the bigger picture by analysing high resolution satellite images to map all irrigated farms in the region. This exercise also generated data and statistics necessary to efficiently sample representative farms to be surveyed. 175 farms were sampled and surveyed by a team of six staff drawn from the Ministry of Agriculture and Irrigation and the Ministry of Environment, Wildlife and Tourism. To ensure high quality results, the ministry staff were trained on all the tools and techniques that were used in the survey including land use assessment methods, soil sampling techniques and field data collection and management. The survey

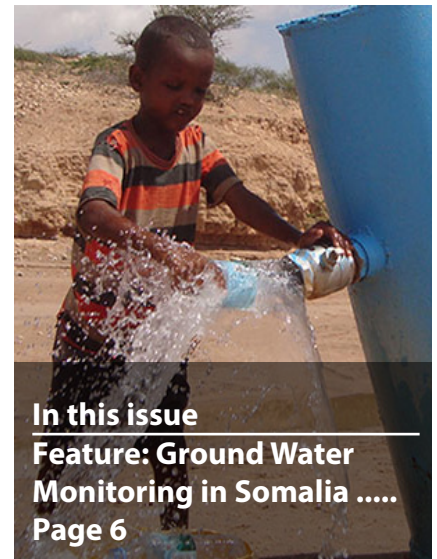
questionnaire covered a wide range of land use and production questions including types of fruits and vegetables grown, size of areas grown, farming inputs used, management of irrigation water, yields harvested and use and marketing of farm produce. Additionally, soil samples were collected from each farm surveyed for detailed soil fertility analysis.

After three weeks of intensive field work, the survey was completed successfully on 30 June 2014 with the team having covered the 175 farms sampled. The survey generated a large dataset, which has been processed and

is currently being analysed to characterize the farms. The soil samples collected are also being analysed to provide detailed soil fertility information. These data – the satellite mapping, land use characterization and soil fertility condition will be used to develop a comprehensive irrigated farming database for Puntland. This database will be used by the Ministry of Agriculture and Irrigation and its development partners to manage and improve irrigated agriculture in the region. The information will also be valuable to all agencies

involved in irrigated agriculture and rural development in Puntland that work with community based organizations and farm owners.

Through this survey, SWALIM has developed the capacity of the Ministry of Agriculture and Irrigation and Ministry of Environment, Wildlife and Tourism in land resources management and land use assessment. The ministry now has well trained and capable staff that will train other staff and continue to utilize the skills gained to support the government and other development partners make informed land use and land resources management decisions.



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SWALIM Academic Open Days in Somaliland

by *Evelyne Karanja*

SWALIM held 2 open days at Mansoor Hotel, Hargeisa on 16 and 17 June 2014. The open days targeted the higher learning institutions in Somaliland. Over 200 students and lecturers from six universities located in Hargeisa and Borama attended this event, whose main objective was to strengthen the collaboration and knowledge sharing between SWALIM and academic institutions. The faculties that were invited were those focusing on environment, agriculture, natural resources, engineering and development studies. Additional objectives were; creating awareness and visibility for SWALIM, equipping a

demonstrations at thematic stations set-up within the venue of the event. The students also had the opportunity to hold one on one discussions with SWALIM staff and ask questions. In addition, lectures were organized for the junior students of Golis University at the university lecture hall, which were attended by over 100 students from various faculties of the university that deal with natural resources management. The lectures focussed on two topics: Monitoring of Water Resources in Somaliland; and Land Degradation Assessment and Monitoring Framework in Somaliland.

Participants at the SWALIM Academic Open Days



pool of candidates with the technical knowledge and ability to use SWALIM's information for research and programme and policy development in their future job placements, in organisations focusing on natural resources management and demonstrating the state of Somaliland's natural resources, particularly the water and land resources to Somali youth in order to contribute to the development of a generation that is aware of the potential of and threats facing these resources.

On each of the two days, the event began with presentations from the different theme groups within SWALIM i.e. Water, Land, Information Management and Geospatial and Remote Sensing. The students were then given the opportunity to interact with the theme groups and see various information and services

A meeting was also held with the faculty deans and senior lecturers to discuss ways in which SWALIM and academic institutions in Somaliland can strengthen collaboration and identify partnership areas.

It was clear from the open days that SWALIM is a unique source of reference materials, providing vital primary and secondary data for research and a strong partner for capacity development in Somaliland for the universities. In the past, SWALIM's engagement with academic institutions has been limited to availing SWALIM staff to lecture at the universities, providing materials to universities and students through liaison office and data centers, engaging lecturers in assessments and workshops and establishing focal points at academic institutions.



SWALIM Capacity Building Efforts lead to a Presidential Award in Somaliland

by *Ali Ismail*

SWALIM's capacity building programme resulted in a Presidential Award accorded to Mr. Ahmed Duale, the data centre manager at the Ministry of Environment and Rural Development. Ahmed received the award from the Somaliland President, Ahmed Mohamed Mohamoud Silanyo in May 2014, during the opening ceremony of the new ministry offices. The award was in recognition of his hard work, dedication and commitment and recognized him as the best staff in this ministry.

Mr. Ahmed Duale has been working in different positions at the ministry. since 1999. He obtained a Bachelor of Arts degree in Business Administration from the University of Hargeisa in Somaliland. He also holds a higher Diploma in Modern Administration and Management from the Cambridge University in distance learning.

Ahmed has benefitted from the SWALIM capacity building programme where he has acquired technical skills and knowledge management on water and land resources. He serves almost 30 SWALIM information and products client requests in a month with the clients including NGO staff, academic students, government officials and the general public.

SWALIM supports the data centre at the ministry by providing institutional capacity building. This capacity building includes various trainings such as information management, data analysis and interpretation, map reading and GPS, Google Earth, GIS among others as well as development of skills in field surveys and data collection.

This presidential award is a great achievement for SWALIM's capacity building programme in the Somaliland line ministries, and is also a major success story for FAO in Somaliland.

Poor Gu seasonal rains lead to drought in Somalia

by *Peris Muchiri*

Somalia is experiencing drought yet again, barely three years after the last one led to famine, causing the death of over 250,000 people in 2010/2011. The poor rainfall performance of the Gu season (April – June 2014), the primary rainy season, is largely responsible for the current drought conditions in some parts of the country.

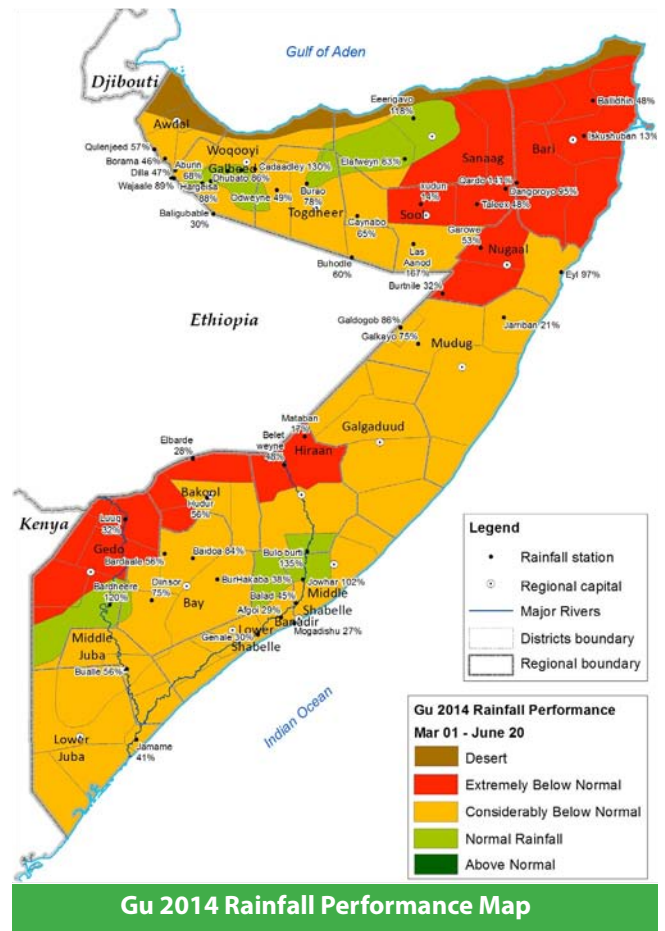
Hot and dry weather conditions persisted in most parts of Somalia from March to June 2014. High temperatures combined with sparse rainfall caused stress to crops, livestock and water reserves. While some areas in the North recorded within-average rains for the three months, the rainfall experienced during this period fell within a limited period. In Gedo region, for instance, Bardheere weather station received a total of 265mm in eight days - with half of this occurring in a single day.

In the southern and central regions, only a few areas had rain in April and May after a late start of the Gu rains. A few pockets show above normal rainfall performance in Middle Shabelle, where the Jowhar and Balad stations show good rainfall distribution. However, the Bay and Bakool agricultural areas, which had poor rains during this season, are of major concern. Dollow and Luuq in Gedo region had rain for only two days during the whole season. Observations from several stations gave the number of rainy days at less than five within each month. According to field reports, the hardest hit areas are Mudug, Galgaduud, Hiraan and upper parts of Bakool.

The northern regions saw a late start of the season with the north-eastern areas receiving no rainfall in the month of April. There was relief in the month of May when good rains were recorded in many areas. The north-western parts benefited immensely from the Gu 2014 rainfall, with some stations recording normal rain levels. At the same time, however, rainfall levels in the Sool, Sannag, Bari, Nuugal and Mudug regions in the north-east were low during the season.

SWALIM continues to use the FAO Combined drought Index to monitor the drought conditions in the country.

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SWALIM Establishes Land Degradation Monitoring Systems in Somaliland

by Simon Mumuli

In a meeting held in Hargeisa at the beginning of May this year, government ministers were asked to identify key development issues in food security and nutrition. As each of the ministers took their turn to speak, it came as a surprise to many of the participants that these senior government officers frequently identified land degradation as one of the key issues affecting food security and nutrition in the region.

Somaliland Minister for Environment and Rural Development, Hon. Shukri Haji Ismail, the field survey team and SWALIM team



Land degradation sets-in very gradually and in many cases without warning until it is too late. Fortunately for Somaliland, it is clear that the government and development agencies have identified land degradation as a major development concern that needs urgent attention. It is also clear that action is required now, especially considering that the problem will be aggravated by climate change.

To provide a basis for addressing land degradation, SWALIM and the Somaliland Ministry of Environment and Rural Development have established a pilot land degradation monitoring system. The system is built on extensive land degradation assessments that SWALIM carried out in the region in 2006.

SWALIM has been building the capacity of the Ministry of Environment and Rural Development who will run the land degradation system. The first training covering tools and techniques for monitoring water, soil and vegetation degradation

was organized in Hargeisa from 6 to 12 May 2014 and was officially opened by the Minister for Environment and Rural Development Hon. Mrs. Shukri Haji Ismail Mohamed. Addressing the trainees, the minister emphasized that such training sessions should be made continuous. The minister thanked SWALIM for the support it had given to the ministry in the past and the present. The minister also pointed out that the

training that is immediately followed by field data collection activity would help build capacity of the ministry in the field of land resources data collection. Following the training, the team of six monitors commenced the first round of monitoring between 29 and 12 June 2014 at 60 benchmark sites. Monitoring was completed successfully and the data collected is currently being analyzed. The data, which includes density and cover of mangroves and other trees, soil fertility, gully, rill and sheet erosion and herbaceous biomass will provide the baseline for the monitoring system.

Once finalized, the land degradation monitoring system will provide information on the “state of the land” and a database that will

provide the capacity to analyze land degradation trends in Somaliland. Additionally, the system will keep track of good land husbandry and land rehabilitation efforts that have shown positive impacts on the land and its productivity and that can be up-scaled and transferred to other similar environmental and livelihood contexts.

To expand the capacity of the ministry, a second training on data processing, analysis and dissemination is planned for August and September 2014. In all land degradation activities, the environment ministry has been collaborating with the Ministry of Agriculture since land degradation equally affects agricultural activities. After the completion of the second training, the team will have capacity to manage the land degradation monitoring system, train other staff, support the government and development partners in the use of the data generated by the system and design and implement interventions to address pressing land degradation problems in Somaliland.

Feature: Groundwater Monitoring in Somalia

by Flavian Muthusi

Groundwater is the main water source in Somalia, as the country has limited surface water resources. The Juba and Shabelle Rivers in the south are the only perennial rivers in a country that has a predominately arid and semi arid climate. Domestic, livestock and agricultural water needs are met mostly from groundwater resources, hence the importance of a good ground monitoring system in the country to effectively plan and utilize this vital resource. Building such a system is however a big task which requires huge financial and time resources to accomplish.

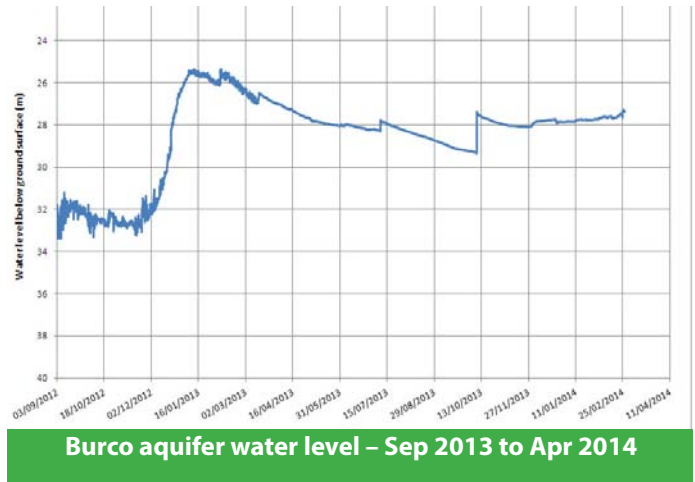
SWALIM has over the years supported the establishment of a groundwater monitoring system for Somalia by developing tools and building capacity within the Somali water authorities and WASH partners. This investment started in 2006 with the development of the Somali Water Sources Information Management System (SWIMS) to standardize point water sources data collection and management across the agencies involved in the water sector. Using this tool, the water sources data from different agencies was consolidated into one national database. This database was updated in a country wide water sources inventory in 2008 and 2009 that surveyed over 2,250 strategic sources, mainly boreholes, shallow wells and springs. This survey covered many parameters including sources yield, usage and water quality and formed the baseline data for the ground water monitoring system.

In 2012, SWALIM built on existing information to investigate the potential groundwater aquifers in Somaliland and Puntland. Hydrogeology data was collected and added to the SWIMS database and geophysics surveys were carried out at selected sites to understand the underlying formations with respect to water availability. From this study, a regional hydrogeology map at a scale of 1:750,000 was developed. Four areas of interest were identified in consultation with the government and water authorities and detailed investigations carried out, facilitating production of detailed hydrogeology maps at a scale of 1:250,000. These products have become instrumental in guiding the selection of areas for detailed investigations before drilling.

In 2013, SWALIM started installing divers to monitor aquifer water levels and temperature to further improve the ground water monitoring system. So far, eight divers have been installed in four locations in Somaliland (Hargeisa, Burco, Borama and Berbera)



and four locations in Puntland (Garowe, Galckayo, Qardho and Bosaso). This expansion has been carried out in collaboration with government water authorities and water utility companies in the two regions. The divers record aquifer water level and temperature four times a day. The data is periodically downloaded by the Ministry of Water Resources in Somaliland and PSAWEN in Puntland and analysed to support ground water resource management.



The current manual data download from the eight divers is costly considering the spatial distribution of the sites. However, with advances in technology, SWALIM has recently received a test diver from SUTRON that allows automatic transmission of data via satellite. The test diver was installed in Garowe in April 2014 and transmits data every 12 hours to an online server. Once the testing is satisfactory, more of these automatic divers will be installed to cut running costs.

A comprehensive ground water monitoring system should include water quality monitoring. SWALIM has been supporting water quality testing and monitoring systems at the Ministry of Water Resources in Somaliland and PSAWEN in Puntland through trainings and provision of water quality testing kits and chemical reagents. Additionally, water samples have been sent periodically to Nairobi for detailed water quality tests.

The long term sustainability of the monitoring systems established by SWALIM depends on capacity of the water authorities to operate and maintain them. Capacity building for the Ministry of Water (Somaliland) and PSAWEN (Puntland) staff has been going on through regular trainings, including on the job training in the installations, data download, processing, analysis and dissemination. The capacity building will continue until the systems are fully operated and maintained by the Somali water authorities and a local water testing facility is established.

The ground water monitoring system that SWALIM has established should be expanded to cover the entire country and supported with resources to allow regular monitoring. This requires involvement of stakeholders since Somali government authorities cannot raise all the resources required to maintain such a system.

Monitoring Land Degradation Control In Puntland

by **Anthoni Ndubi & Julie Mainji**

The environmental conditions in Puntland are deteriorating at a fast pace. Deforestation due to unregulated grazing and charcoal production has led to massive and possibly irreversible degradation of grazing lands in a region where the majority of the population depend on livestock for their livelihoods. To improve the state of natural resources, external intervention to control land degradation is essential. There is a need for baseline information on the state of natural resources in Puntland as a starting point for monitoring the interventions aimed at rehabilitating and restoring degraded lands. Recognizing this need, the European Union has allocated funds towards the MDG Initiative for Somalia: Reducing hunger and food insecurity in Puntland region through improved and sustainable use of rangeland resources, currently being carried out by ADESO, an African charity and development agency and CARE, the private international child welfare organization. SWALIM was tasked to monitor the interventions to be put in place as a check to expansion of gullies and other land degradation types.

Mudug, Bari, Sanaag, Nugaal and Sool Regions of Puntland. 118 of these 169 sites were selected by ADESO and 51 by CARE for interventions to control land degradation and follow up with monitoring and impact assessments.

SWALIM has created a baseline to be used for monitoring rehabilitation of degraded lands in project target areas. This will involve monitoring the state of natural resource management by conducting land cover change analyses through remote sensing. The monitoring looks specifically at the reduction of bare land, the slowing of gullies expansion and the expansion of vegetation cover.

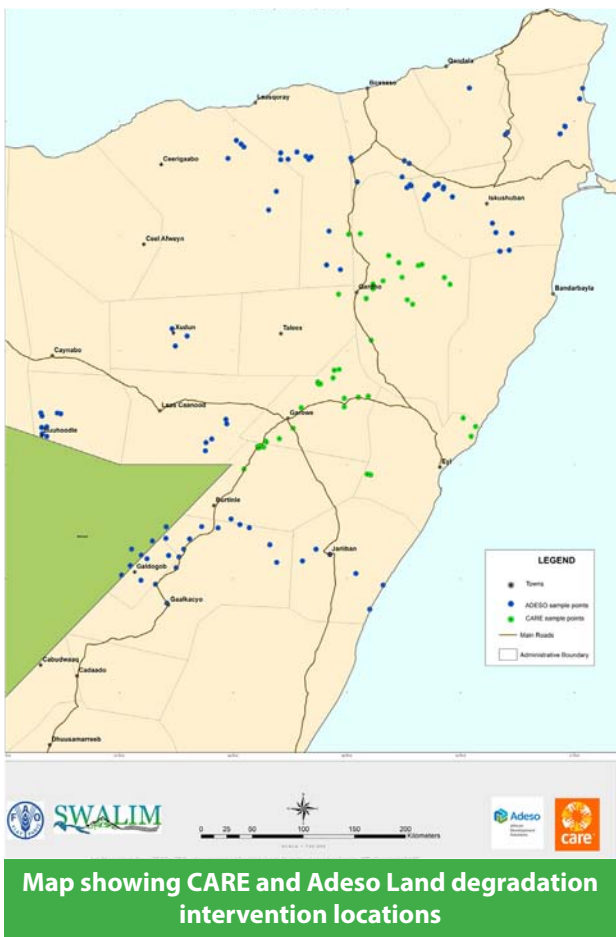


A preliminary analysis of very high resolution satellite images was performed for the hot spots to show the status of land degradation and differentiate land degradation types, including “gully erosion”, “sheet erosion” and “rangeland degradation”. It also showed any land management initiatives that already exist.

Based on visual image interpretation, 48% of the sites picked for assessment had sheet erosion, 41% had a combination of sheet and gully erosion, 5% had gully erosion only, 4% had a combination of sheet erosion and rangeland degradation, 1% had only rangeland degradation, and just 1% had a combination of sheet erosion, gully erosion and rangeland degradation.

Once the interventions to control land degradation have been carried out, impact assessments will be conducted by SWALIM using a combination of satellite remote sensing and field visits for those areas that are accessible.

This monitoring activity links to one of the outputs of the fifth phase of the SWALIM project: establishment of a land degradation monitoring system covering all types of land degradation in Puntland.



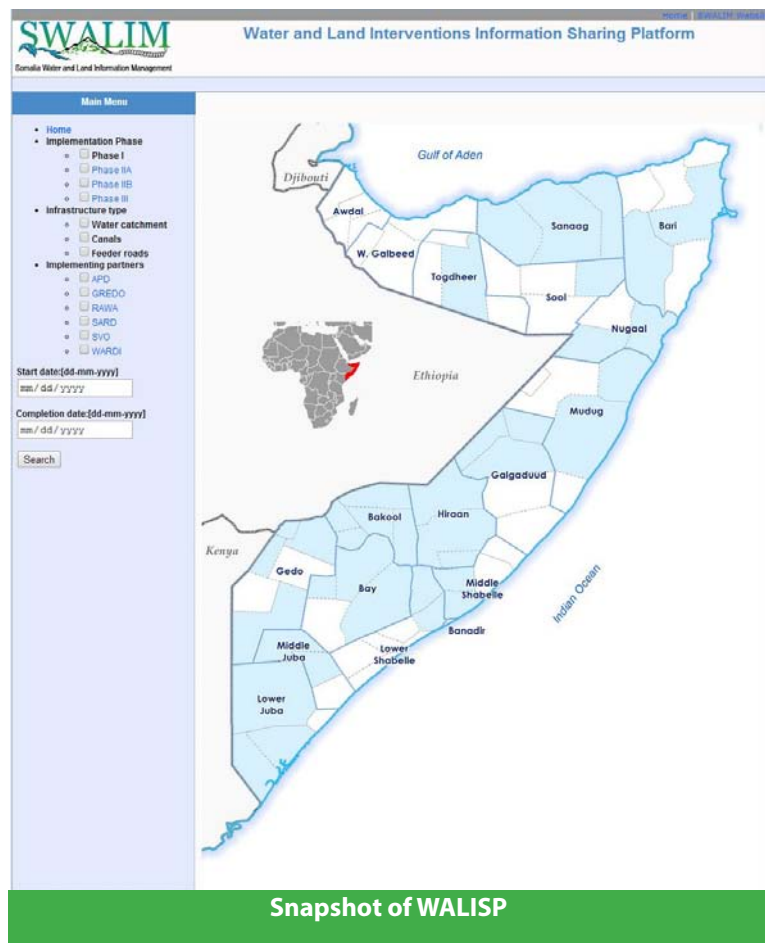
SWALIM has contributed to this effort by conducting training for line ministry, ADESO and CARE staff on how to collect field data on land degradation. These training sessions were followed by practical field work campaigns. Initial field assessments performed by ADESO and CARE (with the support of SWALIM during the field work) led to the selection of 169 hot spots, with project target areas clearly identified in

The Water and Land Intervention Information Sharing Platform (WALISP)

by Margaret Mugo

Over the years, many projects and programmes supporting sound land and water management have been developed in Somalia, boosting the productive infrastructure in recent years. However, many successful infrastructure rehabilitation interventions - often involving “cash for work” mechanisms - are limited in their scope and geographic coverage, are not well documented, and are rarely known, as the scant information relating to them is not widely disseminated.

The need to share information on these interventions gave rise to the development of the Water and Land Intervention Information Sharing Platform (WALISP). This is in line with SWALIM Phase V activities which seek to ensure enhanced access to information. In order to help visualize the interventions undertaken by FAO-financed implementing partners on water and land resources, this internet-based platform shows information on a static map interface. In addition to the maps, users will be able to access photos of the infrastructure site taken before, during and after rehabilitation, as well as query the data and filter for implementing partners, cash-based intervention phases and infrastructure types such as catchments, feeder roads and canals. By bringing together this previously inaccessible data, the system will also facilitate, inter-agency harmonization efforts on land and water projects such as gully erosion control and rangeland conservation, among others. All data will be available as downloadable excel files and maps.



Snapshot of WALISP

The information sharing platform is expected to influence as well as enable informed actions and decisions, a need that cannot be underestimated. The initiative will not only focus on compiling, archiving, querying and sharing information on past interventions, but also on building the capacity of partners and counterparts to use the information available in the system to support policy makers, researchers, development organisations and other relevant stakeholders.

SWALIM Digital Document Repository (SDDR) Updates

SDDR has been updated with the following data for the period April to June 2014:

Time-series

- * Water sources data from January 2014 survey
- * Climate data from automatic weather stations
- * Rainfall data from manual stations
- * River levels and discharge data
- * Synoptic stations data

Maps

- * Land degradation hotspots in Puntland
- * Land degradation intervention types
- * Gu Performance 2014

Did You Know?

- * SWALIM information is available free of charge provided that you are acknowledge as the source when the information is used.
- * SWALIM products and services copyright is held by FAO on behalf of the Somali government. Some products such as high resolution satellite imagery have commercial copyright and use restriction as extended by the providers.
- * You can follow us on Facebook - “Somalia Water and Land Information Management (SWALIM)” and Twitter - @FAOSWALIM

GIS training participants in Garowe



Practical field GIS training in Garowe



SWALIM Training Continues to Attract Wide Audiences

by James Ngochoch

With a comprehensive training schedule planned throughout Phase V of SWALIM, capacity building activities have been taking place every month of this year. A clear indicator of the need for capacity building can be seen in the increasing demand and number of participants as well as field application of the taught subjects.

Trainings on GPS, Google Earth, Basic GIS and map reading attracted an audience of 30 trainees in both Somaliland and Puntland, from a variety of stakeholders. The training held in May in Garowe saw participants from 8 partner agencies (PSAWEN, HADMA, CARE, ADESO, VSG, EAU, ADRA and OCHA), 2 line ministries (MoEWT, MoAI) and FAO office staff. Participants at a similar training held in June in Hargeisa were drawn from 2 academic institutions (UOH and Gollis University), 4 line ministries (MoA, MNDP, MoERD and MoWR), partner agency (NERAD) as well as FAO Hargeisa office. The maximum capacity per session for these courses is 30 trainees due to the hands-on and practical nature of the training that necessitates one-on-one interaction between the trainer and trainees.

The trainings undertaken by SWALIM follow a Training of Trainers (TOT) approach. The training participants, are trained with a view to not only imparting practical skills that can be used in their jobs but also to empower them with skills to train others in the same areas. This TOT approach has also begun to show success, for example, in June, Abdikani Yusuf the Meteorology Officer from MoA, & Abdinasir Ibrahim the Data Centre Officer from MOWR undertook a 5-day mission to provide training to the Burco meteorological station observation staff and to repair the Erigavo Automatic weather station. The capacity to conduct the training and to diagnose and resolve problems with the weather monitoring equipment are a result of the training they have received from SWALIM.

Our information desk continues to receive requests for trainings with the highest demand coming from partner agencies, government institutions and academia from Mogadishu, Hargeisa, Garowe and Nairobi. Training is planned for Nairobi targeting partner agencies involved in field data collection exercises. To register your interest in these trainings, send an email to swalim@fao.org or visit our website for updates: <http://www.faoswalim.org/>

Training Timetable September- December 2014

Course	Date	Location
Land Degradation Data Analysis	September 2014	Hargeisa
Remote Sensing for Land Resources Assessment and Mapping	September 2014	Hargeisa & Garowe
Google Earth, GPS and Basic GIS course	September 2014	Nairobi
Rainfall Data Collection	September 2014	Dollow
Weather Observation	October 2014	Hargeisa, Garowe & Mogadishu
Water Sources Live Map	October 2014	Hargeisa, Garowe & Nairobi
Drought Monitoring	November 2014	Garowe & Hargeisa