SWALIM Update | Quarterly Newsletter

August - October 2013, Issue 3

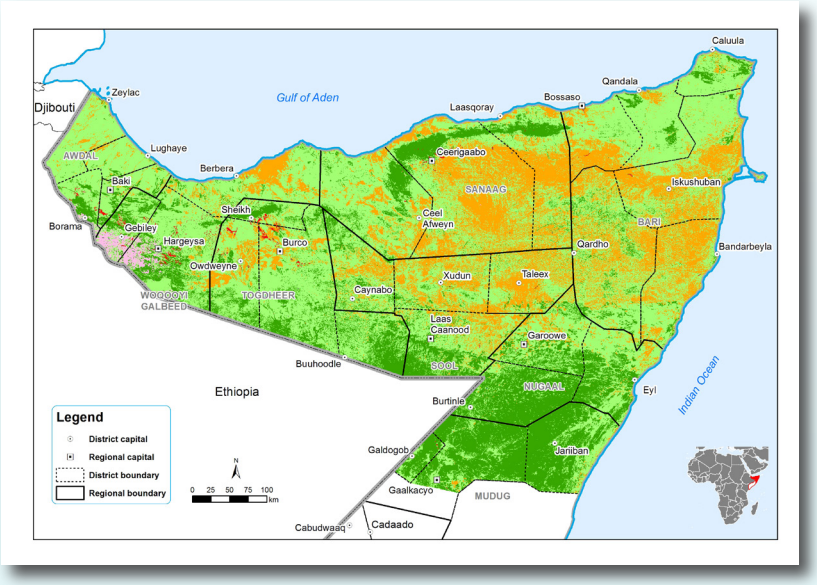
SWALIM Completes Preliminary Estimation of Land Cover in Northern Somalia

Sustainable management of land resources requires one to have accurate and up to date information on the major vegetation types and land uses. For Somalia, the existing information is old and requires to be updated. This need is urgent considering the widespread land degradation witnessed throughout the country. Requests are continuously being made to SWALIM by the government and development agencies for updated land cover and land use information for Somalia. In response to these requests, SWALIM is working tirelessly to generate new land cover and land use information for all of Somalia.

SWALIM had adopted an approach that uses the USGS dot matrix land cover mapping technique that allows mapping of large areas accurately at a reasonable cost and time. Using this approach and working with over 290,000 km2 of satellite imagery, SWALIM has recently completed a new land cover map for the Northern part of Somalia. This work follows a similar exercise for Southern Somalia that was completed earlier this year and takes SWALIM a step forward towards providing a comprehensive land cover and land use dataset for Somalia.

For the new dataset, seven land cover types based on the FAO LCCS3 have been mapped. A preliminary land cover map for Northern Somalia shows interesting initial results. For example, compared to a study done in 2007, the new data shows an increase in agricultural land in the areas around Hargeisa, Gebiley and Borama from 1,589 to 2,401 Km2.

The next step in this process is to verify the preliminary land cover map and characterize associated land uses. SWALIM has trained staff of the Ministry of Agriculture and Ministry of Environment and Rural Development in Somaliland who are currently engaged in a field survey to collect data. This field work is expected to be completed in the next few weeks and the verification exercises will be extended to Puntland in the near future.



Land Use/Land Cover Map of Northern Somalia as derived from the estimation of agricultural areas using satellite imageries

Once verified and completed, the new dataset will provide vital information to support agricultural interventions, land use management and planning and land and environment policy development among other uses. In the long run, SWALIM hopes to extend the mapping to areas that are not mapped in order to provide a complete land cover and land use dataset for the entire country.

COLOR	CLASS	USER LABEL	N. of DOTS	DOTS (%)	Area (km2)
	Irrigated Crop	IC	2,833	0.24	691
	Rainfed Crop	RC	9,334	0.79	2,276
	Natural Woody Vegetation Closed to Open	NVCO	258,989	21.80	63,145
	Natural Woody Vegetation Sparse or Herbaceous	NVSH	639,133	53.80	155,830
	Bare Areas	BA	276,415	23.27	67,394
	Built Up Areas	BU	1,134	0.10	276
	Water Bodies	WB	191	0.02	47
		TOT:	1,188,029	100.00	289,658

Table summarizing the results of the study for Northern Somalia

Ugo Leonardi
Remote Sensing Officer

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SWALIM Kicks-off Land Use Field Surveys in Somaliland

Most of the Northern part of Somalia is dry and cannot support rain fed agriculture except for small pockets of land in the areas around Hargeisa, Gebiley and Borama which receive amounts of rainfall that can support rainfall dependent agriculture. In the rest of the region, low rainfall means that agriculture is only possible where there are alternative water sources to support irrigation. However, as food demand increases, there is an increasing need for a detailed inventory of irrigated agriculture to assess current and future development potential. In 2012, the Somaliland Ministry of Agriculture requested SWALIM to support it undertake such as inventory.

Hon. Mohamoud receives a briefing prior to the field survey by ministry staff in collaboration with SWALIM

Building on an initial rapid assessment of irrigated agriculture carried out in 2011, SWALIM has analyzed recent high resolution satellite imagery of irrigated areas in the Northern part of Somalia and compiled a preliminary map of irrigated agriculture in the region. The results show that in this water deficit environment, irrigated agriculture is confined to few areas where there are adequate water sources to support agriculture production.

As part of this activity, SWALIM has trained the staff of the ministry on land cover and land use field data collection and are currently in a field survey kicked off by Hon. Farah Elmi Mohamoud, the Minister of Agriculture in Somaliland. The team are collecting the data required to verify the preliminary map and characterize the irrigated agriculture systems mapped. It is planned that this process will be extended to Puntland in the near future. Once verified and completed, this datasets will be useful in guiding, planning and managing irrigated agriculture development in the region.

Hon. Mohamoud receives a briefing prior to the field survey by ministry staff in collaboration with SWALIM

Simon Mumuli Oduori
Land Resources Officer

Flooding in the Middle Shabelle Region of Somalia - In Search of a Long-term Solution

The Middle Shabelle region is located in a floodplain that is frequently exposed to floods. The natural floods in the floodplain are primarily due to drainage from catchment areas located in the Ethiopian highlands, which experience more rains in terms of quantity and frequency. Flooding in the agricultural land is largely due to illegal openings on the dikes or on the high natural embankments to create an outlet for irrigation water during the dry season. These openings lead to flooding during the rain season which inundates agricultural land. Before the Civil war, structural measures to mitigate and control floods in Somalia included construction of dikes, barrages and flood relief canals, e.g. Johwar Off Storage Stream Reservoir (JOSSR) fed by the FAO canal from Sabuun barrage and the Chinese or Duduble Canal. These structures are currently in disrepair and non-functional.

Community members working on the closure of the breakage at Barrey

Heavy rains in the last rainy season (Gu 2013) and in the Ethiopian highlands towards the end of July 2013, caused floods in parts of Middle and Lower Shabelle regions, especially Jowhar district. The high river levels, continued deterioration of local, regional and national river basin management, failure of flood control structures as well as the lack of central co-ordination make effective flood control a challenge.

FAO, WFP and UNICEF visited Jowhar district to assess the damage and loss, quantify the needs, propose short term emergency interventions and plan and advocate for medium to long term solutions. A river breakage near Barrey village, the worst affected area located about 11km North East of Jowhar town caused flooding that destroyed over 40km2 of farm land and disrupted road transport in the affected areas.

Several weak points along the river were identified and continue to pose danger in the region. The International Committee of the Red Cross (ICRC), WFP and local NGOs worked closely with the local community in efforts to reinforce the weak points to prevent spread of the flood waters by strengthening canal banks with sand bags. The impact of the floods included temporary displacement of approximately 4 044 households and crop damage estimated at 4 857 ha of cropped land. To assist in closing this breakage FAO is assisting the communities by working with the autorities of Middle Shabelle, to rehabilitate earth barrages for flood control and will also distribute seeds and tools.

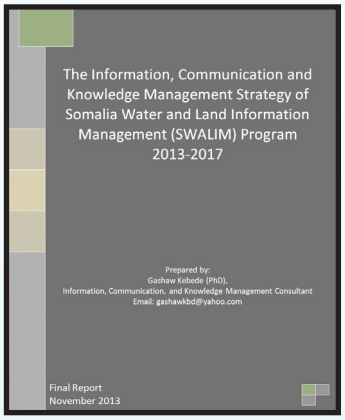
Long-term solutions to stem this recurrent disaster are required to replace temporary flood control measures. These include:

- Awareness raising campaigns on illegal breakages and cuts on the river banks to encourage behaviour change
- Rehabilitation of flood control infrastructure
- Construction of new dykes and rehabilitation of the existing ones
- Desiltation of canals to ensure proper drainage of flood water
- Mapping of weak river embankments
- Improved hydro-meteorological monitoring
- River basin management:Transboundary information sharing with Ethiopia

Peris Muchiri
Hydro-Meteorologist

SWALIM Finalizes Information Communication and Knowledge Management Strategy

SWALIM is committed to ensuring that the information that has been recovered, developed and consolidated in the past 10 years, is easily available to stakeholders and partners in a format that is simple to understand and share within organisations. In line with this, SWALIM has developed an Information, Communication and Knowledge Management (ICKM) Strategy that will support the specific objectives of the current phase of the project, with emphasis on improving our communication to ensure increased usage of information generated. The development of the strategy was a recommendation from an evaluation of the information, communication and knowledge management activities of the project in 2012.



ICKM Strategy document

The strategy development involved five key processes, namely, inception meetings, desk research, situational analysis, strategy formulation, and finalization. The situational analysis was carried out in July – August 2013 when SWALIM engaged with a total of 135 individuals from 95 partner organizations and other stakeholders from Somalia and Kenya through semi structured focus group discussions, one-to-one interviews and observations.

The findings of the situational analysis show that whereas all stakeholders recognise SWALIM as the principal source of water and land information on Somalia, none knows the whole range of the information products, services and capacity building activities offered by SWALIM. Inadequate visibility, low accessibility and limited applicability of SWALIM's information products and services and limited and slow capacity building of partners were identified as the major concerns.

Some of the activities SWALIM plans to implement to address these concerns and ensure wider reach and use of our information include:

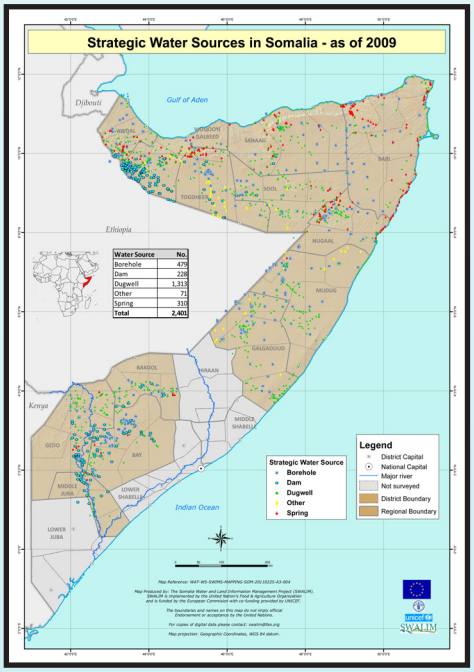
- Targeted marketing communication campaigns to brand and publicize SWALIM's products, services, and activities
- Targeted extension of existing publications with analytical commentaries and abridged versions
- Formal partnerships with FSNAU and other sectors of FAO Somalia and other partners to complement SWALIM's data and activities
- Regular information, services and capacity building needs assessment and user satisfaction studies
- An online interactive platform consisting of information on key variables and frequently asked questions
- Involving Somali specialists in the activities of SWALIM to transfer skills and experience to facilitate enhanced interpretation and application of SWALIM information
- Creating corporate communication tools to emphasize the activities, achievements, and impacts of SWALIM
- Supporting the development of the long term human capacity building plan of the main partners

SWALIM will present and disseminate the strategy to stakeholders in early 2014. A joint FAO & European Union (EU) event is planned to take place in February 2014, to highlight the impact of EU funded information projects. SWALIM will use this event to showcase how the information generated has been used for emergency, rehabilitations, and development purposes

Evelyne Karanja
Information Officer

Updates on Strategic Water Sources Livemap Development

In many parts of Somalia, point water sources such as boreholes and dug wells are the only sources of water. However, their state changes frequently and agencies involved in water resource management in the different parts of the country need real time access to information on the different sources. So far, the Somalia Water Sources Information Management System (SWIMS) has provided this service throughout the country. After several years of application, a review of SWIMS together with the relevant government ministries and WASH cluster members has identified the need to improve its data update and dissemination process. Through the support of the Common Humanitarian Fund (CHF), SWALIM is responding to this need by developing an online water sources live map as a complementary module of SWIMS.



Map of Water Sources of Somalia

Consultations have been made with the Somali government agencies and other water sector partners charged with the responsibility of managing water resources such as the Ministry of Water in Somaliland, the Puntland State Agency for Water, Energy and Natural Resources (PSAWEN) and WASH cluster members.

To come up with the best system, SWALIM has identified existing systems that could be customized or improved to suit conditions in Somalia. Similar projects by FAO have been reviewed and discussed with the technical teams involved in their development. Private developers have also been invited to make presentations of their systems. The aim has been to identify components and processes that can meet the unique and challenging needs of Somalia. From this process, SWALIM has consolidated ideas from the different projects and better defined the live map .

SWALIM has also intensified updating of the SWIMS database to include as much information as possible in readiness for the development and testing of the live map. The Somaliland Ministry of Water and PSAWEN have provided updates of borehole data across Somaliland and Puntland. Other agencies are being engaged to share recent water sources data that they have. As the development continues, close consultation will be maintained with all partners including the Ministry of Water in Somaliland, PSAWEN in Puntland and WASH cluster members in Somali and Nairobi.

Flavian Muthusi
Hydrologist

Towards Sustainable Capacity Development for SWALIM Line Ministries

Since 2008, SWALIM has put a lot of effort in developing the capacity of the line ministries to facilitate the handing over of the SWALIM system to the ministries in the future. To ensure that capacity development is sustainable, SWALIM follows the FAO capacity development approach that recognizes three dimensions of capacity development i.e. functional capacity, technical skills and the operational environment (individual, organizational, socio-economic and cultural environment) as important for sustainable capacity development.

Somali ministries face huge limitations in all of the three dimensions and it is not possible for one organization to fully meet their capacity development needs. Capacity development of Somali ministries and institutions requires the collaborative effort of many development agencies.

Hon Abdiqani Elmi, Minister for Environment with trainees in Garowe, Puntland

For SWALIM, in line with the project mandate, the focus has been on building the technical skills and some aspects of functional capacity. Some outcomes of SWALIM's capacity development efforts this year include 14 training sessions in Somaliland and Puntland, ministry data centres equipped with a variety of skills such as weather monitoring map-creation and data collection for field surveys and Ministry facilitation through equipment such as computers and provision of soil analysis kits, cameras and terrameters.

The capacity development efforts target mainly the production sector line ministries and other government agencies that are affiliated to these ministries or that have the mandate for water, land and environment management. Additionally, SWALIM is contributing to the development of the capacity of local NGOs and academic institutions, both of which are heavily involved with the management of water, land and environment and closely collaborate with the government.

Despite the huge capacity development needs, the effort being made is yielding good results. Technically, the ministries have developed good skills in water and land resources assessment and have successfully completed three complex studies with minimum support from SWALIM. Additionally, the entire weather monitoring network in Somaliland and Puntland is operated and managed by the ministries with SWALIM only providing data communication costs and technical support where necessary. The ministries of agriculture in the two regions are able to compile monthly weather reports and disseminate them widely, including through the mass media. All the data requests made to the ministries are also served effectively by the staff of the ministry data centres.

While progress has been made, it is important to note that numerous challenges still need to be addressed. Much of the technical capacity that is being developed by different agencies within the ministries cannot be utilized to its full potential unless the functional capacities of the ministries are also developed. Within the four areas of functional capacity identified by FAO (i.e. policy and legal development; knowledge and information generation and access; partnership, networking and alliances and project planning, implementation, monitoring and evaluation) a lot still needs to be done within the Somali ministries.There is also an urgent need for all the development partners contributing to capacity development to work together.

To move our capacity development forward, we are planning a capacity development assessment exercise early in the coming year for the line ministries that we work with. The exercise will assess the progress we have made so far, identify gaps and unaddressed needs and propose our future capacity development programme.

Jeremiah Njeru
Information Management Coordinator

Weather Observation Training in Puntland

SWALIM has introduced new rain gauges made of metal to replace the plastic rain gauges that were in use in 17 stations across Puntland. The new rain gauges are more durable (especially in areas with extreme weather conditions) and easy to operate.

Rain gauge readers trainee prepare the site for installation of a rain gauge

For a smooth transition SWALIM conducted a weather monitoring training for the rain gauges readers. The training covered areas such as procedures for data collection, maintenance of the weather stations, rain gauge installation and transmission of data.

The training was successful and the skills imparted were evaluated ustrhough practical hands-on sessions. After the training, the gauges were handed over to the gauge readers to install in their respective districts.

The rain gauge readers report to the data centre of the Ministry of Agriculture on a daily basis sharing various weather parameters such as amount of rainfall, temperature levels, wind speed among others. The data is then analysed by the data centre staff with the help of the SWALIM Liaison office staff and the results are used to produce monthly rainfall data and the weather bulletin. These bulletins are shared with stakeholders including government agencies, international and local NGOs and UN Agencies.

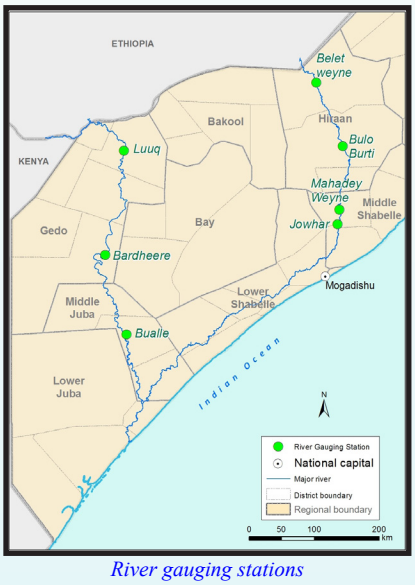
Trainees after receiving new rain gauges for their stations

SWALIM is committed to ensuring that through the capacity development programme, the responsible Somali agencies are equipped with the knowledge and skills to monitor the weather in order to assist stakeholders to successfuly plan programmes and activities that are dependent on weather.

SWALIM Puntland Team

Somalia River Gauge Readers Training in Kenya

River gauge readers from South-Central Somalia participated in a training that took place in Nairobi between 9th – 16th September 2013. The training, focusing on discharge (river flow) measurement and other hydro-meteorological observations, was organized for the six SWALIM gauge readers from key monitoring stations along Juba and Shabelle Rivers namely: Luuq, Bardere and Bualeon the Juba, and Belet Weyne, Bulo Burti and Jowhar on the Shabelle. The training aimed to improve the capacity of the gauge readers in carrying out the tasks of collecting, processing and transmitting discharge and other hydro-meteorological data from their respective stations.

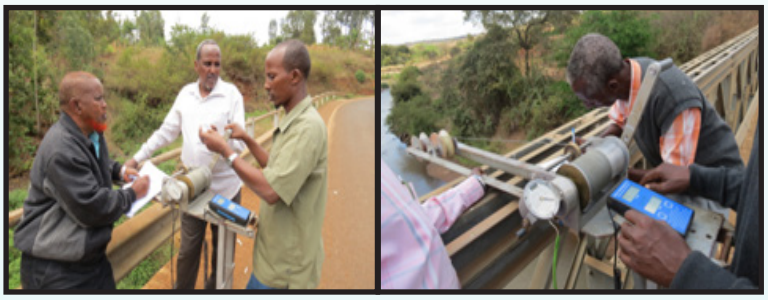


River gauging stations

The one week training was a follow up to previous trainings for the gauge readers, and involved a lot of field activity for maximum exposure and hands on practice. The field exercise was carried out at Embu along Thiba River, one of the main tributaries of the Tana River.

The gauge readers were taken through the process of discharge data collection and processing, rainfall recording and monitoring of other weather parameters monitoring using manual and automatic weather equipments.

River flow monitoring is done for different purposes. In Juba and Shabelle the activity is carried out to monitor river floods and irrigation water levels, both of which affect thousands of farmers along the riverine areas. Humanitarian and development agencies and community based organisations make good use of the data collected from the hydro-meteorological stations to plan and prioritize interventions and disaster response in these regions.



Discharge measurement at a bridge in Lower Thiba River , Embu

There are numerous challenges in carrying out hydro-meteorological observations in South-Central Somalia, the main one being insecurity. Nevertheless, SWALIM's motivation to carry on with the activity comes from the need to build capacity within Somalia for sustainable monitoring. After the transfer of SWALIM activities to the Somali authorities it is expected that the trained gauge readers will take a lead role in training other ministry staff in the monitoring systems.

Flavian Muthusi
Hydrologist

SWALIM Digital Document Repository (SDDR) Updates

The SWALIM Digital Document Repository (SDDR) has been updated for the third quarter of 2013 (July, August and September) . The updates include time series data, new water and land reports and new land maps as indicated in the list below

Time series data

- Climate data from automatic weather stations
- Manual rainfall data
- River levels data
- Discharge Measurements data
- Synoptic stations data

Reports and Documents

a) Water Reports series:

- W-21 Climate Change Impacts on Water Resources of Somaliland and Puntland
- W-22 Water Demand Assessment for the Juba and Shabelle Rivers

b) Land Reports series:

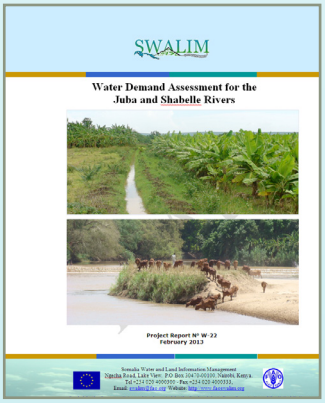
- L-19 Methodology for Monitoring of Mangroves in Somalia
- L-20 Practical guide for Land degradation monitoring
- RSM-02 Estimating Cultivable Areas in Central and Southern Somalia using Remote Sensing

Maps and spatial data

- Cultivable areas in Southern Somalia (District maps)
- Relief types of the northern AOI
- Land cover change map from visual interpretation
- Land cover of Northern Area of Interest – Main aggregations
- Irrigated Agricultural areas of Puntland

SWALIM will continue to ensure that all our information and data is available to our stakeholders through this one-stop platform which is updated on a quarterly basis throughout the year. SDDR is accessible online via http://sddr.faoswalim.org/sddr/

Should you experience any difficulties in accessing SDDR contact us on swalim@fao.org



Water demand assessment report for the Juba and Shabelle rivers

Stephen Waswa
Data Management Officer

Training in Disaster Risk Reduction and Early Warning

Somaliland has experienced a significant number of climate related disasters. Recent information on the hazard profile of the region and its vulnerability and capacity assessment shows that these disasters are related to drought, locust invasion, environmental degradation, floods and epidemics. Disasters have caused great loss of life and property and have pushed several people into poverty. It is therefore increasingly becoming a major developmental issue of urgent concern for the government, development partners and local communities.

Trainees display the Somaliland Hazard map

In October 2013, twenty five people from different institutions in Somaliland were selected to participate in disaster risk reduction and early warning training provided by SWALIM. The group was drawn from three line ministries; Agriculture, Water Resource and Environment as well as officers from the National Environment Research and Disaster Preparedness Authority (NERAD).

The training which emphasised on disaster risk reduction and early warning is part of an integrated approach to building resilience of the communities under the Common Humanitarian Fund (CHF). One of the major milestones achieved during the training was the analysis of disaster trends for the first time ever, that culminated in designing of a hazard map by the participants. A similar training is planned for Puntland and South and Central Somalia participants in mid-November 2013.

During the five-day training in Hargeisa, some of the knowledge that was transferred to the participants included: basic knowledge and skills on Disaster Risk Reduction (DRR), drought resilience techniques and development of approaches in drought risk management. In addition, drought risk assessment skills; effective communication and dissemination of drought early warning; preparedness and contingency plan techniques; promotion of Community Based Early Warning System (CBEWS); effective coordination and information management were some of the skills developed. These skills are particularly important given the recent cases of droughts and floods in Somalia. The group also visited two locations outside Hargeisa which are prone to flash floods

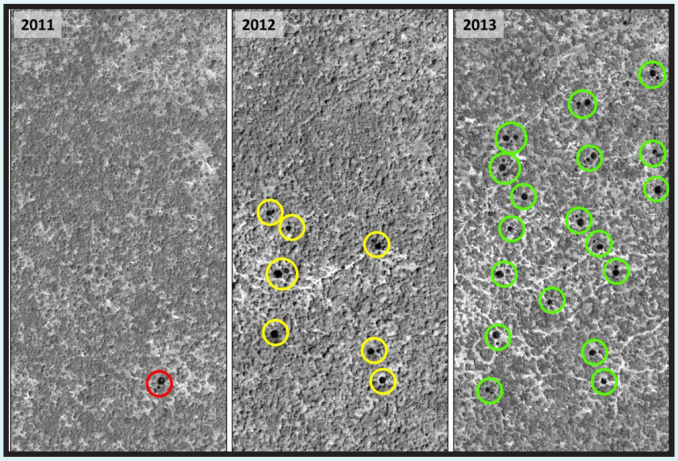
SWALIM has signed a Letter of Understanding (LOU) to support NERAD in improving capacities and establish a sound knowledge management system Disaster Risk Management.

Peris Muchiri & Philip Omondi
Hydrometeorologist & DRR Consultant

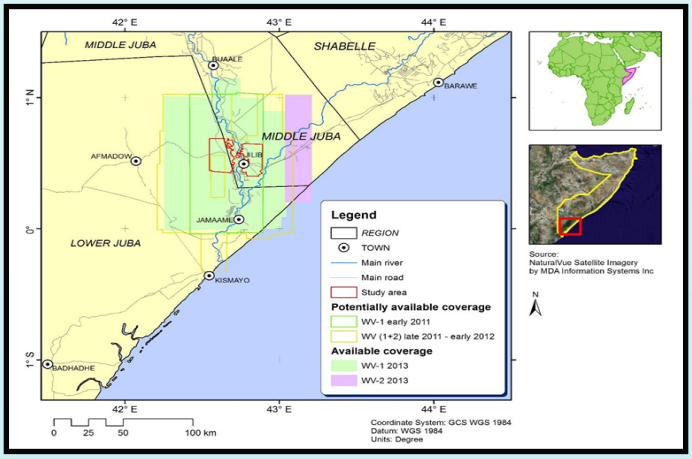
Locating and Monitoring Charcoal Production in Southern Somalia

SWALIM continued to locate and monitor charcoal production in Southern Somalia. SWALIM, the JRC of the European Union (EU) and the University of Twente (ITC) of the Netherlands, implemented a semi-automatic procedure to detect the charcoal production sites over a small area, along the Juba river in Southern Somalia. This is part of SWALIM contribution to the UN Joint Programme for Sustainable Charcoal Production and Alternative Livelihoods (PROSCAL) and the broader land degradation monitoring system being developed for Somalia.

For the study, Very High Resolution (VHR) satellite imageries have been used, as field work is not feasible at present due to high security risks. Charcoal production sites appear clearly on the images as isolated dark spots. The analysis revealed a deforestation rate of 8.63% over a 3 year period (2011-2013). In 2011, 223 sites were detected and in 2012 the number grew to 336 sites. The number of sites detected in 2013 rose by 267 sites to 559 sites. At this speed and without intervention, there will be no trees left in about 30 years.



Subset of the study area in 2011 (left), 2012 (centre) and 2013 (right) showing the increase of charcoal production sites.



Map showing coverage and extent of area being studied

The results of the analysis carried out are crucial for a better understanding of the dimension and impact of charcoal production. The method can help in identifying the areas mostly affected, thus giving an indication of where to focus restoration interventions. Given the promising results obtained, this study can be considered a first step towards the development of a charcoal production monitoring system. However, due to the high cost of VHR satellite images, SWALIM is exploring the use of medium resolution images to establish an easy to use and sustainable monitoring system for Somali government institutions.

Michelle Bolognesi
Visiting Scientist

Using Geo-spatial Data and Technology in Natural Resources Management

SWALIM has been undertaking various capacity building exercises aimed at enhancing capacities of line ministries and other stakeholders in collection, analysis, use and dissemination of data. Various trainings have been successfully conducted within the harmonized capacity development approach touching on various subjects, some of which embrace the use of geo-spatial technologies and data.

Geo-spatial technologies have presented SWALIM with immense opportunities to produce various quality products that are user-friendly and simple to share. The products include maps and spatial-data developed using Geographic Information Systems/Remote Sensing (GIS/RS) and Global Positioning Systems (GPS) technologies. These technologies have been successfully utilised in the evaluation and monitoring of various natural resources in Somalia, in order to support their sustainable development and use with regard to food security and nutrition.

Trainees receive practical GPS training

In 2013 alone, 7 trainings on development and use of geo-spatial data and technologies have been conducted. Successful implementation of the skills gained is already evident as witnessed in the recent field surveys on Land Use/Land Cover mapping of Northern Somalia.

This survey was conducted in partnership with staff from the Ministry of Agriculture and GPS equipment, maps and compasses were used. Google Earth and RS were used in the selection of the survey locations. All line ministry staff in Somaliland and Puntland are now able to produce and share various subject-specific maps using GIS. These maps touch on various themes in water, land, agriculture and environmental issues and have been produced by the respective ministries. The training has attracted trainees not only from SWALIM and the ministry data centres, but also WASH consultants and students from academic institutions that have faculties in natural resources. In cases where trainees face difficulties, the SWALIM staff are available to assist with queries.

Ministry staff from both Somaliland and Puntland have requested for more advanced trainings in GIS analysis, an indication of their level of understanding and high interest. A training for Nairobi-based partner agencies is scheduled to take place in early 2014. The dynamic nature of geo-spatial technologies requires that updates on new developments are shared and SWALIM will continuously do so. A major hindrance for many partners who would like to use GIS is the high cost of GIS software. To resolve this, SWALIM has invested in new licences for the liaison offices in Puntland and Somaliland.

James Ngochoch
GIS Officer

Training Schedule November 2013 - January 2014

Course	*Date*	*Location*
Disaster Risk Reduction	17 - 28 November	Garowe
GIS	10 - 15 December	Garowe

SWALIM would like to inform our readers that this is the last issue of this newsletter for the year 2013. We wish to express our sincere gratitude for your feedback on our quarterly newsletter in 2013 and look forward to you continued readership in 2014.

SWALIM wishes all our readers and partners a Merry Christmas and a Happy New 2014

Comments?

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