

SWALIM Early Warning Information Saves Lives

On 10 November 2013, SWALIM provided timely warning information to the Humanitarian Affairs and Disaster Management Agency (HADMA) in Puntland and the National Environment Research and Disaster Preparedness and Management Authority (NERAD) in Somaliland, as well as the media for rapid dissemination of flood alerts due to tropical cyclone A3 that developed in the Indian Ocean. In Puntland, Golis Telecommunication company delivered the alerts through mobile phone short messages (SMS). Following the early warning of imminent strong winds and heavy rain and the associated risk of flooding, all local authorities of towns along the coast of the Indian Ocean and the Gulf of Aden alerted the local population – fishermen were warned not to put their boats to sea while bigger boats at sea were advised to seek shelter.

during the period immediately after the cyclone and why the regions affected are more vulnerable to such calamities despite prior warning! Through this information, many lives and properties were saved. Pastoralists in the inland did not benefit from the early warning because of the nature of their lifestyle, leading to a loss of up to 40% of their livestock.

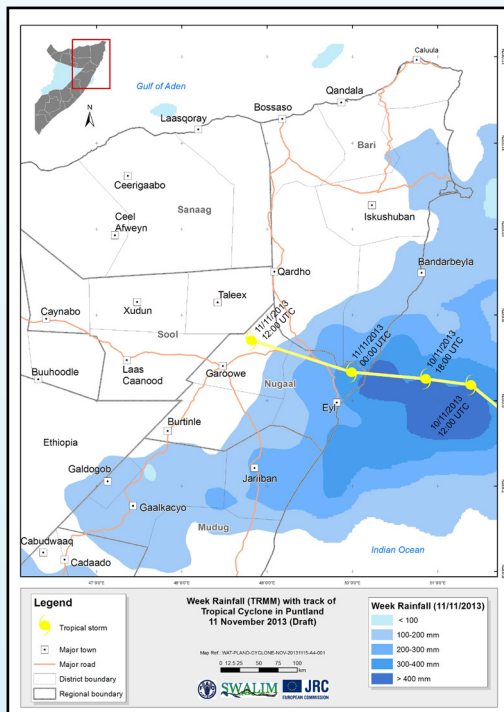


Damaged section of a road in Puntland

FAO Somalia assembled an emergency team to coordinate response to the natural disaster. A rapid damage and needs assessment survey through random telephone calls to the affected areas was carried out between 19 November and 2 December 2013, where 1 055 calls were made in the districts of Bandarbayla, Bosaso, Aluula, Erigabo, Eyl, Galkayo, Garowe, Galdogob, Iskushuban, Lasanood, Laasqoray, Qandala, Gardo and Taleex. The most urgent needs reported in the affected districts concerned shelter, food aid and livelihoods support primarily in the form of; livestock protection and eventual restocking; replacement of lost fishing gear; and rapid access to cash, either unconditional or through income generating opportunities.

The tropical cyclone caused heavy rainfall and flash floods in the coast of Puntland. Areas that recorded heavy rains in 3 days include Bandarbeyla (158mm), Eyl (149mm) and Garowe (115mm) in Puntland and Berbera (195mm) and Allula (62mm) in Somaliland. The extreme weather led to loss of at least 100 lives in Puntland and about 10 lives in Somaliland, leaving a hundred people missing. In both areas over 6 500 households were affected and property including the death of more than 320 000 livestock, infrastructure, homes and boats, were destroyed. The main bridge connecting the commercial coastal city of Bossaso and the rest of Puntland and south central Somalia was completely damaged. Damage to the main road which is important for livestock exports, led to a halt of export and import of goods in Garowe and other towns. The Puntland authorities declared a state of emergency on 11 November following the weather disturbance and appealed for international aid. The districts of Eyl, Banadarbeyla and Gardo (Dangorayo area) were hardest hit. In Somaliland parts of Woqooyi Galbeed, Awdal and Sanaag were the most affected.

*Mohammed Saeed - Water Resources Assistant
Peris Muchiri - Meteorologist*



A view of Cyclone A3 path and its intensity

HADMA and NERAD worked closely with SWALIM, to provide regular updates on the speed, direction and likely outcome of the cyclone before and after the storm. In addition, SWALIM provided daily rainfall forecasts through storm watch bulletins and flood alerts to the general public through Radio Ergo. A programme on weather updates provided by SWALIM was also aired on BBC Somali focusing on the rain forecast

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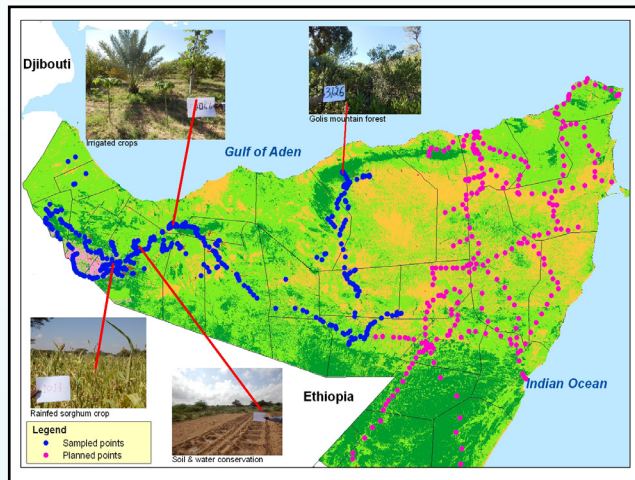
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SWALIM supports Somaliland Ministry of Agriculture to survey agricultural areas.

In November 2013, SWALIM supported the Somaliland Ministry of Agriculture staff, in conducting a survey to collect data on land use, land cover and land degradation. The objective was to collect land cover and land use data for Somaliland and to verify the preliminary land cover map of Somaliland generated using satellite imagery. The activity was used to strengthen the capacity of the Somaliland Ministry of Agriculture to carry out agricultural field surveys.

Three groups consisting of three surveyors each, conducted the field surveys. Prior to the field surveys, the teams were trained in field survey methods by SWALIM technical staff. Sampling points were selected and uploaded into the Global Positioning System (GPS) to allow preliminary map verification before the survey was

conducted and future revisiting of the same sites. The points were then used to navigate to the sampling sites where data on land use, land cover and land degradation/control initiatives was collected using data collection forms. Digital GPS enabled cameras were also used to take field pictures for documentation of the findings.



Field survey sites visited to collect land cover, land use and land degradation data

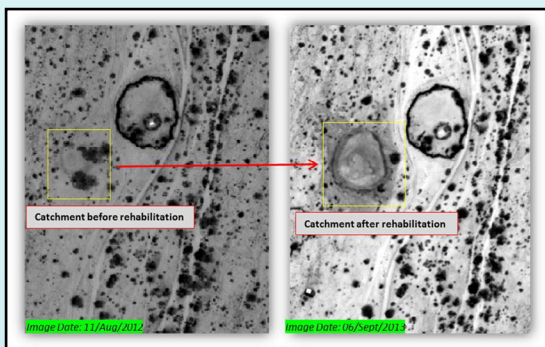
Data generated from the field survey included land cover data, land use data, field photographs, GPS points for the sampled sites and narrative on the areas visited. A total of 457 field sampling sites were visited with 2 713 photographs taken. The sites covered all land cover types identified during the preliminary mapping of land cover in Somaliland. SWALIM is currently developing the database using this information and the field data is being used to verify the land cover and land use. SWALIM is organizing to complete similar field surveys in Puntland

Simon Mumuli Oduori
Land Resources Officer

Fostering Accountability through Cash Based Intervention Remote Monitoring

The Cash based Intervention (CBI) programme implemented by FAO Somalia through partner NGOs, with participation of local communities, is a major investment in the rehabilitation of community infrastructure (water catchments, feeder roads and irrigation canals). Due to the prevailing security situation in some parts of the country and cost implications, actual field verification and monitoring is not only difficult but time consuming. However, to ensure beneficiaries receive intended donor support, this can only be measured by remotely monitoring interventions undertaken.

SWALIM has developed a system to continuously monitor these interventions using very high resolution satellite imagery, obtained through partnership with the US State Department Humanitarian Office. The system serves as a tool for accountability by the NGOs and as an important source of information for planning. It involves a 3 stage process: identification of the infrastructure before rehabilitation, a change detection analysis following rehabilitation works and lastly an evaluation of levels of accomplishment of interventions.



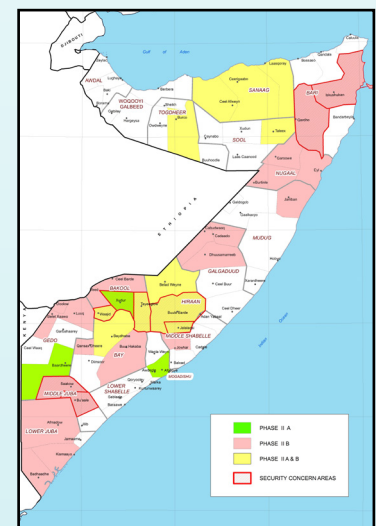
Adow-yurura catchment in Burco district, before and after rehabilitation

In 2013, CBI activities successfully entered their second phase. Many villages were covered under phase II interventions with some villages located in regions with major security concerns. Phase IIA commenced in March 2013 and has been completed. 12 NGOs

undertook rehabilitation on 220 irrigation canals totalling 301 km in 89 villages, 76 feeder roads totalling 1 447 km in 74 villages and 223 water pans in 199 villages increasing access to water for 256 541 animals. Phase IIB began in September and is ongoing.

Through remote monitoring of the activities undertaken during Phase IIA, it was possible to detect commendable rehabilitation works that have been undertaken. However, in some areas the feeder roads and canals have not been expanded as proposed and in other cases no major changes in the status of the infrastructure before and after rehabilitation are seen.

Lack of images covering both the before and after intervention dates and contaminated images are the major challenges for the monitoring activity.



Cash Based intervention locations for Phase IIA and B

SWALIM will create an internet-based platform to share information on completed and planned intervention activities and implemented projects related to water and land resources, for enhanced accountability and as a reliable tool for informed future intervention planning. This will increase the level of details of the existing micro- and mezzo-scale information to make it more relevant to local conditions and cover those ranges of information that have not been addressed so far.

Margaret Mugo
Remote Sensing Officer

Northern Somalia Embraces Use of Geo-spatial Data and Technology

The just concluded Land Use/Land Cover (LU/LC) field survey of Somaliland depicts a clear success story in the implementation of geo-spatial technology training. Line ministry staff formed a large part of the survey teams that visited various locations guided by handheld GPS equipment, noting the evident LU/LC type while taking photos of the same using GPS enabled cameras at each location. Each photo was automatically tagged with respective GPS coordinates which were mapped thus documenting the actual LU/LC type found at a particular location. The results were used to validate the computer based LU/LC assessment conducted remotely using GIS/RS technologies in Nairobi.



CARE and ADESO staff participating in the recent Basic GIS training in Garowe

Geo-spatial technology trainings continue to attract a large audience. For example during the Basic GIS and GPS technology training session held in Garowe in December 2013, in addition to the line ministry staff, 20 staff from partner agencies, CARE and ADESO, joined the training. Using the skills acquired in this training, CARE, ADESO and the Puntland Ministry of Environment, in partnership with SWALIM are planning to conduct a field survey to create baseline maps on the status of gully erosion. The map will form the basis for monitoring rehabilitation by Adeso and CARE of land

management activities (gully control, rangeland regeneration etc) as part of the EU MDG initiative project "Your environment is your life".

Due to the dynamic nature of geo-spatial technologies and data, plans are in place to conduct more basic and advance trainings while providing updates on geo-spatial data through SWALIM's liaison offices as well as online platforms. The high cost of GIS software remains a major hindrance for many organisations within Somalia. SWALIM has completed the purchase of additional Esri ArcGIS software licenses that will be installed within the liaison offices. As a result, stakeholders will be able to have their basic GIS requirements served through the liaison offices.

Capacity development programs, that include theoretical and practical training sessions, remain a

critical activity for SWALIM. In 2013 alone, 8 training sessions on the development and use of geo-spatial data and technologies in natural resource management were successfully conducted touching on: (i) Map Reading, (ii) Global Positioning Systems (GPS), (iii) Google Earth (GE), and (iv) Geographic Information Systems/Remote Sensing (GIS/RS). To request for a similar training for your agency please contact swalim@fao.org

James Ngochoch
GIS Officer

Building Resilient Communities through Disaster Risk Reduction and Early Warning

After the successful training on Disaster Risk Reduction and Early warning held in Somaliland, a similar training was held in Garowe in November 2013 to increase knowledge on how to reduce disaster risks and build resilient communities.

20 participants drawn from three line ministries in Puntland and the Ministry of National Resources of the Federal Government of Somalia as well as officers from the Humanitarian Agency for Disaster Management Affairs (HADMA) participated in the training, which is part of an integrated approach to building resilience of the communities in the country under the Common Humanitarian Fund (CHF).

The five-day training covered:

- Types of hazards and community managed/centered approaches to reduce disaster risks
- Application of the process of participatory risk analysis and assessment impact of major hazards in the country
- Concepts and principles of Early Warning Systems (EWS) with a focus on droughts and floods
- Root causes, trends and impact of disasters in Somalia
- The various stakeholders, their interventions and contributions in enhancing drought resilience
- Sharing knowledge, information and best practice in drought risk reduction

- Gaps and challenges in drought risk management and practical strategies in addressing the identified challenges
- Contingency plans to support/manage risk reduction efforts taking into consideration major hazards like drought and floods.

The participants were equipped with skills to apply knowledge in order to enhance resilience to drought and floods and capacity



Field visit by participants to a section of the main road between Garowe and Dangaroyo damaged by floods in Puntland

to prepare and respond effectively to drought and flood risk. Transferable skills developed include among others, drought and flood risk assessment skills; hazard mapping; effective communication and dissemination of drought and flood early warning; preparedness and contingency plan techniques; promotion of Community Based Early Warning System (CBEWS); effective coordination and information management skills. These skills are important considering that there have been many cases of droughts and floods that occurred in the last 10 years.

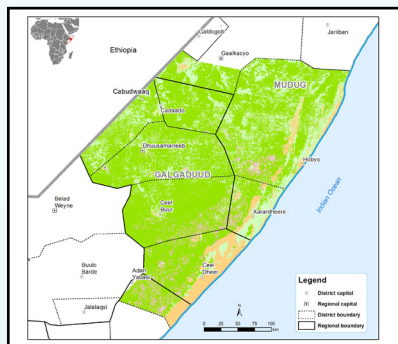
To ensure continued application of the skills acquired from the training, SWALIM has signed a Letter of Understanding (LoU) with HADMA in Puntland and NERAD in Somaliland, to establish an early warning system and develop a contingency plan for Disaster Risk Management (DRM). This will help reduce disaster risks and impacts.

Peris Muchiri
Meteorologist

SWALIM Completes Preliminary Land Cover Map for Central Somalia

Following the successful completion of the Somaliland and Puntland land use / cover maps, SWALIM has completed a similar map for Central Somalia which focused on the estimation of agricultural lands. The information gap for Central Somalia has now been filled, allowing SWALIM to provide an updated land cover and land use dataset after completion of Southern Somalia data in 2012, with the main focus being agricultural areas. The map will also show other categories of land use / cover found in the country.

The land cover map was completed in November 2013 through interpretation of satellite images. This dataset will support local institutions with a wide range of updated information for land resources management.



Preliminary land cover map for Central Somalia

SWALIM has adopted the United States Geological Survey (USGS) dot-grid technique, an approach that allows mapping of large areas accurately in a reasonably short time. Sampling generally offers a significant reduction of the work load by obtaining high statistical

accuracy. Given the importance and the extension of the area analyzed, the classes applied were shaped to differentiate the major land cover types. Seven land cover types based on the FAO land classification system have been mapped.

COLOR	CLASS	USER LABEL	N. of DOTS	DOTS (%)	Area (km2)
Red	Irrigated Crop	IC	1	0.00	0
Pink	Rainfed Crop	RC	15,816	4.48	3,922
Green	Natural Woody Vegetation Closed to Open	NVCO	235,389	66.71	58,374
Light Green	Natural Woody Vegetation Sparse or Herbaceous	NVSH	76,860	21.78	19,060
Yellow	Bare Areas	BA	24,597	6.97	6,100
Grey	Built Up Areas	BU	148	0.04	37
Blue	Water Bodies	WB	37	0.01	9
TOT:			352,848	100.00	87,502

Land cover types identified in Central Somalia

The study outputs will be an important source for decision making at governmental level and would assist in planning agricultural development, policy development in agriculture, deriving natural resources and agricultural areas assessments, managing projects involving land-tenure issues and assessment of the impact of agricultural interventions. Furthermore, the output could be used as a baseline for further environmental/agricultural studies at a higher resolution.

The preliminary land cover map for Central Somalia shows very interesting results. Compared to the previous FAO Africover land cover database, obtained from the interpretation of images dated 1995-1998, the agricultural areas of the new data set gives more precise estimates since they are directly derived from a visual interpretation, rather than being extrapolated from the land cover units formerly mapped.

Ugo Leonardi
Remote Sensing Officer

Towards Improved Communication of Technical Information

SWALIM staff participated in a training course entitled "Scientific Communication" from Tuesday 28 January 2014 to Friday 01 February 2014 in Nairobi. The course aimed at assisting staff to develop skills necessary for breaking technical reports, information and data into various formats for different audiences. In addition the skills of staff involved in training stakeholders were enhanced by equipping them with the knowledge needed to understand different learning preferences of adult learners and incorporating activities in training sessions that will stimulate these varied preferences and result in better absorption of the subject matter in trainings. The trainees were drawn from Nairobi as well as all SWALIM staff from Somaliland and Puntland.



SWALIM staff during the Scientific Communication training

- Translating graphs to infographs
- Pedagogical skills training

The training was delivered by professional trainers through presentations and practical working groups using existing SWALIM information materials. Participants were involved in breaking down these materials individually and in groups and their outputs were assessed by the trainers as a continuous process. Sharing of the practical sessions' outputs with



Group photo of SWALIM staff and workshop facilitator photo

colleagues was also used to stimulate different feedback from colleagues. The facilitators were consultants from the Training Centre in Communication based in Nairobi.

The training focused on the following key areas:

- Writing fact sheets and summaries
- Writing key messages from technical reports
- Writing for newsletters
- Writing feature stories
- Writing opinion editorials
- Writing and marketing policy briefs
- Writing for the web

In 2013, SWALIM developed an **Information, Communication & Knowledge Management (ICKM) Strategy**. In line with the key areas of improvement identified in the ICKM strategy, SWALIM is keen on improving the way we communicate information both in our writing and during our training, to ensure that our audiences, who often have no technical background, can make sense of our information materials and use them in their daily planning and development activities.

Evelyn Karanja
Information Officer

SWALIM Further Strengthens Groundwater Investigations in Somaliland and Puntland

Upon completion of the hydrogeology survey in Somaliland and Puntland, SWALIM donated the groundwater investigation equipment to the relevant ministries to enable them continue with site explorations to guide borehole drilling. SWALIM made a commitment to continue building capacity of the trained experts within the ministries to enhance the use of the geophysics equipment and other products generated from the survey.



Practical fieldwork in Bossasso



Practical fieldwork in Hargeisa

In line with this, two trainings were organised in Puntland and Somaliland. The Puntland training took place in Bossasso between 28 October and 4 November 2013 with seven participants from the Puntland State Agency for Water Energy and Natural Resources (PSAWEN). The Somaliland training took place in Hargeisa between 6 and 11 November 2013 and was attended by seven Ministry of Water Resources staff. All the participants were experts in either geology, hydrogeology or water resources.

The practical-oriented trainings focused on the use of geophysics equipment for field data collection; data processing; data analysis; and interpretation. A review of data collected during the hydrogeology survey was also done with the aim of incorporating local knowledge in the interpretation of the results. During the review the issues raised by the ministry experts on proposed depths at some sites investigated during the survey were ironed out and a consensus reached. The training and data review was led by a geophysicist from the University of Dar es Salaam in Tanzania, who also participated in the initial hydrogeological survey.

Groundwater is the main water resource in Somaliland and Puntland, hence the need for SWALIM to continue strengthening capacity within the ministries to be able to carry out accurate investigations for planning and management of this important resource.

Flavian Muthusi
Hydrologist

SWALIM Digital Document Repository (SDDR) Updates

The SWALIM Digital Document Repository (SDDR) has been updated for the fourth quarter of 2013 (October, November and December). The updates include time series data, land cover/land use maps and geographic information systems (GIS) maps as listed below

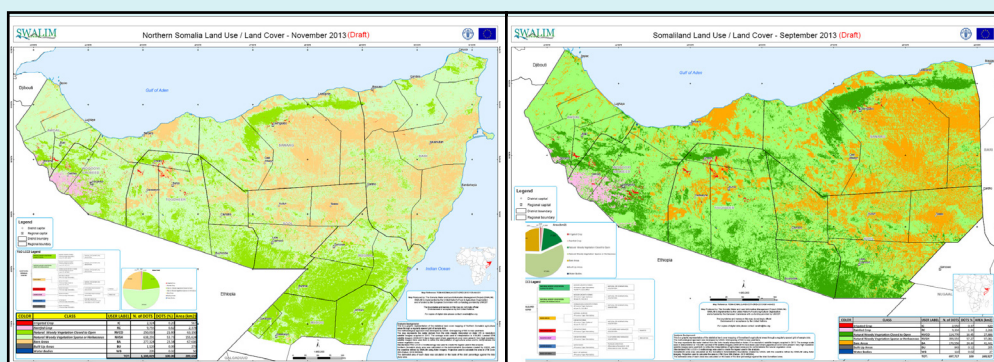
Time series data

- Climate data from automatic weather stations
- Rainfall data from manual stations
- River levels and discharge data
- Synoptic stations data

Land Maps

- Northern Somalia Land Use / Land Cover (Draft)
- Somaliland Land Use / Land Cover (Draft)
- Cultivable areas district maps (36 maps)
- Cultivable areas regional maps (8 maps)

SWALIM continues 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 accessing SDDR please contact us on swalim@fao.org



Northern Somalia draft land use / land cover map

Somaliland draft land use / land cover map

Stephen Waswa
Data Management Officer

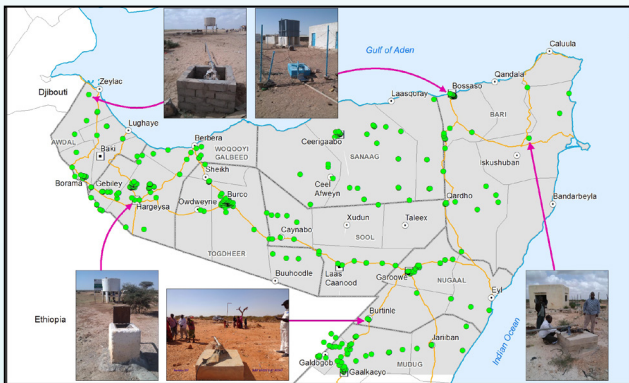
SWALIM Completes Survey of Strategic Emergency Boreholes in Northern Somalia

SWALIM has identified strategic emergency boreholes in Puntland and Somaliland following completion of a survey that took place between late December 2013 and January 2014. The purpose of the survey was to update the existing water sources database with the most current information on the status of these boreholes. Data on newly established boreholes was also collected to add to the database.

The Somali Water Sources Information Management System (SWIMS) data forms were customized for the survey, capturing data on the geographic location of the boreholes (GPS points); water usage; source yield; water characteristics; supply and distribution. The survey teams tested the basic water quality parameters such as pH, EC, TDS, and temperature on site, and collected water samples for detailed laboratory analysis.

For each borehole visited at least one photo was also taken. In Somaliland the survey was carried out by water experts from the Ministry of Water Resources (MOWR) while in Puntland the survey was done by technical staff from the Puntland State Agency for Water, Energy and Natural Resources (PSAWEN). A total of 444 boreholes were surveyed, out of which 330 (74% of the total) were found to be functioning as shown in the table below.

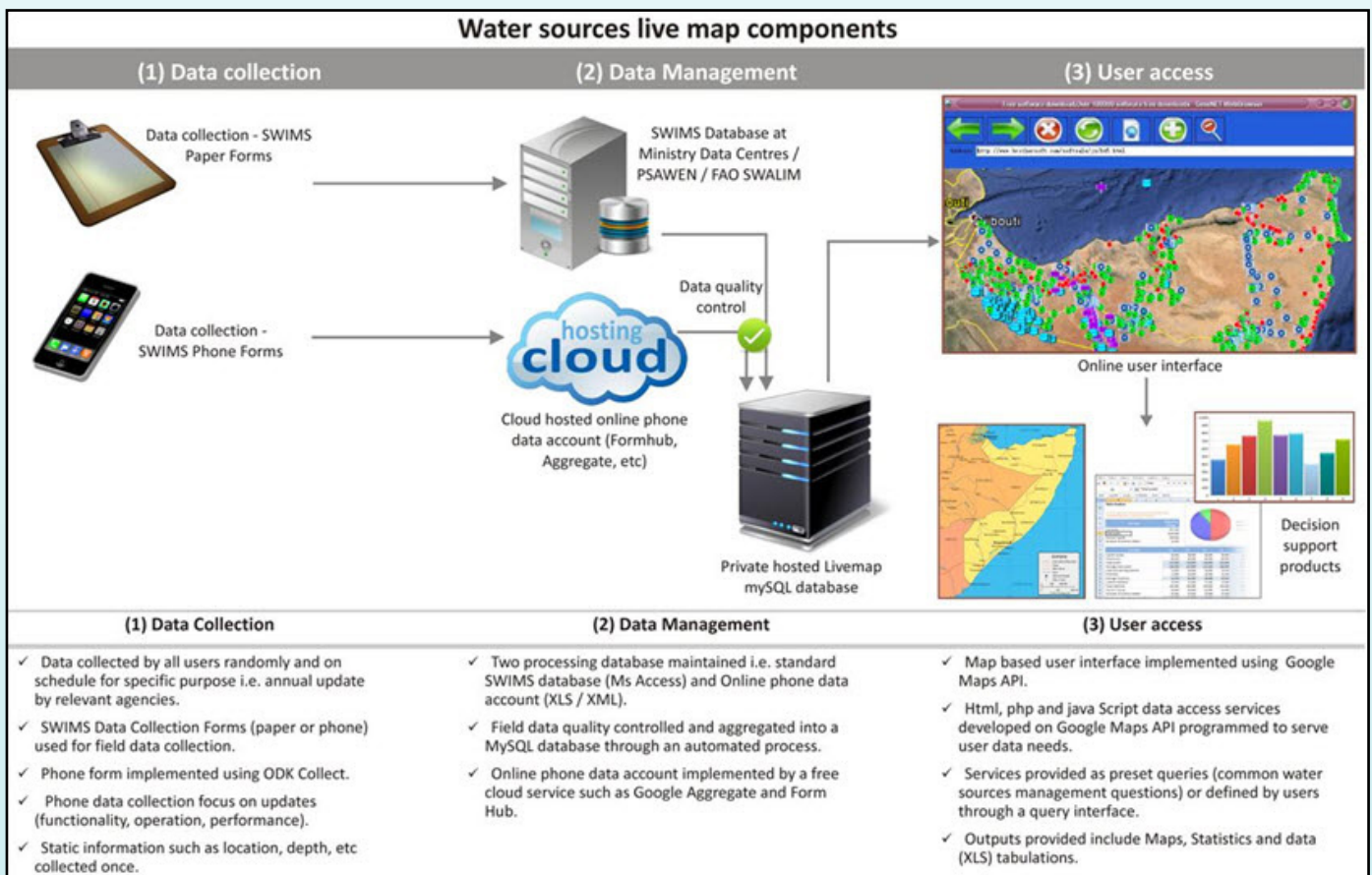
Surveyed Boreholes in Somaliland and Puntland			
Borehole Status	Somaliland	Puntland	Total
Functioning	172	158	330
Non-functioning	77	37	114
Total	249	195	444



A map showing boreholes visited during the survey

During the field survey, SWALIM introduced an aspect of online data collection and transmission in addition to the paper forms used in previous surveys. The survey teams used mobile phones to collect and transmit data directly to the SWALIM server on a daily basis. This allowed for better monitoring of the survey activities and checking of data integrity from the field as the teams progressed.

Data collected from the survey will be used in the SWIMS live map, which is under development. The live map will provide a near real time monitoring and updating of water sources data across Somalia with users having an opportunity to view, query and download the data online.



Proposed structure of online water sources system for Somalia

Flavian Muthusi - Hydrologist
Jeremiah Njerul - Information Management Coordinator

SWALIM Participates in Northern Africa and Near East Land and Water Days

SWALIM participated in the Northern Africa and Near East Land and Water Days, held in Amman, Jordan from 15 to 18 December 2013. The workshop provided SWALIM with an opportunity to disseminate and share its information and tools with 200 participants who had an opportunity to experience several knowledge sharing tools and opportunities for interaction offered during the four-day series through thematic coffees, ad-hoc trainings, and technical workshop sessions and communication platforms such as posters, presentations and displays.

SWALIM showcased its information through dissemination of more than 200 copies of the Somali water and land reports, atlas of the Somali water and land resources, atlas of the Juba and Shabelle rivers in Southern Somalia, hydrogeological survey of selected areas in Somaliland and Puntland and the key messages on the Somali water and land resources. The online SWALIM Digital Document Repository (SDDR), the Somali Water Sources Information Management System (SWIMS), the Somali hydrometeorological monitoring network, the charcoal

monitoring system and a number of posters on Somali water and land resources were presented and participants informed on methodologies used in their development as well as those of other SWALIM tools.

The workshop also provided an ideal opportunity for SWALIM to learn lessons in line with the recommendations made in the newly developed Information, Communication and Knowledge Management (ICKM) Strategy. These lessons include:

- Holding Somali land and water days to share information and disseminate tools, methods and products to a wide range of Somali stakeholders and learn experiences through case studies and success stories and projects.
- Further develop knowledge, information and communication materials to increase SWALIM's visibility.
- Documentation of SWALIM's good practices in water and land information management.

Hussein Gadain
Chief Technical Adviser



Participants receive information at the SWALIM display area during the Land & Water Days

Training Schedule February - April 2014

Course	Date	Location
Early Warning Systems	March 2014	Somaliland and Puntland
Land use/land cover/Land degradation	March 2014	Puntland
Report Writing & Client Service Reporting	March 2014	Puntland and Somaliland
Map reading, GPS, Google Earth and GIS	April 2014	Somaliland

Comments?

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