

## Ground Water Assessment in Somaliland: SWALIM Provides Geophysical Survey Equipment

In the recent past, Somaliland has been experiencing severe water shortages following prolonged dry spells. Naturally, Somaliland is a very dry area with limited surface water potential. Ground water, although very expensive to develop, provides a more sustainable solution to the water problem in Somaliland. It is therefore not surprising that different organizations, including those in the diaspora, and individual investors, are very keen to invest in ground water resource development in Somaliland.

However, according to the Ministry of Water and Mineral Resources (MWMR), thousand of dollars being invested could be lost through poor siting of boreholes. The Ministry estimates that at least 30 boreholes are not yielding as expected and may fail as a result of poor location; for instance, where ground water is already utilized by other boreholes or in areas without adequate ground water resource.

For many communities experiencing severe water shortages, issues regarding the proper location of boreholes are considered secondary or never considered at all. What they expect the ministry to do is to support them drill more boreholes, especially when they already have friends in the diaspora willing to pay the cost. Few realize that ground water resource development should be based on sound scientific assessments. Fortunately, MWMR realizes the importance of such assessments and has prioritized the development of a regional ground water resource database.



*Handover Ceremony: SWALIM's CTA and Somaliland's Minister for Water and Mineral Resources*

Until now, the ministry has had very limited capacity to access ground water potential. The equipments and facilities that existed in the past, as well as all previous information and databases, were lost during the civil strife. The ministry is however not sitting and watching; it has established a geo-physical exploration unit and is developing the capacity of the unit to undertake ground water surveys.

In support to these efforts, SWALIM provided the ministry with an ABEM 2000 terra-meter with all accessories required to undertake geo-physical surveys in the field. At the handover ceremony on August 17<sup>th</sup> 2008, the Minister, Hon. Kassim Yussuf, observed that the ministry's geo-physical unit would start building a geo-physical database for the region in addition to generating geophysical profiles for assessing ground water potential and guiding the siting of new boreholes.

The minister also observed that much was still needed, especially in terms of field logistics and human resource development and especially in geo-physical data analysis and interpretation.

Africa70 has been assisting the ministry with on-the-job training, while SWALIM offered to support a member of the unit to attend training in geophysics in groundwater exploration.

*L. Njeru  
Co-ordinator - Information Management*

## NEWS & EVENTS

### SWALIM Internal Seminars

*Do you always get time to read all the reports and assessments done by SWALIM, other FAO projects or partner organisations?*

The reality is that most of us do not. And not because we do not want to; rather, we don't have the time to do it, the report is too big and sometimes, we just don't realise the various linkages such outputs may have with our work.

To bridge this gap, SWALIM has commenced a new series of one hour internal seminars that will be held every fortnight. These seminars aim to promote sharing of information, skills and ideas, knowledge and experiences among SWALIM staff and partners. The seminars will cover topics on water, land, information, communications, technology and other cross cutting issues amongst FAO Somalia projects and their partners.

To start us off on 10<sup>th</sup> October 2008 was Prof Francis Mutua who gave a talk on 'Climatic conditions that lead to droughts and

floods in Somalia'. The inspiring talk was an eye opener to many and illustrated the key processes, both micro and macro, that determine the climate of Somalia and how these relate to droughts and floods. The talk also gave a sneak view of the results of the ongoing drought assessment and monitoring study by SWALIM. The study will provide information and tools that will help projects better manage droughts and floods, both within emergency and development perspectives.

In conclusion, the role of institutions and experts in managing extreme climate phenomena was highlighted as core to mitigating adverse effects of droughts and floods.



*SWALIM staff and FAO partners attentively follow Prof. Mutua's (left) lecture*

*E. Mutai  
Communications Officer*

## SWALIM Intensifies User Training in Somaliland and Puntland

*"I have gained more knowledge: especially how to take discharge measurements, install gauges, use the computer, read maps, etc. I will take this knowledge and give it to my people back at home. I will teach others who can take over from me"*

*-Abdikadir, a participant at the Gauge Readers Training held in August 2008, Nairobi*

It is this spirit that SWALIM's training strategy aims to achieve: that our primary beneficiaries actively participate in SWALIM's activities and that SWALIM's role/functions are eventually institutionalized, sustainably.

Using a two-pronged approach to achieve its training goals, SWALIM has embarked on intensive training targeting staff from Somali ministries, UN agencies and NGOs. Our approach involves working in close collaboration with Somali ministries to continuously determine their training needs.

Another approach is to involve ministry staff right from the data collection stage to the dissemination of information. It is expected that those trained and those involved in field activities are the same ones who will translate scientific results into everyday language for farmers, politicians and the general Somali population.

And the lessons are made as practical as possible. The trainees get an opportunity to make their own maps using real datasets and then present their work to the rest of the class. The use of GPS, map compass and map interpretation, amongst others, are practically demonstrated.



*After class lectures, trainees take waypoints in the streets of Hargeisa*

This year, we have held 17 training sessions for staff from Somali ministries, NGOs and UN agencies. Our October and November training programme in Puntland has been put on hold due to security concerns. At the time, five out of the seven courses that we had planned to deliver had been completed with a class of 35 participants.

*E. Mutai - Communications Officer  
A.Koton - GIS Expert and Trainer*

## Bridging the Gap between the Expert and the User - SWALIM Dynamic Atlas

A big concern for SWALIM has always been how to ensure that non-technical users access land and water information in easy-to-use formats. This has led us to be more creative in exploring different means of communicating with users. One of these means has been the Dynamic Atlas - a tool developed by FAO for compiling and distributing spatial data and information to those who do not have the technical knowledge of GIS and mapping.

Dynamic atlas is able to handle almost all kinds of information including tabular and spatial data, documents and maps. It is a stand alone application which can work with very limited computing resources. SWALIM has been using Dynamic Atlas as one of its key information dissemination tools. The current atlas however contains information drawn from not only SWALIM but also other UN agencies and NGOs working in Somalia.

Since the release of the Somalia Atlas in 2007, more data and information have been collected by SWALIM, other UN agencies and NGOs. SWALIM is therefore in the process of updating the Somalia Atlas to reflect this development. We plan to release two Atlases: the first with SWALIM specific information and the other, an update of the existing Atlas.

The SWALIM specific Dynamic Atlas is ready and will be released shortly. It has chapters on Land, Water and Information Management and includes all the key results obtained in SWALIM phase II as well as SWALIM features and newsletters. For the Somalia Atlas, we request all agencies and organizations to provide us with the data and information that they would like to share with others. This Atlas will be released before the end of the year.

To improve the use of this important tool, SWALIM continues to carry out training and refresher courses in Dynamic Atlas. Please fill a training request form for yourself or your staff to benefit from this free training and an easy to use database of information. The form is available at, [http://www.faoswalim.org/site\\_tools/training\\_request.php](http://www.faoswalim.org/site_tools/training_request.php).



*G. Oduori  
GIS Expert*

## Automatic Weather Stations installed in Somaliland and Puntland

In efforts to expand the weather monitoring network for the region, SWALIM has installed automatic real time weather monitoring stations in Hargeisa and Garowe. The stations are designed to send data automatically via satellite to a central receiver in Nairobi.

The data will be available to the Ministry, partners and other users.

This has been achieved through the cooperation of the line Ministries working closely with SWALIM.

# Land Degradation and Land Use Planning for Somalia

## Consultative Workshops in Nairobi and Hargeisa

The use of world standard tools and methodologies are one of the main assets of SWALIM. In that regard, before implementing the planned Land activities of SWALIM Phase III, it was agreed to run expert consultations on two core land subjects: land degradation and land use planning.

The main objective of both consultations was to technically enforce and guide the land degradation assessment and monitoring framework for Somalia and land use planning guidelines for Somalia activities. In order to accomplish these objectives, experts from the East African region (ICRAF, UON, IPAC, KARI, etc) and other international agencies such as FAO, ISRIC and WOCAT were invited to share with SWALIM and other participants their experiences in land degradation assessment and monitoring, as well as in land use planning.



*The workshop in Nairobi, Kenya*

The one day general consultative workshops were followed by a second day of technical discussions with a smaller panel. The discussions aimed to develop a solid concept and to combine a series of available tools to fit the context of Somalia. The process was largely guided by presentations made on the first day.

### A Participatory Approach to Land Use Planning

After finalizing the concept paper for Land Use Planning Guidelines in Somalia, its implementation started with different actions. One of these was a workshop on Land Use Planning Guidelines for Somaliland which was held in Hargeisa on 4-5<sup>th</sup> October. The region was selected for a pilot study for elaboration of the guidelines and because of data availability.

The objectives of this workshop were:

- to introduce the theoretical background of land use planning and the different methods/approaches available,
- to review the main land use constraints in the study area,
- to identify the expectations from the different institutions dealing with land use regarding land use planning
- to present a historical review of previous land use planning initiatives, and
- to plan the way forward.



*The workshop in Hargeisa, Somaliland*

Land use planning is a systematic and iterative procedure carried out in order to create an enabling environment for sustainable development of land resources which meets people's needs and demands. From this definition, it's clear to see that it is a very complex activity that cuts across the different activities that are carried out on the land, and therefore requires the participation of different stakeholders.

The workshop was attended by 35 representatives from the different Ministries, NGOs, UN agencies and civil society organizations. Participants realized that Land Use Planning is a very useful tool that could be used to support proper planning of different activities in the region. However, they also realized that it is not as simple and that its elaboration demands a series of different inputs varying from technical to financial, but mainly commitment; from institutions to the people.

At the end, participants entirely supported the SWALIM initiative towards the elaboration of Land Use Planning Guidelines for Somaliland as the first step of a long term activity. This support will be seen through their active involvement in the formulation of each chapter of the guidelines. The channel for this active participation will be the Somaliland Natural Resources Management Task Force organized by SWALIM in 2007.

*R. Vargas  
Co-ordinator - Land*

## NEWS & EVENTS

### Dissemination Workshops in Puntland

SWALIM has since its inception developed several water and land information products for Somalia. The work is consolidated in two integrated reports – one on “Water Resources of Somalia” and the other on “Land Resources of Somalia”, tabular and spatial databases and a large number of maps and technical reports with associated summaries. We have also set up two online data access services.

To disseminate these results to the wider public, we plan to hold dissemination workshops in November/December, in Garowe, Puntland. These workshops target government ministries, NGOs (Local and International), UN agencies, Universities and Colleges and other interested parties.

The forums also give non-ministry users the opportunity to learn more about SWALIM's work.

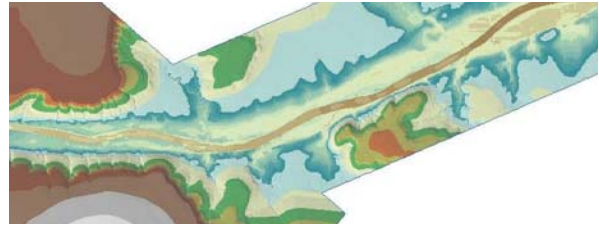
## Aerial Photography and Building an Integrated Flood Forecasting System

At the beginning of this year, we conducted high resolution digital aerial surveys along the Juba and Shabelle rivers with the aim of building a high resolution topographic dataset for the area. The flight paths covered up to 2-3km on each bank of the rivers though in some locations more area was covered to include key irrigation infrastructures.

This investment, though expensive, is important since the current 20m resolution topographic maps can not effectively serve high resolution topographic data needs. The data that will be generated by this survey will reach a 0.5m resolution and will serve many applications including emergency, rehabilitation and development. One such application will be flood management where the data will be used to model and forecast floods as well as design structures for flood protection and control.

The processing of the data is at an advanced stage. The set for Juba has been completed and is currently being verified while that for Shabelle is being processed. Once the data have been processed, we will derive a number of topographic products. We believe that these datasets will assist all organization working along the two rivers with a variety of topographic applications and we will keep you informed as products become

available. For more information, email [enquires@faoswalim.org](mailto:enquires@faoswalim.org).



Digital Elevation Model (DEM) at 50cm vertical accuracy of the upper part of the Juba River



Ortho-rectified image of a portion of the Juba River with sub-meter horizontal accuracy

P. Paron  
River Survey - Soil Erosion Consultant

### Pictorial



Installation of an automatic weather station at the PSAWEN compound in Garowe, Puntland



The team of experts and SWALIM staff brainstorm during the consultative meeting on Land Use planning and Land Degradation



The gauge readers undertake practical lessons in Kenya

#### Comments?

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