

The delegate Sudan Survey Authority (SSA) Established in 1899, it is one of the oldest in Africa. It is the only official (governmental) agency mandated by Sudan government to shoulder the responsibilities of surveying, mapping and charting in Sudan

Present working force includes B.Sc. University graduates (including 30 surveyors), 45 technicians and a number of technical labourers. There are 4 Ph.D and 6 M.sc holders. The authority also employs a number of supporting financial and administrative staff.

a. Aerial Survey and Photogrammetry.

- Twin Otters Aircraft equipped with GPS system, modern avionics and autopilot;
- one modern digital aerial camera;
- One non-metric airborne digital camera;
- One leica RC-8 and one RC-10 optical camera;
- Two high resolution photogrammetric scanners;
- Traditional dark-room facilities;
- Analytical stereoplotters Wild AC-1, BC-2;
- Ten traditional analogue stereoplotters of various types (including a Wild A-10 universal plotter) used nowadays for training purposes;

A number of digitizers.

- Ground survey, GPS and gravimetry equipment;

Six sets of dual frequency GPS receivers of different makes and capabilities;

- 4 digital theodolites;
- Six total station systems of various kinds and make;
- Four modern digital levels;
- 20 traditional optical levels;
- 30 traditional optical theodolites including 2 Wild T3 and one Wild T4 astronomy theodolites;
- A large number of hand-held GPS receivers;
- Numerous short-range hand-held electronic distance measuring devices.
- One traditional gravimeter apparatus;
- In addition to a multitude of smaller instruments e.g. steel tapes, compasses, clinometers, sketch masters, planimeters, etc.

c. GIS Unit

- The GIS Unit in SSA consists of a modern large lab, containing a number of computers, scanners, plotters and a good deal of world-renowned software packages e.g. Arc map, Arc info, ENVI, Geomatica PCI, in addition to ERDAS image processing system.

d. Cadastre and Boundary Departments;

- The main work at present is to digitize all paper cadastre maps of the country (thousands of them; some date back to 1920's) e.g. land ownership, land-grazing and hunting rights, movement maps of cattle and camel herds, state and tribal boundary maps etc, in addition to demarcation of boundaries between Sudanese states(18 states).

e. Hydrographic Surveying;

- This is a new department responsible for mapping Sudanese islands, coastal and regional waters of the country in the Red Sea. This is in addition to its role in carrying out bathymetric surveys of lakes and rivers of Sudan.
- This department has just accomplished delineating the base-line of Sudan regional waters in the Red Sea.
- Training more than 30 surveyors, engineers and technicians on various aspects of geoinformation, sciences, technology and applications.
- Demarcation of Sudanese state boundaries is an on-going process all the year round.
- SSA was able to compile, design and pass version 1 of "Sudan National Survey Specifications and Standards". The document was approved by Sudan Engineering Council, the official entity responsible for regulating engineering practice and law in the country.

PROJECTS EXECUTED OR BEING EXECUTED BY SSA IN 2013

- Establishment of first order geodetic control points in the state of Al-Gezira in Central Sudan.
- Surveying and location of obstacles in Sudan Airports for safe navigation; awarded to SSA by Sudan Civil Aviation Authority.
- SSA is presently working on mapping corridors for three trans-state roads:
 - Khartoum – Atbara – Port Sudan on the Red Sea.
 - Atbara – Abu Hamad – Halfa on the Sudan/Egypt border line.
 - Abu Hamad – Karima in the Northern state.

PROJECTS EXECUTED OR BEING EXECUTED BY SSA IN 2014

Training more than 30 surveyors, engineers and technicians on various aspects of geoinformation, sciences, technology and applications.

Demarcation of Sudanese state boundaries is an on-going process all the year round.

MAJOR POLICIES AND LEGISLATIVE ASPECTS

SSA was able to compile, design and pass version 1 of “Sudan National Survey Specifications and Standards”. The document was approved by Sudan Engineering Council, the official entity responsible for regulating engineering practice and law in the country.

SSA was able to compile, design and pass version 1 of “Sudan Survey Specifications and Standards”. The document was approved by Sudan Engineering Council, the official council responsible for regulating engineering practice and law in the country.

SSA is now depositing version 1 of the document “Law Regulating Survey Works in Sudan” to the Sudanese cabinet for discussion and approval.

SSA is represented by one or two of its staff in a number of National Committees e.g. National Mining Committee, National Committee for geographic information, Commission for Sudan/South Sudan Border issues, Darfur Land Commission, Sudan Border Committees, Ministry of Agriculture

,Sudan border crossing points committees, State Ministries of urban planning, Ministry of Interior , Ministry of Exterior etc.

Education and Training

University degrees in surveying and mapping are awarded by most major government universities and higher education institutes e.g. Khartoum University, Sudan University of Science and Technology, Omdurman Islamic University, and Karari University. All these universities offer courses in all branches of geomatics and geo-information at both B.Sc. (5years) and technical diploma (3years) levels.

Postgraduate studies (Higher diploma, M.Sc. and Ph.D) are also available at these universities.

About 150-200 surveying engineering students graduate each year from these universities at the B.Sc. level.

COOPERATION WITH RCMRD

Although Sudan is represented by at least one participant for many of RCMRD courses held in Nairobi or elsewhere, the level of technical cooperation is not quite satisfactory. We blame ourselves in the first place in this respect.

PARTERSHIP AND INTERNATIONAL COOPERATION

SSA represents Sudan in the following regional organizations:-

- RCMRD (Nairobi, Kenya).
- Regional Centre of Remote Sensing for North African States (Tunis, Tunisia).
- African Organization for Cartography (Algeria).
- African Union Border Program (AUBP) (Addis Ababa).
- Arab Union of Surveyors and Cartographers (Beirut, Lebanon).

challenges

- Continuous (and mandatory) updating of all surveying activities which carries with it the burden of securing large sums of money;
- Training and capacity-building;

- Most male survey engineers (especially young graduates) resign their jobs and go to the Arabian Gulf States where salaries are sometimes ten-fold.
- Female survey engineers normally leave work after they get married and mother 2 or 3 children (dictated by Sudanese culture);

SOME FUTURE ACTIVITIES

- Mapping the whole country at 1:25,000 scale;
- Creation of full database and GIS for a number of Sudanese states;
- SDI maps for all major cities in the country;
- Establishment of 10 CORS all through Sudan;
- Establishment and extension of gravimetric network of the country;
- Creation of the National Survey Museum;
- Establishment of the National Training Centre in geoinformation sciences.