

Sudan: «Capacity Development in Geoinformation Management »

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1. Summary

The 2005 Comprehensive Peace Agreement between the North and the South Sudan is still holding more than 2 years after its signature. It progresses despite serious constraints to overcome underdevelopment caused by more than 20 years of civil war. SDC has been active at different stages of the peace process, in particular for the Nuba Mountains cease-fire agreement and humanitarian assistance in Darfur and Southern Sudan.

Since 2001, the Swiss Government promoted several mapping projects with the goal of supporting the urgent mapping needs of many authorities, decision-makers and the international community. Finally, in 2006 SDC has reinforced its presence in Sudan with the opening of a Cooperation Office in Juba in addition to its presence in Khartoum.

Following a request of the Government of South Sudan (GoSS) to the Political Affairs Division IV (PA IV), and capitalising on the past experiences, SDC's East and Southern Africa Division (SOSA) financed the preparatory work for a capacity development project in the field of geographic information. A mission in Sudan was carried out by an expert of the Centre for Development and Environment (CDE) - University of Bern - in October 2006, confirming a strong interest of Southern Sudanese authorities, humanitarian and development agencies and several INGOs for support in geographic information management, thematic mapping, and pointed out the lack of collaboration in data processing and information sharing.

The preparatory work and further discussions between SDC, DP IV and CDE lead to the programme 'Capacity Development in Geoinformation Management for Southern Sudan', planned from 3/2007 to 12/2009. The overall goal of the programme is to support local authorities, UN-agencies and the GoSS in their efforts to improve base mapping, capacity development and institutional integration of geographic information processing. The outcomes of the programme will be an improved technical collaboration within governmental actors, international aid agencies and INGOs regarding the use and sharing of geographic base information. Main output will be improved and common geographic base layers, topographic and thematic maps, awareness creation and modular training courses for selected authorities.

The programme is based on six activity lines made up of a series of modules. Each module will develop a specific topic necessary to the achievement of the objectives. This configuration will have the noticeable advantage to stay flexible in a changing context, and have a consistent impact by facilitating the work of different institutions and agencies. Annex II gives an overview of each activity line and the corresponding modules planned for the first phase. The progress in each activity is monitored annually. Intermediate reporting is scheduled after each mission (bi-annual).

For SOSA, the capacity building programme represent an innovative and relevant project in a post conflict situation, with emphasis on human and institutional development in coordination with other bi- and multilateral initiatives. DP IV is as well interested in the outlined activities, which will reinforce the Swiss visibility with a relatively small investment, and will allow capitalising on the comparative advantages that the Federal Department for Foreign Affairs (FDFA) has shown in Sudan.

2. Context and Background

For almost half a century Sudan has been torn by civil war between northern Arab Muslim and various groups of non-Muslim minorities in different parts of the country. While fighting still continues between ethnic groups and Government of Sudan (GoS) in Western Sudan, negotiations and

peace talks, mainly between the government and the Southern Sudanese People's Liberation Army (SPLA), gained new momentum in 2005, focussing on autonomy for all areas in the south. Since then remarkable improvements of trade and labour opportunities in the South has motivated more people to return to their original homes after years of displacement. These returns represents a major challenge for the aid agencies, INGOs and the government, not only in terms of co-ordination of the humanitarian and development assistance, but also concerning the expectations regarding the new political set up in South Sudan.

Swiss mapping support of peace negotiations was already established in 2001 for the United Nations Mission in Ethiopia and Eritrea (UNMEE) and was again promoted for the peace talks in the Nuba Mountains. Furthermore, FDFA promoted several different mapping projects in the country (Southern Blue Nile 2003, Darfur 2003/2005, State and Overview Maps Southern Sudan 2005).

The geoinformation and mapping project in support of the full ceasefire agreement for Southern Sudan (2005) was a joint effort by FDFA and SDC's Humanitarian Aid Unit in response to the general lack in mapping products needed for logistic planning among UN partner agencies, international NGOs and SDC field staff (project was terminated in March 2006). Within one year hundreds of inquires were answered, thousands of maps were printed, and an extraordinary high number of digital maps (> 50,000) were downloaded from CDE's Internet site.

Although the use of maps is common among all authorities, none of the department is in a position to provide medium-scale mapping services within the government. Ministries and state authorities working with maps are usually assisted by donor agencies (GTZ, USAID, UN, etc.) some even with trained international staff (i.e. Uganda and Kenya). A clear demand for baseline geographic data comes from Ministries related to rehabilitation of infrastructure, land, housing and civil affairs, and - most important - from UN-agencies and INGOs (cf. Mission Report J. Krauer, October 2006).

There is virtually no exchange of information between the authorities and the organisations with respect to geographical data, due to a lack of human capacity on data management and copy-rights on GIS map formats. In fact, actors that develop maps for their specific work on the field are often not allowed to exchange virtual information; as a result there are no detailed maps that cover the whole country. Moreover, the maps are only available to the public on PDF or JPG formats which doesn't allow any geographic manipulation.

In May 2006, the concepts and approaches of the mapping project in the framework of a Governors' Forum were presented in Juba by the CDE in collaboration with the DP IV. The greatly limited potential of the 1:500k scale maps was recognised and the demand for improvements, updates and upgrades was emphasised by representatives of several states. A clear need to share the data, to develop capacities, and to extend the geographic database was communicated to FDFA and CDE.

3. Objectives

The six activity lines of the programme were elaborated based on interviews conducted during the mission in October and the needs expressed by mail communication. Within each line, several modules can be found as individual or interrelated projects within the framework of the programme.

Overall and specific goals

The overall goal of the programme is to contribute to the pacification, reconstruction and development of Sudan by supporting the development of mapping products and geo-information management in Southern Sudan.

The specific goal of the programme is to support local authorities, UN-agencies and the Government of Southern Sudan in their efforts to improve base mapping, capacity development and institutional integration of geographic information processing, mainly for peace building, infrastructure

rehabilitation, natural resources management, and all kinds of development related issues. These activities must be aligned with the broad vision for a decentralised federated system of governance in Southern Sudan, with its different geoinformation services on federal and state level.

Activity line 1: Data transfer, awareness creation and communication reinforcement

Most of the actors, governmental or UN requires explicit spatial information for improved decision-making. Some of the institutions are well equipped and have trained staff with assigned tasks to cover the individual mapping needs requested by each organisation. Topographic baseline information is widely used among all geospatial service units and is an essential part of mapping. The quality of compilation, the geographic reference, and the degree of data resolution vary greatly among users, but are in general poorly developed.

The provision of GIS data in standard geographic formats (as compiled by CDE) to partner institutions in Southern Sudan would facilitate access and use of geographic information (terrain model, topography, contours, rivers, drainage system, watersheds, vegetation cover, etc.). Furthermore, the disseminated topographic data would dramatically improve map reading, stimulate the use of maps, and initiate a common geospatial reference system for all kinds of mapping needs.

The release of the data must be integrated in a workshop programme with a strong focus on aspects of data sharing, potential and limitation, integration and dissemination, use and misuse, principles applied, and sources of information used. Two communication workshops with initial training courses are planned in 2007, followed by in-depth courses in 2008/9 and on-site support and training in 2009. The following counterparts are envisaged for the initial trainings: UN Mission in Sudan (UNMIS), UN Joint Logistic Centre (UNJLC), Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE), and GoSS.

Activity line 2: Extension and improvement of geospatial database Southern Sudan

Extent of design and data previously applied to the former Southern Sudan mapping project by DP IV was rather focused on peace policy and decision-support issues in areas of discussion. The easternmost area to Ethiopia was not covered with vector data, the south-western part was covered with small-scale data only, and the northernmost area of the Upper Nile State was neglected.

The 'Geodatabase Extension' project at 1:500k will incorporate the latest information, improved terrain data map data of the former project 'Southern Blue Nile', and complement all 'no data' areas of Southern Sudan. The map features must be enhanced and updated on a regular interval, new information layers need to be compiled and latest GPS-tracks have to be integrated. Map updates and upgrades are an integral part of the 'Capacity Development Programme' and have to be elaborated in cooperation with the partner authorities.

Activity line 3: Scientific and thematic mapping

Wall maps are frequently-used planning maps found in coordination offices. The demand is extremely high and a huge number of poor quality derivates have been used.

Based on the revised and rescaled topographic baseline information, initial national thematic maps can be produced. The importance and availability of thematic maps for the planning and development process was stressed by several leaders within the Government. Some of the thematic maps (1:1Mio) will be developed at CDE without empirical data from field (i.e. population density, rainfall, land cover, temperature, watersheds, agro-ecology, solar radiation, etc.). The sequence of production will be defined by the user community. Validation of the results has to be performed as part of the mission in the framework of the training course programme or by partners.

Activity line 4: Capacity development and backstopping in support of selected institutions

CDE's modular Geographic Information System (GIS) and Earth Observation (EO) training concept can be applied at all levels, from technical assistance (i.e. surveying) to scientific education (i.e. university degree). Short on-the-job courses (1-2 weeks) are frequently used to train staff in a tailor-made capacity building project. Training courses on a regular basis are provided within an