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TOPONYMIC EDUCATION AND PRACTICE AND INTERNATIONAL COOPERATION: TECHNICAL ASSISTANCE

Technical cooperation between Canada and Mozambique, in regard to the developinent of a digital toponymic database for Mozambique

(Submitted by Canada)

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Paper submitted by Canada

Through funding from the Canadian International Development Agency (CIDA), Natural Resources Canada aiid Intelec Geomatics Inc. of' Montréal are working with the Direcção Nacional de Geographia e Cadastro (DINAGECA) to create a raster databank from 1:250 000 aiid 1:50 000 scale maps and a digital toponymic database for Mozambique. The technology transfer will allow f'or ongoing provision of this information in digital form to support demining actions throughout Mozambique. The Microçoft Access Sistema de Gerência de Topônimos, after initial data input will contain some *50* O00 records, originating from DINAGECA card records, as well as small gazetteer and census data files.

Introduction

In the late 1990s, prepatory situational analyses and possible action plans were undertaken by the Canadian International Development Agency (CIDA) for a geospatial information project in support of a Mine Action Program in Mozambique. The principal stakeholders in Mozambique are the Instituto Nacional de Desminagem (IND) and the Direcção Nacional de Geographia e Cadastro (DINAGECA). An important part of the project is cooperation between Natural Resources Canada and DINAGECA to creatc a raster databank from existing 1:250 000 and 1:50 000 liard copy topographic maps and to build a digital topoiiymic database, largely from information on card records. In addition, tlie appropriate transfer of technology will be provideci for the sustainable provision of this information to support demining actions throughout Mozambique.

With tlie cost of producing new mapping for tlie entire country being beyond the available budget, initial efforts to create a national digital covcragc, essential for information exchange, involve the conversion of existing topographic niaps[1] to a geo-referenced raster format. Although certain portions of the information arc out of date, data in digital format are necessary for planning aiid demining operational purposes. This digital platforni will then provide DINAGECA with a base to produce various types of new products, and allow IND to overlay or integrate demining information.

In regard to toponymic information, CIDA arranged to fund the creation of a sustainable toponymic database to be maintained by DINAGECA, but with the information being supplied to IND for their use. The implementation aiid initial database entry of small digital data sets and an

[1] Some 100 sheets at 1:250 000 and 1000 sheets at 1:50 000 scale

extensive set of card records will be undertaken to satisfy IND needs. The resulting database will have around 50 000 records. Subsequent maintenance and fieldwork will remain the responsibility of DINAGECA.

The work required for this project will be completed jointly by DINAGECA aiid the Canadian geomatics industry. Iiitelec Geomatics Inc. of Montréal successfully won the bid, aiid started work in 2001, reporting to Natural Resources Canada where the project is being managed.

Mozambique's toponymie database - an overview

At the start of this project, the data available to create the data base were:

- card records of DINAGECA (–72% *of total records)*
  (physical features, populated places, etc)
- DINAGECA's 1997 Gazetteer *(~4% of total records)*
  (populated places, administrative units, etc)
- DINAGECA's XLS file *(~4% of total records)*
  (administrative hierarchy)
- Instituto Nacional de Estatística (INE) Census data of 1997, amended in 2000 by the Canadian International Demining Centre (CIDC) *(~20% of total records)*
  (census areas, villages)

The resulting digital toponymie data base, even though not consisting of entirely current data, will provide more up-to-date information than is now shown on existing topographic maps. This single standard set of geo-referenced toponymic data can then be added as a layer to enhance the quality aiid currency of digital products. In particular, IND can beiiefit froni DINAGECA's more recent data which could not previously be transferred - rather than using the names on the paper copy maps (including some 1:250 000 scale sheets more than 30 years old).

The data base design for Mozambique's Sistema de Gerência de Topônimos was developed by Iiitelec Geomatics as a customized system to run with Microsoft Access on a PC, using the ISO 8859 character set. Screens aiid documentation were created in Portuguese. A user-friendiy data base interface for data input, validation, error corrections, querying aiid report generation was essential. Quality control, auditing. tracking, back-up strategies, aiid data transfer procedures were required.

In addition. a procedure had to be developed aiid implemented to collect geographical coordinates from the geo-referenced raster maps for toponymie data base entries where no coordinate information was available on the original source documents. To address the needs of DTNAGECA and IND tlie following fields have at present been included in the development of the data base:

- Record identification - computer-generated integer
- Name - in natural order
  - in inverted order for alphabetical list purposes
- Variant name(s)
- Status - approved. etc.

- Data source
- Geodetic reference
- Approval date - if applicable
- Map slieets - 1:50 000 and 1:250 000, corresponding to the coordinates
- Administrative divisions - up to four levels available
- Feature type
- Coordinates - latitude and longitude
- Location narrative
- Historical narrative

Of these fields, some have data entry *as* "mandatory", some have it as "important", and for others it is "optional". Several fields have pop-iip menus to support data entry, and several have built-in constraints for quality control purposes. Modifications and additions to these fields can be created as future needs demand.

Up to the present, administrative division names have been entered and standardized. Ail othcr geographical names are now being èntered on a province by province basis.[2] The records will later be reviewed to eliminate duplicates (for example, the saine name record entered from different sources) and to add fields of information not readily available at the outset.

Future reporting

It is hoped that by the next UNGEGN meeting, Mozambique will have a fully functional data base and may be in a position to present a more detailed description of its structure, loading, and capabilities. Perhaps, too, an assessment could be made of its benefits to DINAGECA aiid IND, aiid the lessons learned in the developnieiit of this particular national data base could be outlined to assist others facing a similar situation.

[2] As of mid-June 2002, some 70% of the records have been entered, although data in a number of fields are as yet incoinplete.