

The Second Administrative Level Boundaries data set project (SALB) Concepts, Progress and Future

1. Introduction

The lack of a common geographic database within the UN system makes it very difficult, if not impossible, to provide information in a timely fashion and to undertake comparative analysis of substantive issues. Hence there was a need to develop a common geographic database for UN system-wide use.

This situation is the basis of two efforts that have recently started within the UN: The creation of a working group on Geographic Information. (United Nations Geographic Information Working Group, UNGIWG) and the development of the United Nations Geographic database (UN Geodatabase) project.

Taking advantage of these two efforts it has been possible to implement a first inter agency project to answer one of the needs expressed by many UN institutions. This project, called SALB, aims at creating an homogeneous Second Administrative Level Boundaries data set for improving the collection, management, analysis and sharing of sub national data. The review of the administrative boundaries data set available in several UN institutions done in the context of the 2nd UNGIWG meeting (Rome, 2001) confirmed the existence of multiple non-coordinated efforts leading to duplication of work and a lack of compatibility between the data sets regarding this particular layer. This project has been launched in the continuity of different efforts that took place in the middle of the 90's where the delimitation of the administrative boundaries needed for the creation of population distribution grids (Tobler et al., 1995).

The SALB project is a good illustration of the potentiality that exists within the UN and non-UN community in terms of collaboration, access to data and technical skills. Within the United Nations, SALB even represents the biggest interagency project ever realised in the field of Geographic Information.

In order to facilitate data exchange within the United Nations and the international community a list of characteristics were defined for this data set:

- digital format (ArcInfo export file)
- global coverage (concentrating on the UN member countries)
- representative of January 2000
- international borders and coastlines standard developed by the UN cartographic section
- specific coding scheme developed for the context of the SALB project
- freely redistributable for non-commercial purposes (under copyright for avoiding any commercial use)
- validation by the National Mapping Agency (NMA) of the respective countries

Since the launching of this project an important amount of information and data have been collected. Since this information finally covers the period 1990 to 2003 a database on historic changes has also been created which is now associated to the SALB data set.

Geocoding systems are generally developed by National statistical offices (NSOs) because "one of the earliest decisions in census planning pertains to the administrative areas for which census data will be reported"¹. However, the data set generated by this project represent a working platform through the provision of a flexible and intuitive coding scheme that can be applied to any country, independently from its administrative structure. The SALB project goes in fact further than the recommendation provided by the Statistics Division of the department of Economic and Social Affairs in the frame of the "*Handbook on geographic information systems and digital mapping*" as the coding scheme proposed is based on a structure that allows its constant update in order to take into account the changes that occurs through time regarding the naming and delimitation of the administrative units.

Useful Links

SALB project: http://www3.who.int/whosis/gis/salb/salb_home.htm

UNGIWG: www.ungiwg.org

FAO GeoNetwork: <http://www.fao.org/geonetwork/srv/en/main.search>

UN Cartographic Section: <http://www.un.org/Depts/Cartographic/english/htmain.htm>

¹ "Handbook on geographic information systems and digital mapping" (ST/ESA/STAT/SER.F/79, New-York 2000), p.27.

2. Standards, methods and processes

A reflection took place at the beginning of the SALB project in order to define the standard, methods and processes that were going to ensure the strength and homogeneity of the data set.

2.1 Standards

The elements considered in the context of the SALB project as being standardized are as follow:

- the international borders in order to be able to create a global data set in which each country map would be compatible with the neighbouring countries.
- the metadata that is associated with the information in order to insure its documentation.
- the representativity of the information collected as the administrative units represent territorial entities that are subject to changes through time
- the codification of the administrative units and spelling of the names in order to provide a homogeneous tool for the management, analysis and sharing of subnational data
- the validation of the information collected by an official entity within the country

For the first two elements, the SALB project has been able to take advantage of the work done in the context of the UNGIWG. For the last three elements, solutions have been specifically designed for the SALB project.

2.2 Methods and Processes

The creation of the SALB data set concerns an important number of countries (192), implies a large spectre of information to be collected (list of admin unit names, historic changes, maps..), involves different types of institutions and does not have access to extensive resources.

It was therefore essential to define clear methods and processes in order to avoid any duplication of work and obtain the desired products that will be downloadable from the SALB web site. These products are:

- 1) a table listing the names of the first and second level administrative units as observed 1 January 2000 and validated by the NMA. The correspondence between the levels also has to be indicated and the SALB coding scheme implemented in this table.
- 2) a digital map showing the delimitation of the first and second level administrative units as reported in the table validated by the NMA for January 2000. This map has to correspond to the characteristics mentioned in the introduction which includes its validation by the NMA of the country in question.
- 3) two tables presenting the historic changes observed at the first administrative level since 1990 and the one observed at the second level since 2000. Both tables including the SALB coding scheme. This last product being used to create digital maps representative of any period before or after January 2000.

The treatment of a first series of countries allowed us to identify the general steps that have to be applied in order to obtain each of these products:

- 1) collection and compilation of information and documents,
- 2) application of specific protocols in order to create the products,
- 3) validation of the final product by the country specific NMA,
- 4) distribution of the final products through the SALB web site.

As some information contained in one document was often necessary for the completion of the digital map a certain order of treatment has also been applied. The priority has therefore always been given to the creation of the table listing the administrative units names. Once this first document was validated, the processes aiming at creating the digital map representative of January 2000 as well as the historic changes table were started. It is also important to mention that the project follows the order of treatment of the countries based on the priorities expressed by the different UN agencies or partners involved and/or interested in the SALB project. This list of priorities is continuously updated in order to help the different technicians involved to plan their work.

2.4 The SALB network

The creation of the SALB data set would never have been possible without UN and non-UN institutions, projects, commissions, committee or networks that have, and are still, actively participating in each of its steps (see Figure at: http://www3.who.int/whosis/gis/salb/salb_PO.htm). The data collection process involves an important number of

institutions. Once the information is collected and compiled, the series of processes and protocols elaborated in the context of the SALB project do not require the involvement of many institutions.

The maintenance and updating part of the process has recently been put in place in order to follow the evolution of the administrative units within the countries that already provided the project with the January 2000 situation and the historic changes since 1990. In this new part of the process, the NMA are contacted for the last time requesting them to directly inform the UN Map Library about any changes that would occur in their country regarding their NMA contact information or in terms of administrative boundaries delimitation and administrative unit names.

One of the concerns of the SALB project is the distribution of the tasks to institution according to their specific mandates and/or technical capacities. In this context the National Mapping Agencies are playing a key role and therefore appear at different place in the process. The UN Map Library is also playing a central role by updating the NMA contact list, following up on the validation process and keeping the contact with the NMA for updates.

3. State of Progress (January 2004)

Since June 2001, 182 NMAs have been contacted. Until now, these contacts have allowed us to collect:

- the table listing the administrative units observed in January 2000 for 125 countries,
- the historic changes for 85 countries at the first level and second level.

All these tables, which also contains the corresponding code for each unit are available on the SALB web site at: http://www3.who.int/whosis/gis/salb/salb_coding.htm

In terms of administrative boundaries maps:

- a map that can be used in the context of SALB has been found (modification and redistribution authorised) for 142 countries so far
- we are still under discussion in order to obtain a map for 46 countries,
- a map is still missing for the remaining 4 countries

Using this source of information, the comparison between the available maps and the table provided by the NMA has been done for 108 countries. There is a certain percentage of the countries for which the maps at disposal do not correspond to the table provided by the NMA and for which we are currently looking for the necessary information in order to perform the update (25% of the countries for which we have received the table from the NMA).

It has been possible to start the editing work on 58 of the 82 countries for which the correspondence was existing between the table of the bale. The remaining ones are corresponding to countries for which there is still a discussion taking place regarding the authorisation to use or redistribute the map at disposal. For 53 of these countries the editing work has been completed and the map sent for validation. Up until now we have received the validation for 18 countries, the maps for these countries are already posted on the SALB web site and mentioned on the FAO Geonetwork portal.

In order to improve some part of this process a new page has been recently created on the SALB web site in order to inform the network about the missing information (see: http://www3.who.int/whosis/gis/salb/salb_help_us.htm)

Finally, the UN Map Library has so far requested the collaboration of 94 NMAs regarding any changes that would occur in the future and have already received the confirmation from 39 of them that the UN Map Library will be kept informed about any changes.

4. Future of the Project

During the 4th meeting of the UNGIWG that took place in Nairobi (22-24 October 2003) the SALB coding scheme as been recognised as a recommendation of the Working Group in terms of coding scheme.

After informing the UN Statistical Commission about the SALB project in general and the SALB coding scheme in particular our next objective is to work on the proposition of presenting the SALB coding scheme to ISO TC 211

By the time of the next UNGIWG meetign (Geneva, October 2004) we also expect to be able giving access to the January 2000 table available for all the UN members countries, to have obtained authorisation to use the map for the 46 countries still under discussion and sent maps to 75 countries for validation.