



SECOND ADMINISTRATIVE LEVEL BOUNDARIES DATASET (SALB)

Coding Scheme

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1. Introduction

The present coding scheme has been elaborated in the context of the SALB project in order to provide any administrative units with a unique code.

A first proposal was sent to a review committee and changes were made in order to obtain a first scheme. This first scheme has then been implemented for different countries and tested. The feedback from this test is included in this document as well as:

- the information that was collected in order to create the scheme,
- the analysis made on this information.

In order to be recognised as a "SALB code" the application of this coding scheme will have to be performed by the SALB co-ordination team on data validated by the country. Codes generated through another process are not recognised as "SALB codes".

2. Existing standards and coding scheme

The following existing standards were taken into account in the analysis that allowed the creation of the coding scheme:

- ISO 3166-2. Codes for the representation of names of countries and their subdivisions. Part 2: Country subdivision code.
- FIPS PUB 10-4 (Federal Information Processing Standards). Issued by the National Institute of Standards and Technology (US) Can be consulted at: <http://164.214.2.59/gns/html/fips/fip10-4.html>.

To complete this list of standards, the following coding scheme was also taken into account

- USGS mineral resources coding. Can be consulted at <http://mrdata.usgs.gov/sddp/field/mrds/state.html>
- FAO proposal for a coding system for Subnational Administrative Units maps (beta version). Document distributed during the Rome meeting,
- WHO coding scheme (CDS and HTP),
- UNEP's and CIESIN's regional and global population databases <http://grid2.cr.usgs.gov/datasets/datalist.php3> and <http://sedac.ciesin.org/plue/gpw>

2.1 Analysis of the existing standards

Both standards selected present advantages and disadvantages. The major ones are shown in Table 1.

	Advantages	Disadvantages
ISO 3166-2	<ul style="list-style-type: none"> - International Standard, - updates available. 	<ul style="list-style-type: none"> - not accessible for free, - not consistent and not homogeneous (big differences from one country to another and from one admin level to the other), - frequency of updates uncertain.
FIPS PUB 10-4	<ul style="list-style-type: none"> - accessible for free, - frequent updates available online, - consistent and homogeneous from one country to another and from one level to the other. 	<ul style="list-style-type: none"> - US rather than International standard, - with only two digits that are replaced by two characters when there is more than 99 units at the 1st administrative level.

Table 1 - major advantages and disadvantages of the two standards (ISO, FIPS)

In addition to these observations it is important to specify that these standards concern codes for only the 1st administrative level. No standards were found for the 2nd administrative level.

Based on the above table we came to the conclusion that:

- it would not be as convenient as we thought to use one of these standards,
- we should keep the advantage of FIPS regarding:
 - the continuous update available for free on the web,
 - the consistency of the codes,
- an analysis of other coding schemes available could give us new useful information.

2.2 Analysis of the other coding schemes

From the analysis of the other coding schemes (USGS, FAO, WHO, UNEP, CIESIN) emerged the necessity to include other types of information in connection with the chosen codes, such as:

- the type of administrative level (e.g. district, commune)
- alternative spelling of the administrative level unit name (at least English and local)

Apart from that, the general structure of these coding schemes themselves was not far from the one used by ISO or FIPS.

2.3 Conclusion of the analysis and proposition of products

All the elements collected during the analysis were then compiled in order to create the coding scheme presented now.

At the beginning of the project, the SALB database was meant to be representative of January 2000 only. The information finally collected showed the necessity to be able to update this database in order to be able to track the changes that occur at the sub-national level regarding administrative units.

The present document explains how the codification of the units observed at the 1st and 2nd administrative levels in January 2000 are coded in the context of the SALB project. For the codification of the changes that occurred after or before this date please refer to the document called "Updates_SALB_codes_16_07_03.doc".

In order to make the link between the SALB codes and some other codes being used in different institutions (ISO, FIPS, FAO, WHO,...), country-specific key tables will also be created in the future. These tables will also contain alternative spelling for administrative unit names used within the SALB attribute table. It will be possible to link these tables to the SALB specific codes.

3. Description of the SALB coding scheme

The general idea of the proposed coding scheme is to follow the structure that appears to be used most widely:

- a code for the country,
- a code for the 1st administrative level that includes the country code on which we add a new number of digits to identify the concerned unit,
- a code for the 2nd administrative level based on the same approach as the one for the 1st administrative level.

3.1 Code used for the country

For the country level the ISO3 code has been chosen as this represents the most intuitive one (we can more easily figure out the country to which the 3 characters refers to).

3.2 Codification of the 1st level administrative units

The 1st administrative level code proposed is based on the structure of the two digits FIPS PUB 10-4 code to which we add one more digit at the beginning in order to:

- avoid the problems that we could have in some countries by using a US government coding scheme,
- take advantage of the constant updates of the codes (available online),
- homogenize the codes for countries that are presenting more than 99 administrative units at the 1st administrative level (e.g. Slovenia).

The attribution of the code to each unit of the 1st administrative level is done as follows (Figure 1):

- the alphabetical order will be used to organize the units of the 1st level as observed in January 2000,
- the first unit in the alphabetical order uses the code [ISO3country] + 001 (e.g. ABC001),
- the other units are then coded sequentially following the alphabetical order keeping the ISO3 country code at the beginning (e.g. ABC002, ABC003,...).

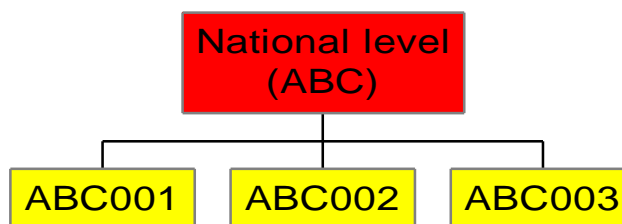


Figure 1: Example of coding for the 1st administrative level (in yellow)

3.3 Codification of the 2nd level administrative units

For the 2nd administrative level the same structure as the one proposed for the 1st administrative level is followed. The attribution of the code is done as follows (Figure 2):

- the alphabetical order will be used once again to organize the 2nd level units within each 1st level administrative unit,
- within each 1st level unit, the first unit in the alphabetical order uses the code [Admin1_code]+ 001 (e.g. ABC001001),
- the other units are coded sequentially following the alphabetical order keeping the 1st level code at the beginning of the final code (e.g. ABC001002, ABC001003,...).

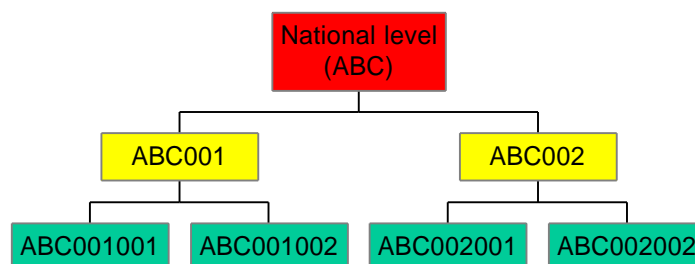


Figure 2: Example of coding for the 2nd administrative level (in green)

Table 2 below illustrates how the 2nd administrative level attribute table should appear

As can be seen in the table, the code of each administrative unit is associated with its corresponding name.

If it is necessary to go below the 2nd administrative level we can follow the same structure as mentioned above (for the 2nd administrative level).

CNTRY_NAME	CNTRY_CODE	ADM1_NAME	ADM1_CODE	ADM2_NAME	ADM2_CODE
Germany	DEU	Baden-Wuerttemberg	DEU001	Freiburg	DEU001001
Germany	DEU	Baden-Wuerttemberg	DEU001	Karlsruhe	DEU001002
Germany	DEU	Baden-Wuerttemberg	DEU001	Stuttgart	DEU001003
Germany	DEU	Baden-Wuerttemberg	DEU001	Tuebingen	DEU001004
Germany	DEU	Bayern	DEU002	Mittelfranken	DEU002001
Germany	DEU	Bayern	DEU002	Niederbayern	DEU002002
Germany	DEU	Bayern	DEU002	Oberbayern	DEU002003
Germany	DEU	Bayern	DEU002	Oberfranken	DEU002004
Germany	DEU	Bayern	DEU002	Oberpfalz	DEU002005
Germany	DEU	Bayern	DEU002	Schwaben	DEU002006
Germany	DEU	Bayern	DEU002	Unterfranken	DEU002007

Table 2 - Example of codification of the 1st and 2nd administrative levels for a few Länder in Germany

4. Codification of special administrative units

It may happen that some areas of a country are managed in such a way that the rules explained above need more explanation or adjustment.

These different cases and their implications for the coding scheme are illustrated below. In the examples mentioned, "ABC" refers to the ISO3 codes of a hypothetical country.

4.1 Administrative unit having the same geographic extension at the 1st and 2nd level

If a 2nd level administrative unit keeps the same geographic extension as at the 1st level (Figure 3) the following code will be applied [Admin1_code]+ 000. This keeps the consistency between the levels and indicates the particularity of the unit.

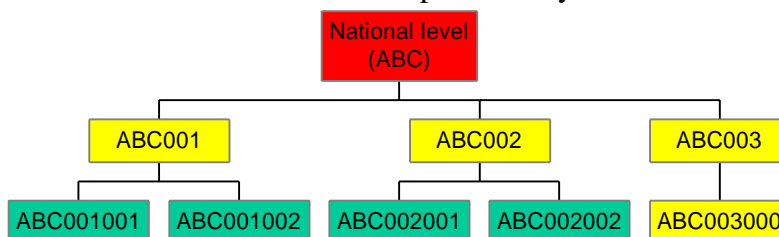


Figure 3: Example of codification of a unit that keeps the same geographic extension from the 1st to the 2nd level

The only exception is when the territory doesn't have any administration at the 2nd administrative level. In this case please see section 4.2.

4.2 Territory without any administration

It may happen that part of a country doesn't have any administration at a considered level (e.g. the area of Bruxelles in Belgium at the 2nd level, also an example of a territory presenting the same extension as at the 1st level).

In this particular case the part of the SALB code corresponding to the concerned level for that territory will have the following structure: XXX (i.e. ABC001XXX).

4.3 Second level administrative units spread in different 1st level units.

In some countries some 2nd administrative level units are not made of a unique territory located within a particular 1st administrative level unit but of multiple areas spread in different 1st administrative level units, as in Lesotho (Figure 4).

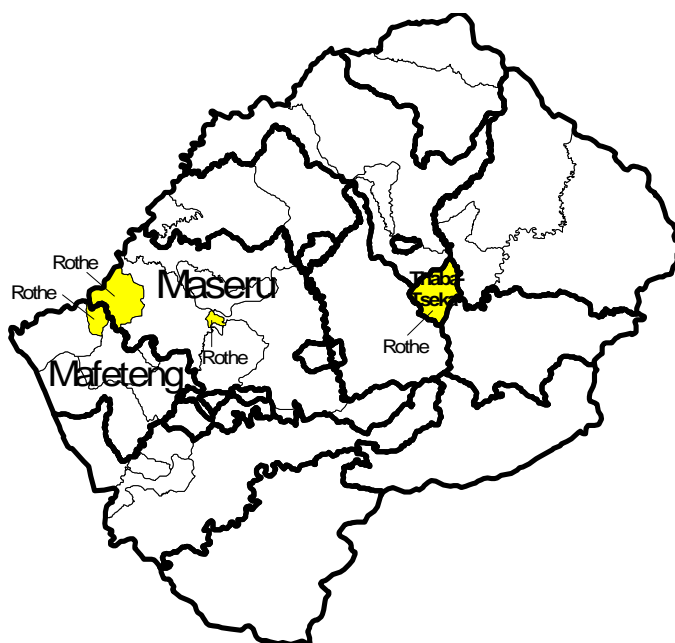


Figure 4: Example of map showing a 2nd level admin unit composed of multiple areas spread in different 1st level units (Lesotho)

In order to allow the management and display of data representative of each of these areas, the codification of such units in SALB is done following the same rules as for any other 2nd administrative level units (Figure 2):

In order to be able to manage data representative of the total extension of this multiple part administrative unit, a special code is also created. In this code the part corresponding to the upper level of the concerned multiple part unit has the following attribution: MMM (i.e. ABCMMM001).

5. Additional Information

In order to better illustrate the associated table mentioned under point 2.3, the following tables provide examples, again for Germany:

- the information related to coding at the country level (Table 3),
- part of the country-specific key table for the 1st administrative level (Table 4).

ISO3_Code	Continent_Name	Country_English	Country_French	Country_Spanish	ISO2_Code
DEU	Europe	Germany	Allemagne	Alemania	DE

UNSD_Code	WB_CODE	Admin1_Type	Num_Unit_1	Admin2_Type	Num_Units_2
276	DEU	Land	16	Regierungsbezirk	38

Table 3 - information related to coding at the country level (Germany)

ADM1_CODE	ADM1_NAME	ISO_code	FIPS_code	..._code
DEU001	Baden-Wurttemberg	DE-BW	GM01	
DEU002	Bayern	DE-BY	GM02	
DEU003	Berlin	DE-BE	GM16	
DEU004	Brandenburg	DE-BB	GM11	
DEU005	Bremen	DE-HB	GM03	
DEU006	Hamburg	DE-HH	GM04	
DEU007	Hessen	DE-HE	GM05	
DEU008	Mecklenburg-vorpommern	DE-MV	GM12	
DEU009	Niedersachsen	DE-NI	GM06	
DEU010	Nordrhein-westfalen	DE-NW	GM07	
DEU011	Rheinland-pfalz	DE-RP	GM08	
DEU012	Saarland	DE-SL	GM09	
DEU013	Sachsen	DE-SN	GM13	
DEU014	Sachsen-Anhalt	DE-ST	GM14	
DEU015	Schleswig-holstein	DE-SH	GM10	
DEU016	Thuringen	DE-TH	GM15	

Table 4 - Part of the country-specific key table for the 1st administrative level (Germany)