United Nations
Code for Trade and Transport Locations (UN/LOCODE)

Codelist complete revision: the Brazilian experience

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- **DMRs validation: the traditional approach**

- **Why to do a complete revision?**

- **Important guidelines**

- **Methodology**

- **Outcomes**

DMRs validation: the traditional approach

- Check for possible duplication with entries in the current codelist

- Confirm real existence and exact geographic location

- Establish function codes (port, airport, road terminal, ICD, etc.)

- Define a unique, mnemonic and harmonized code

- **Frequent problem: cascading changes**

- **Limitation: validation done manually, one by one!**

DMRs validation: the traditional approach

- **Codelist situation in 2015 (Release 2014/2): 2205 entries**

Status	AI	RL	RQ	QQ	XX
Qty	326	427	1443	8	1

- **Work done since NFP nomination:**

Release	New codes	Changed Entries	Deleted codes	Accepted DMRs	Release	New codes	Changed entries	Deleted codes	Accepted DMRs
2015/1	145	3		148	2018/2	12	29	202	243
2015/2	19	2	3	24	2019/1	1	2		3
2016/1	8	1	1	10	2019/2	11	21	15	47
2016/2	9	1	5	15	2020/1	4			4
2017/1	7	9	28	44	2020/2	26			26
2017/2	8	1	9	18	2021/1	16	10	2	28
2018/1	15	17	5	37	**Total**	**281**	**96**	**270**	**647**

- **Codelist situation in 2021 (Release 2021/1): 2217 entries**

Status	AA	AC	AI	RL	RQ	XX
Qty	211	144	260	304	1296	2

Why to do a complete revision?

- Improve codelist data quality (**reliability**)
  - elimination of duplicities
  - deletion of codes assigned to non-existent locations
  - use of more mnemonic codes
  - correction of name spelling
  - setting up-to-date functions
  - setting correct geocoordinates

- Include ALL the 5570 Brazilian municipalities (**completeness**)
  - every municipality may be of interest for international trade purposes (e-commerce, parcels, …)
  - complete UN/LOCODE coverage of the national territory

Important guidelines

- **Golden rule**: do not change the codes of major cities, ports and airports!

- **Specific areas** (such as an airport or port) within a larger location (such as a municipality) **may have a specific code**, different from the larger location, **when duly justified**

- **Harmonization implies choosing:** in case of code duplications or code conflicts between different databases (UN/LOCODE x IMO/Gisis x Customs systems), only one code will remain

- **We are not building a codelist from scratch**: deletion and code reusing are necessary in the harmonization process, especially considering that 1860 entries have never been validated by a NFP before

Methodology

- Based on:
  - usage of **open data sources**
  - **automation** of the validation/revision process

- Main steps:
  1. Clean and prepare the data
  2. Combine the data to create the complete list of Brazilian locations (the "Big Table")
  3. Compare the "Big Table" with the current Brazilian UN/LOCODE codelist to keep as many existing codes as possible
  4. Define codes for all remaining locations in the "Big Table"
  5. Compare the "Big Table" with the current codelist to create the DMRs needed to add, change or delete entries

Methodology – Open data sources

- **Municipality names, subdivisions and geocoordinates**
  - IBGE (Brazilian Institute of Geography and Statistics)

- **Ports (functions 1 and 8)**
  - ANTAQ (Waterborne Transport National Agency), IMO, ECLAC

- **Roads and railroads terminals (functions 2 and 3)**
  - ANTT (Terrestrial Transport National Agency)

- **Airports (function 4)**
  - ANAC (Civil Aviation National Agency), IATA

- **International Mail Processing Centers (function 5)**
  - UPU

- **Internal Clearance Depots (function 6)**
  - RFB (Brazilian Internal Revenue and Customs Secretariat)

- **FPSOs (function 7)**
  - ANP (Petroleum National Agency), Petrobrás

- IT tools:
  - environment: **Jupyter Notebook**
  - development language: **Python**, with **Pandas** package
  - support software: **MS Excel** and **MS Access**

- Some highlights:
  - development of a <u>code generation algorithm</u>, responsible for creating approximately half of the codes (BR xxx)
  - 15 notebooks were developed
  - 21 intermediate data files were created
  - **+- 100 hours of work**

Outcomes

- **Codelist BEFORE complete revision (2021/1): 2217 entries**

Status	AA	AC	AI	RL	RQ	XX
Qty	211	144	260	304	1296	2

- **Codelist AFTER complete revision (2021/2): 5730 entries**

Status	AA	AC	AI	RL	RQ	XX
Qty	5597	34	-	-	-	99

- **Final adjustments (2022/1)**

DMRs	add (+)	change (|)	delete (x)	Total
Qty	6	120	4	130

Outcomes

- **Revised Brazilian codelist → 5633 entries**
  - **ALL the 5570 municipalities**
  - **23 major ports and airports** with their own specific codes
  - **40 operating FPSOs**

- **COMPLETE**
  - **no need to add any other location** (except for new FPSOs)
  - any new port or airport can be added to the list by simply changing the function of the corresponding municipality

- **RELIABLE**
  - **official names and geocoordinates for ALL locations**
  - **up-to-date functions**, based on open data available on the websites of the corresponding national agencies

Thank you!

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