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Register of Place, Energy statistics and microdata for Climate change statistics: Challenges and Assumptions

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From global to local and from local to global: sustainability and climate change



Climate Change (CC) statistics, Hazardous events and disaster statistics,

SDGs. Which goals and which statistical measures?



Concretely....in Istat:

Integrated statistical measures at disaggregated territorial level. Statistical measures build the common language. The territorial disaggregation is the basis to integrate economic, social, environmental and institutional domains.

National Strategy for Sustainable Development: territorial disaggregation and areas

The use of administrative data helps but it is a big challenge also for methodological and institutional reasons.





















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From administrative data to statistical data, a big challenge for sustainability and climate change RSBL

RSBL Statistical Register of Places: a complex system several components

Administrative territorial units and functional areas (7904 municipalities and LLMA, FUA, DEGURBA ...)

Enumeration areas and microzones: 1,1 milion microzones (infrastructures, green areas,) and 730000 georeferenced enumeration areas for 7904 municipalities produced by many different archives of geographic data

Addresses and geographic coordinates: many administrative archives of data from municipalities, Fiscal Agency, specific survey to municipalities, Cadastral Agency, Economic archives ...CUI Unique Identification Code of addresses (30,0 millions), geographic coordination XY of CUI, Quality indicators.

Buildings and dwellings: data from cadastral agency and data from geographic agency, every kind of buildings not only residential, and dwellings. Every building is georefered. 24 millions Buildings of which 14.4 millions are residential building

The final integrated product will allow the possibility of geo-referencing information for flexible outputs.

It is indeed a long process but the first result can be seen with the production of a preliminary 1km population grid.





From administrative data to statistical data, a big challenge for sustainability and climate change RSBL

Concretely.... Integrating ...in PROGRESS



- In green geographic coordinates of addresses, in red enumeration areas and you can see also the buildings
- o Long **never ending process**: updates of administrative archives, processing to check the **quality** of data
- Methodological approach to consider the interlinkages and integration by code considering the confidentiality issues
- Integration of RSBI population register (also census) with the RSBL Register of the Places to consider the population in
- Every kind of information with geographic coordinates could be integrated
- Climate change and sustainability statistics can be improved considering anthropic pressure: coastal areas, mountains, landslides, hazardous events ...



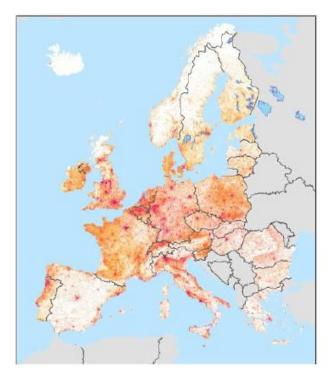
Grid population

Population Grid: essential tool to consider population integrated with other information for Sustainability and climate change statistics

320.000 cells 400.000 polygons BT2011 700.000 polygoni BT2021



GEOSTAT 1A – Representing Census data in a European population grid





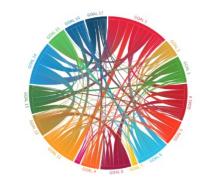
Household Energy Consumption Survey (HECS)

The needs of the **energy transition driven by climate change** and the current geopolitical and socioeconomic implications: monitoring the National Sustainable Development Strategy and the National Recovery and Resilience Plan.

The 2021 Istat Household Energy Consumption Survey provides a contribution to the national framework on energy statistics, with respect to the residential sector. The survey collects information on household energy equipment and their uses, drawing the overall picture of energy consumption and related expenditures in the reference year (2020).

The characteristics of the dwelling and how it is equipped for heating and cooling and for domestic water production are investigated, along with the technical characteristics and the frequency of use; more over information on systems for lighting and equipment of appliances are collected. Finally, the volumes of biomass and the expenditures for energy consumption (electricity, natural gas, LPG, diesel and biomass) are measured. CATI-CAWI survey. Statistical reports June 2022 and December 2022.

Project for the next 2023-2024 survey: the sample of about 54 thousand households, nationally and regionally representative, innovation in the questionnaire, and in territorial domains. New Questions dedicated to quantitative consumption and to the POD – Point of Delivery.







Administrative energy data file and **Household Energy Consumption Survey**

Energy Administrative Register (EAR) could provide data on energy statistics every year from smart meters, and could give information on: Gas annual consumption, Electricity annual consumption, POD (Point of Delivery).

2024 HECS survey, at the moment in planning, will consider new questions related to: Annual energy, consumption, POD (Point of Delivery) (to be confirmed)

From the Register of place (RSBL), the linkage among Population, Dwellings and Place could be used together with 2024 HECS Survey and Energy Administrative Register







Administrative energy data file and Household Energy Consumption Survey

The availability of administrative energy data for the residential sector related to the same reference period, could allow the development of analyses, aimed at strengthening the data collected from households and at a greater granularity of the data at the territorial level.

The integrated analyses of these components, the survey with new administrative sources and RSBL, could determine a qualitative enrichment of the RSBL and of the indicators currently estimated exclusively with the survey and at the same time allow the study of new quality indicators.

Meter data could help valuate Quantitative Energy Consumption

The national Household Energy Consumption Survey would benchmark the energy consumption level to the level of the Energy Administrative Register (EAR).

Experimental analyses could be conducted **but** ...**confidentiality issues** have to be strictly considered: only by anonymized code.

Istat asked for addresses or geographic coordinates of the POD in the EAR but for **confidentiality reason** EAR will not release them.

Better quality macrodata statistics on energy could be released ifinstitutional issues could be considered ...to overcome confidentiality problems with addresses and geographic code



Sostenibility, Climate Change, territorial and geographic data: statistics to not leave behind are necessary

A richer statistical mosaic to integrate the different dimensions promoting imprevements in the production of statistical measures inside the national statistical system

From Global to local and from local to global:

geostatistical and territorial analyses are integration factors becouse in territory the integration among economic, social, environmental, institutional domains could improve looking forward to Climate change and sustainability

Methodological approach could be used ...but ...it is not enough.

Confidentiality is an essential issue to be face with

Thanks for your attention

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