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REPORT

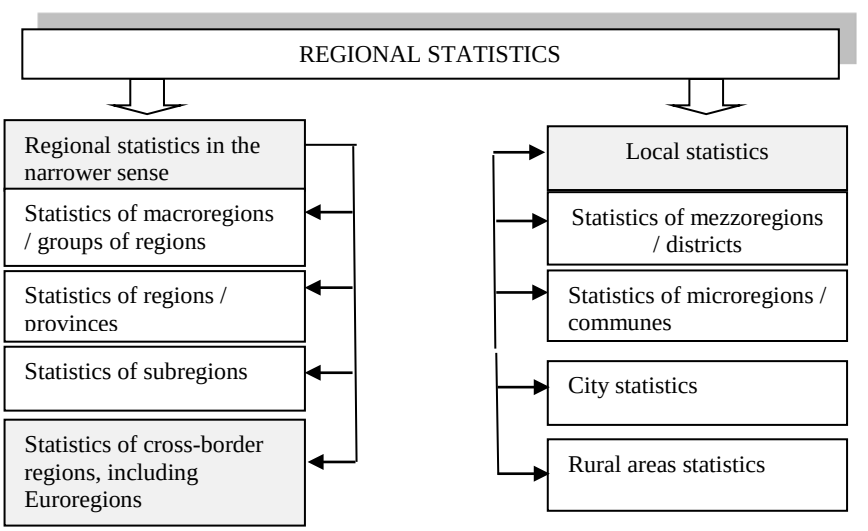
The Regional Statistics – Current Situation and Fundamental Challenges[1]

Regional statistics constitutes an integral and very important component of public statistics regarding its organizational and substantive aspects. **Basic data aggregation method** represents the main criterion for its distinguishing, which facilitates the positioning of phenomena in regional space and, to a lesser extent, the analysis content.

The method for providing regional statistics definition depends on the accepted interpretation of statistics itself – whether statistics is interpreted as *tabular* (data sets), as *functional* ("reporting" interpretation), or as the *branch of science*.

Following tabular interpretation regional statistics represents data sets referring to regions and facilitating social, economic and environmental phenomena understanding in different systems of territorial units. In this sense regional statistics is understood as data sets referring to phenomena occurring at different spatial levels, which is illustrated by picture 1.

Picture 1. The scope of "regional statistics" concept



Source: Author's compilation.

[1] The author's reflections based on his participation in three thematic sessions at the Congress of Polish Statistics – Poznań 2012.

Regional statistics also refers to data sets covering all or some spatial cross-sections of the described phenomena. Additionally, there are no substantial contraindications to include into local statistics (as the type of regional statistics) also these statistics which cover smaller than a district or commune territorial units, e.g. locations.

In relation to *functional interpretation* **regional statistics** refers to collecting, accumulating and updating statistical data, their processing, provision and dissemination in different spatial systems. Finally, with reference to the third interpretation, **regional statistics** represents the scientific branch of statistics which deals with detecting and analyzing certain regularities occurring in mass processes and also characteristic for phenomena studied in different territorial systems.

Currently, Regional Statistics is focused on the following three fundamental problems:

- current situation assessment and the identification of basic challenges put before Polish and European regional statistics,
- data bases as well as regional and local development monitoring,
- city and rural areas statistics.

Basic challenges

The main task of regional statistics is to provide the quantitative description of administrative and functional identities at the level of regions. It refers to the countrywide statistics as the hierarchical system of geographical and infrastructural economic, demographic and social relations.

The second important problem is the assessment of information coverage necessary for the state and local self-government functioning in market economy after 1990. The system of regional statistics should consider possibilities for information systems construction which extend outside administrative divisions based on NUTS. It mainly refers to information provision for special attention areas, such as: economic zones, ethnic groups, environmental advantages, areas at risk of flooding, etc., or goal oriented areas, e.g. generating cross-border statistics (including Euro-regional one), metropolitan statistics, etc.

The development of statistical research methodology in cross-regional sections at the beginning of the 21st century, covering problems which occurred in the process of preparation for Agricultural Census 2010 and National Census 2011 represent the third challenge of Regional Statistics. It mainly refers to conclusions resulting from the assessment of statistical information quality obtained based on traditional censuses and representative research without using alternative data sources collected by state administration.

Integration of sources and special sample surveys applying synergy effect, as well as problems referring to regional data quality and the criteria of assessing the statistical survey results are also considered very important problems.[1]

Challenges for Regional Statistics, at the background of the debate focused on cohesion policy are regarded as the next problem of this type of Statistics. The adoption of the Lisbon Treaty has changed the scope of cohesion policy where, apart from social and economic problems, a significant spatial dimension has also appeared. In order to specify due objectives, in order to perform both monitoring and evaluation of this policy, it is necessary to put more emphasis on the role of public statistics as the source of indispensable data. The organization of statistics in Poland keeps adjusting to the changing demand of data recipients. Integrated operations of numerous public statistics provision units are fundamental for effective information service of database users. These changes result in the establishment of Regional Surveys Centres which focus not only on initiating regional surveys but mainly on immediate response to the reported information demand, especially presented by territorial self-government units. The ongoing improvement of publicly available databases, such as, e.g. Local Data Bank (LDB), must also be remembered.

Significant methodological efforts in regional statistics have been undertaken. In the context of strategic assumptions of implementation monitoring, in line with the carried out development policy, the preparation of new rural communes typology constitutes an important initiative the realisation of which undergoes its final phase.

Publishing activities represent an important component of information and statistical data dissemination. Among numerous regional publications *Rural areas in Poland* is worth mentioning. Additionally, *Statistical Vade Mecum of Local Government* will be issued for the second time since it received very good reviews from the target group.

Challenges put before Regional Statistics are determined not only by socio-economic or political transformations, but they also result from new technical capacities. Suggestions of solution in many thematic areas may become significantly enriched by the cooperation between academic circles and statistics practitioners – it mainly refers to the problems of methodological nature, better specification of information needs typical for particular groups of recipients and

[1] The presentation by Jan Paradysz (Poznań University of Economics – Regional Statistics Centre) - *Regional statistics: state, problems and towards of development*, materials of the Congress of Polish Statistics, Poznań 2012.

also broadly understood analytical work, which probably constitutes the most difficult issue[1].

Database and indicator systems of regional and local development monitoring

The condition for establishing adequate sets of sustainable development indicators referring to a given country, provinces, districts and communes is necessary to substantiate this development concept providing legal and strategic substance by defining qualities, objectives and principles of sustainable development. Indicators represent basic tools for sustainable development monitoring which, in measurable way, unveils the core concept of such development. Therefore, the establishment of indicator-based monitoring system for sustainable development is expected to provide possibly the most precise and unambiguous answer to the following two crucial questions:

- what sustainable development means in an indicator-oriented sense;
- what substantial results illustrate this process and its progress in both spatial and temporal system.

The concept of monitoring turns out crucial at this point since it combines sustainable development measurement with life quality measurement at the local level within the framework of specific and constantly developing "statistical" initiative of the local government sector under the name of Local Government Analysis System (SAS). At the third stage of this system development (i.e. since 2007), apart from the objective already being carried out (public services quality research), a new goal, significantly extending the scope of SAS, was defined – the strengthening of indicator monitoring systems for local development policies/strategies by means of two additional indicator modules construction: sustainable development and inhabitants' life quality. The module of sustainable development indicators for the purposes of the system can be distinguished, at the background of other indicator systems, by the possibility of calculating sustainable development synthetic measures for domains and orders. Within the module four analysis levels of sustainable development indicators are possible to carry out and adjust to the monitoring needs of local strategies implementation. The system also offers life quality survey to local governments, including the survey methodology and the report structure. This system module lists, altogether,

[1] The presentation by Dominika Rogalińska (Central Statistical Office) - *Challenges for regional statistics at the background of debate focused on cohesion policy*; materials of the Congress of Polish Statistics, Poznań 2012.

over 250 sustainable development indicators and a relatively balanced division of indicator set into three orders: social, economic and environmental-spatial order. It is supported by the Regional Data Bank (RDB) of Central Statistical Office (CSO)[1].

Changes in RDB represent one of the major manifestations featuring improvements in the publically available database. These changes mainly refer to:

- the availability of selected qualities also for the level of statistical locations,
- the extension of short-term data scope,
- significant improvements in interface functioning,
- recognition of RDB resources as an important source of information about sustainable development implementation at local and regional level.

A universal module was constructed within the framework of RDB which facilitates sustainable development monitoring at the lower level than the national one. Sustainable development indicators developed by Eurostat became the point of reference for this module construction. The module prepared within RDB does not present the set for the purposes of a substantive development strategy monitoring at either local or regional level, but it offers a basic set of indicators which may become the background for sustainable development analyses at the lower than national level. The established module is supposed to constitute a type of a "core" facilitating the assessment and comparison of particular territorial self-government units.

Such module has to be composed of indicators which are covered by statistical data and these data are comparable for all territorial self-government units. Apart from that, due to the specific nature of particular units, the module may be supplemented by indicators crucial from the perspective of a given territorial unit. The module should be extended by the so-called leading groups in a given area – self-government sector, entrepreneurs and social organizations representatives. The prepared module consists of topics which are essential for sustainable development monitoring at regional and local level. Each topic is divided into sub-topics under which substantive indicators were listed[2].

[1] The presentation by Tadeusz Borys (Wrocław University of Economics) and Tomasz Podkański (The Association of Polish Cities) - *Monitoring regional and local development*, materials of the Congress of Polish Statistics, Poznań 2012.

[2] The presentation by Bartosz Bartniczak (Wrocław University of Economics) – Module of sustainable development indicators in Regional Data Bank, materials of the Congress of Polish Statistics, Poznań 2012.

The statistics of cities and rural areas

Practical application of **Geographic Information System (GIS)** is of crucial significance in city and rural areas statistics as an information system useful for entering, collecting, processing and the visualisation of geographical data since one of its many functions is to provide support for the decision-making processes. GIS is the result of several decades of ongoing methodological changes in geography and, obviously, also the rapid development of computer technology influencing database (information sets) management methods. The establishment of GIS is the effect of combining efforts carried out in different fields: geography, cartography, geodesy, computer technology, electronics and statistics.

GIS is applied, among others, in constructing spatial information sets (records, registers) and also in their processing and analysis. Another application group is related to information processing about the distribution of all types of phenomena, especially these featuring extensive variability in time. This group of applications also covers GIS usage for statistical data analysis and presentation, such as, e.g. crime threat, diseases occurrence, land use structure. GIS may also present a very useful tool for processing data about technical infrastructure of a given area, i.e. water, gas, energy supply system network, communication lines. Such data require frequent modifications. Additionally, their great accuracy and timeliness is indispensable.

GIS was used for the purposes of public statistics in the course of two censuses: Agricultural Census (AC 2010 – from 01 September until 31 October 2010) and National Census of Population and Housing (NCPH 2011 – from 1 April until 30 June 2011). In the process of these censuses modern and cheaper than before solutions of data collecting from 16 data holders, coming from 25 information systems (including administration ones) and electronic communication tools were also extensively used, which completely eliminated paper forms. This allowed for smaller burden on respondents and for cutting census materials printing costs. The following data collecting channels were applied in the above censuses: administration sources, the Internet (CAII – Computer Assisted Internet Interview, online self-enumeration), telephone interview (CATI – Computer Assisted Telephone Interview), by an enumerator (CAPI – Computer Assisted Personal Interview) equipped with a portable hand-held terminal.

To support the census a Computer-based Census System (CCS) was introduced which integrated different technologies (from applications installed on

mobile terminals through applications managing and supporting phone interviews, to specialized database, data warehouses and analytical-reporting tools). Additionally, CCS provided solutions ensuring high level of data processing security, due organizational procedures were implemented which obliged census participants to maintain statistical secrecy and protect personal data.

The innovation introduced in the course of both censuses was the application of GIS technology at every stage. Digital maps constituted essential tools for census enumerators (regarding spatial orientation, sampling frame verification, etc.), for communal leaders, provincial and central dispatchers who could perform remote verification of census advancement, as well as the route or the current location of the census enumerator. GIS applications were using materials obtained by PZGiK *[National Geodetic and Cartographic Resources]* (ortophotmaps, borders of provinces, districts and communes, names of locations), borders of statistical regions and census enumeration areas, and also statistical address points prepared by the official statistics services, as well as registered parcels layer (ARiMR *[Agriculture Restructuring and Modernization Agency]*), roads and streets[1].

GIS represents an effective and attractive tool for statistical data presentation and analysis. All statistical data refer, in a sense, to geographic space and therefore spatial aspect should also be considered in their analysis. Typical information published in tabular form, without presenting it in the form of maps, does not allow for noticing numerous interdependencies. Therefore, statistics uses, more and more often, GIS software which facilitates statistical data visualization by means of maps and also advanced spatial analyses of these data[2].

The application of data from administration sources in city statistics supported by GIS tools represents a very important direction in the development of Regional Statistics. The growing demand for detailed and also complex information about cities and problems with meeting them result in the fact that public statistics keeps looking for new sources of their acquisition. The study of information-oriented demand also indicates the need for analyzing cities perceived in certain separation from administrative borders (functional area, wider urban zone, internal urban zones). The need for a different perspective in relation to a "city" also results

1 The presentation by Janusz Dygaszewicz, Magdalena Jaczur-Knapek and Amelia Wardzińska-Sharif (Central Statistical Office), Two censuses: AC 2010 and NCPH 2011 and GIS in public statistics, materials of the Congress of Polish Statistics, Poznań 2012.

2 The presentation by Paweł Chlebicki (ESRI Poland) - ArcGIS as strongly tool of statistical data visualization and spatial analyse, materials of the Congress of Polish Statistics, Poznań 2012.

from such strategic documents as National Regional Development Strategy, National Spatial Development Concept and the European Commission projects focused on urban development support. These reasons became the leading inspiration to extend the application of data included in administrative sources as supplementary for statistical surveys.

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