

ABSTRACT

The research presented in the volume was carried out under the research project financed by the Ministry of Science & Higher Education in the years 2009-2012 N 305 033937 "Spatial diagnosis of environmental quality and protection in Poland in the first decade of XXI century in the light of Polish and EU environmental policy". The study used 86 sozological measures in the pattern: pressure – quality (condition) – response, for the period 2000-2009, applying it to all the 2478 Polish communes as the basic field of analysis and assessment. This allowed to determine the average sozological situation of Polish communes within the analyzed period, the situation in the final years of the study period as well as the value difference of the analyzed measures between the first and final year of the study period. The basic stages of the study involved:

1. Analysis and selection of information and preparation of databases (MS Excel, MapInfo).
2. Statistical data analysis (MS Excel).
3. Classification and sozological assessment (Statistica software).
4. Application in the form of sozological regionalization and delimitation of Sozological Problem Areas (SPAs) (MapInfo).

Data used in the study came mainly from the Local Data Bank of the Central Statistical Office and the state environmental monitoring network, which is coordinated by the Inspectorate for Environmental Protection. Several other sources were used to accomplish the study.

Analysis of traditional forms of pressure on the environment indicated their concentration in major urban and industrial centers of the country, especially related to the production of carbon-based energy, which requires enormous amounts of water consumption and resulting in high emission of gases and particulates into the atmosphere. The major urban centers generating the greatest impact on the environment, in the light of the assessment, were: Warsaw, Cracow, Łódź, Gdańsk and Szczecin; and the centers associated with industry, mining and energy production are Konin, Kleszczów, Gryfino, Police, Połaniec, Polkowice, Rybnik, Koziencice and Ostrołęka. The decade under study is characterized by a slow decrease in the amount of pollution emitted from industrial sources into the air and water, and at the same time, an increase in the emissions from other sources: transportation and partly communal waste.

Analysis of the quality of the environment pointed to its worst condition within the Upper Silesian agglomeration and its vicinity. There are dozens of cities and rural communes in this region with the most polluted air, water and soils in the country. This is due to the extraordinary concentration of industrial, mining and municipal sources of pollution, and over 100 years of accumulation of contaminants in the soils and water sediments. Poor environmental quality is also characteristic for other regions, especially agglomerations of Warsaw, Łódź, Wrocław, Poznań and Gdańsk-Sopot-Gdynia, district of Lubin-Głogów Copper Basin and Inowrocław. The most disturbing finding during the decade was the deterioration of the quality of flowing and underground waters. Considering all the aspects, the environment un-

derwent the biggest transformations in the area of infrastructure investment, such as A1 and A2 highways as well as new areas of opencast exploitation of minerals (mainly brown coal and quaternary geological deposits).

Analysis of the measures relating to activities for environmental protection shows that the most intensive activities were carried out in these centers, where the pressure on environment was the greatest (the major cities and industrial-energy centers). In addition to those mentioned previously were: Janikowo, Kwidzyn, Bogatynia and Puławy. Within their borders, we have to do with the concentration of the technical activity concerning the capture and disposal of the already generated pollutants. Pomerania, Masuria or Bieszczady, on the other hand, were the most active communes in terms of “soft” sozological activities, such as afforestation and establishment of natural protected areas and objects. During the decade, the efficiency of operations was increasing – this was reflected in the effective reduction of gases and dust, waste water treatment and reuse of sewage sludge. However, the level of management of industrial waste decreased. Only 1/5 of municipal waste was yet recovered or thermally recycled, which is a very low level in comparison to the European leaders, and it does not give any hope of achieving the objectives formulated in the Community policies and directives. The first decade of the 21st century is a period of significant stagnation in establishing the national forms of environmental protection.

Synthesis of information from three groups of measures showed that, on average across the decade, the biggest Sozological Problem Areas included the southern part of the country from Głogów region in the west to Rzeszow in the east. Twenty-nine Sozological Problem Areas were designated, among which the highest concentration of problems were characteristic for the following regions: Upper Silesia, Cracow, Silesian-Opole, Legnica-Głogów, Bełchatów – Radomsko and Tarnów. Apart from this part of the country, the largest area of concentration of sozological problems was in the Warsaw agglomeration. It was not indicated in similar studies conducted in the 80s of the 20th century. Less extensive areas and problem areas were scattered in central Poland as well as in both coastal agglomerations (Gdańsk and Szczecin). The best sozological situation prevailed in Pomerania (with the exception of the zone of the Lower Vistula River Valley), Lubuskie, Warmia and Masuria, Podlasie and Rostocze.

Methodological problems related to the implementation of the research resulted primarily from a shortage of data. Some of them were not completed on time, while others were available only to levels above the communal administration. Moreover, there were large spatial and time gaps in the national environmental monitoring data. Environmental monitoring was not at all carried out in 5% of communes. In order to carry out more objective research in the future, we need to broaden the scope of sozological data collected. Access to data collected by the sector of the economy is unduly restricted. Out of 86 measures used in the study, we need to consider the selection of ca. 30-40 measures (10-15 in each group), which would be subject to an annual analysis at the commune level.

The use of research results in planning environmental policy is one of the most important directions for their application. The analysis of the relationship between the pressure and the quality of the environment can help us to answer the question about the causes of changes in the state of the environment. The extent and location of the operations which are to be undertaken, are dependent on the source of these reasons. Analysis of the relationship between the pressure and the quality of the environment and the activities which have been carried out

so far, may help to gain knowledge about their effectiveness and provide a basis for planning the direction and intensity of future actions. This clear pattern of conduct – after taking into account the situation in the surroundings of the commune – can be used to organize environmental policy which, hitherto, has been carried out in a chaotic way.

Some of the information included in this paper may be useful in the preparation of a new document of environmental policy for the country as well as programs of environmental protection of communes and provinces. The database created can become a valuable material for many further statistical analyses, e.g. in order to identify the relationship between the pressure on environment and its quality and between various measures of environmental quality at the regional level. The most important questions, which shall be answered in the process of further research on sozological issues, are: **Whether the actions identified as protective of the environment, meet the real needs for this protection and to what extent will they contribute to the improvement of environmental quality and a better quality of human life?**

Key words: Poland, environmental policy, sozological diagnosis, sozological regionalization.