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DELIMITATION OF PROBLEM AREAS IN POLAND

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Abstract

The study presents the delimitation of problem areas carried out at the Institute of Geography and Spatial Organization of PAS on behalf of the Ministry of Development of Poland (2015-2016), first and foremost to meet the practical needs of the development policy being pursued at state, regional and local government levels. The study was elaborated for the 2479 Polish communes (*gminas*) by reference to 21 indicators mainly concerned with the state of the natural environment and socio-economic conditions, as well as features of spatial and local development. The three categories of area ultimately identified were the natural, the social and the economic aspects, the combination of which yielded several main types of problem area. A last stage then entailed a division into regions, i.e. the designation and naming of particular geographical areas.

Key words

problem areas • delimitation • development policy • regional policy

Introduction

Problem areas or regions as places of socio-economic under-development can be found in the core-periphery theory context, even from as early as the 19th century (Ratzel 1896). The theory in question holds that peripheral areas are places of stagnation or sluggish development that depend on the so-called core areas

(large cities, zones of industrial development, etc.). In contrast, what was probably the first (or one of the first) detailed proposals for the classification of problem areas came along in the work of Hoover and Fisher (1949), in the context of 'regional pathology'. What were identified here were 'lagging or backward regions', 'new but underdeveloped regions' and 'stranded and chronically depressed areas'.

VARIA: POLAND ON MAPS

The Polish literature itself boasts a quite long and rich tradition of work seeking to delimit problem areas. The first, more in-depth classifications and delimitations of problem areas are to be found in work from the 1980s diagnosing the state of the national economy and ongoing socioeconomic processes (*i.a.* Kukliński 1983; Kokotkiewicz 1985; Kasenberg & Rolewicz 1986; Zagożdżon 1988). These works took in population issues, agriculture, asocial behaviours, health problems and environmental threats. In subsequent years, matters of this kind were in particular researched at the Institute of Geography and Spatial Organization of the PAS (IGSO PAS) (Gawryszewski & Potrykowska 1988; Eberhardt 1989; Kulikowski 1992; Bański 1999, 2001, 2002, 2008; Węclawowicz et al. 2006; Mazur et al. 2015); at the Institute of Rural and Agricultural Development of the PAS (Rosner 1999, 2002), at the Institute of Soil Science and Plant Cultivation in Puławy (Jadczyzyn 2009) and at certain other academic centres (Dembowska 1994; Churski 2004, 2005). Not all the work adopted a Poland-wide approach, with quite a few studies dealing with delimitation at sub-regional level (Ciok 1991; Brodziński 2002; Ślusarz 2005; Musiał 2008; Smętkowski 2012; Czapiewski & Janc 2013; Śleszyński 2014), within agglomerations (Węclawowicz 1991), or even in individual cities (Stępiak et al. 2009; Śleszyński 2010). Part of this growing interest had practical underpinnings, most especially in connection with the need to modify regional policy following accession to the EU, but also as a response to observed socioeconomic polarisation.

Within the Polish regional policy framework, the individualised nature of regional development found its reflection in concepts relating to units of the 'functional area' (*obszar funkcjonalny*; OF), 'area of strategic intervention' (*obszar strategicznej interwencji*; OSI) and 'problem area' (*obszar problemowy*; OP) types. Special development instruments were addressed to each of these, with the packages including financial incentives, investment policies selected appropriately and special investment streams. Areas of this kind have also

been identified in the context of the still-binding *National Spatial Development Concept 2030* (2011), as well as the *National Strategy of Regional Development 2010-2020* (2014).

Methodological concept and assumptions

The means of delimiting problem areas presented here is one of the main outcomes of a project implemented at IGSO PAS in the years 2015-2016, at the behest of Poland's Ministry of Development. The title was: "The identification of areas of strategic state intervention, including problem areas", and what was proposed there was a division of areas necessitating strategic intervention into areas of growth and problem areas, and with a further differentiation in terms of territorial extent – into national, regional and local areas of growth.

The delimitation of problem areas is achieved by way of a standard statistical analysis, with a key matter being the assessment of the level of socioeconomic development in uniform units of territorial administration (at the local-authority level of the Polish commune/*gmina*). Reference is then made to appropriately-selected diagnostic indicators also representing potential instruments by which changes following interventions can be monitored. At the outset, seven indicators or measures were selected for each group of issues recognised as natural, social and economic. A division into these three categories was considered to represent the most adequate means of conveying the essence of the issues and problems potentially existing, as well as the possibility for these to be identified geographically. The indicators in question are those detailed as follows.

Natural indicators

1. green areas (forests and woodlands plus urban greenery, though excluding cemeteries) in m² per inhabitant;
2. share of the area threatened by flooding or inundation (by reference to moist

- habitats on maps of potential vegetation after Matuszkiewicz et al. 1995);
3. the Climatic Water Balance Index (from IUNG – the Institute of Soil Science and Plant Cultivation in Puławy);
 4. indicator of areas of unfavourable land-management conditions (also from IUNG in Puławy);
 5. indicator in the form of the product of the number of inhabitants and the area of land valuable from the natural point of view (also with weighting in line with the particular categories of protected area represented; Degórski 2015);
 6. index of landscape fragmentation (after Śleszyński & Solon 2017);
 7. indicator reflecting the share of the populace served by wastewater treatment plants.

Social indicators

1. share of the population of post-productive age (60/65+);
2. net migration index: balance between permanent stay registrations and deregistrations from a permanent address per 100 inhabitants;
3. share of the population aged 13 and over with higher education;
4. mean results obtained in primary-school tests;
5. share of population availing of social welfare in line with the criterion of income;
6. the highest turnout achieved at general elections;
7. synthetic indicator of temporal accessibility to centres offering services of different level (Śleszyński 2016).

Economic indicators

1. the GDP per capita (in relation to the average nationally);
2. number of businesses entities in high specialized services per 1000 inhabitants;
3. own incomes in commune (*gmina*) budgets per capita;
4. usable floor area of completed dwellings per capita;

5. numbers unemployed per 100 people of productive age;
6. potential multimodal commodity accessibility indicator (after Komornicki et al. 2015).
7. share of built-up and urbanised areas.

Such statistical data, most often collected in 2014, or else in the 2010-2014 period, are from Poland's Central Statistical Office (GUS), the State Electoral Commission, the Central Examination Commission, the Institute of Soil Science and Plant Cultivation in Puławy, and IGSO PAS. All measures were standardised, before these standardised values of indicators were assigned ranks between 1 and 10, in line with a division into 10 equally-sized groups of analysed territorial units. The first 10% of the components (communes) with the lowest values for an indicator obtained rank 1, the next 10% rank 2 and so on. These data were then summed up for each commune in respect of the 7 indicators in each group, so that a synthetic index value was obtained (Fig. 1). The last stage entailed the determination of threshold values below which a given territorial unit was incorporated into one problem area or another. It was decided that the arithmetic mean should be applied, as increased by the standard deviation.

Statistical analysis revealed that certain territorial units are characterised by more than one group of problem areas. This led to a final proposal involving 7 types of problem area or areas in which various problems are concentrated, i.e.:

- social,
- economic,
- natural,
- social and economic,
- economic and natural,
- social, economic and natural.

Results

Areas facing problems of a natural character were identified in 424 of the Polish communes (i.e. 17% of the total, covering 16% of Poland's area and accounting for some 31% of its population). The problem areas of this kind are

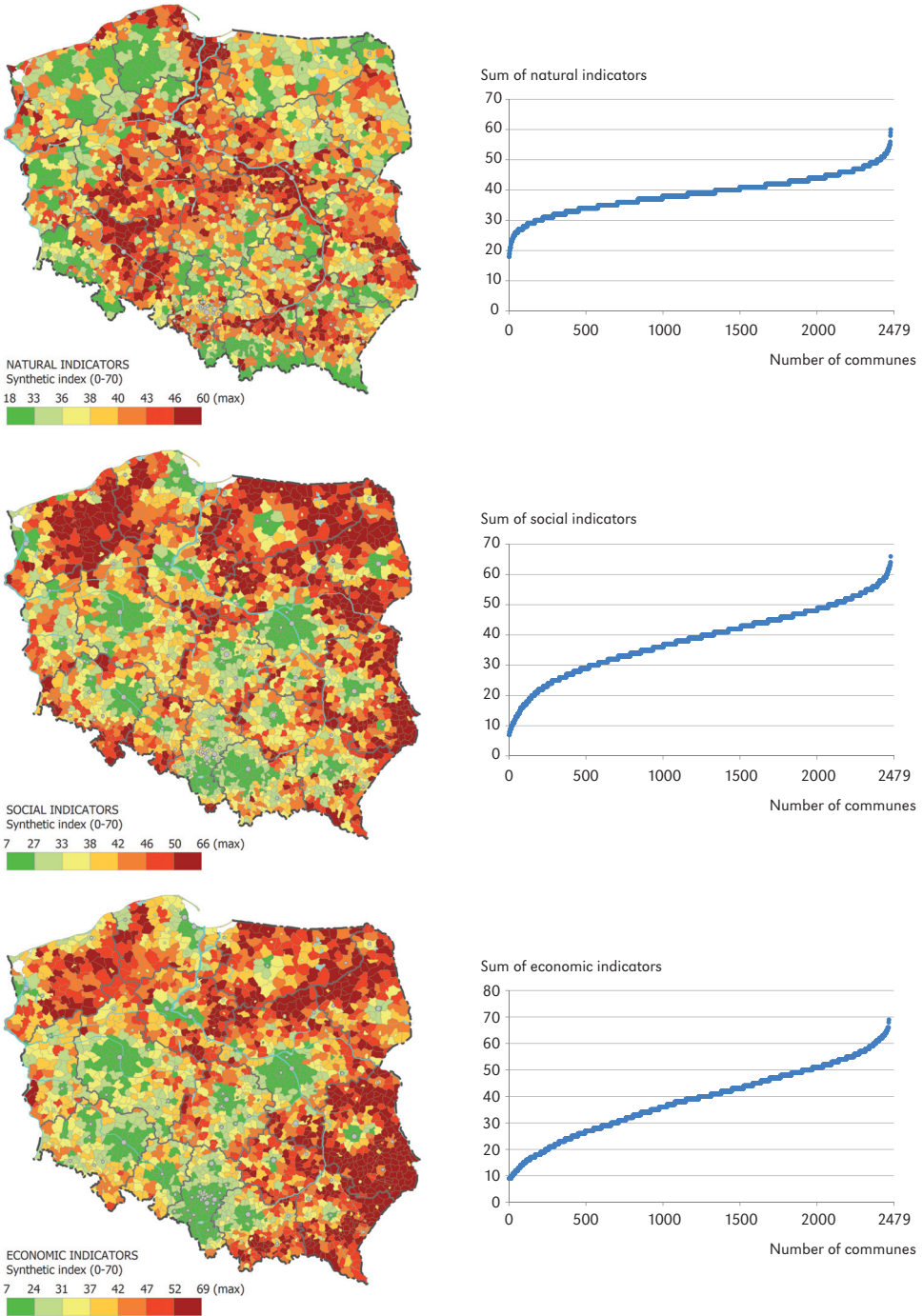


Figure 1. Spatial differences in values for the intensity of occurrence of problem features, as well as the breakdown for values of totals of delimitation indices applying to natural, social and economic problem areas (as based on the standardisation and summation of features)

concentrated spatially in the Mazowieckie, Wielkopolskie and Lubelskie voivodeships, with these three accounting for 40% of all the communes characterised in this way. The largest natural problem areas are present in the lower and middle Vistula Valley, as well as along the upper River Odra. In each case there is a considerable risk of flooding being faced. Other key environmental problems arise from coastal erosion, shortages of water, soil erosion and the fragmentation of forest complexes.

Social problem areas in turn spread over more than 16% of all Poland's communes, with those involved covering 21% of the country's area, though inhabited by not much over 6% of its population. The problems in question appear first and foremost in rural or weakly-urbanised areas. The largest contiguous areas of occurrence of problem areas in this category are in Central Pomerania, as well as the north-east and east of Poland. These problems first and foremost reflect migratory outflow and accelerated population ageing.

Economic problem areas are in turn present over 428 communes (which account for 20% of Poland's area and 7% of its population). The largest numbers of units of this type are present in Lubelskie (Lublin) voivodship, which includes almost 1/3 of all the communes identified), as followed by Mazowieckie, Podkarpackie and Podlaskie. The spatial distribution obtained reveals that the most important factors deciding about economic problems include a (monofunctional) agricultural nature of a local economy, a low level of business activity among inhabitants and a level of unemployment that is high in comparison with other regions.

The delimitation of problem areas confirmed facts known from the subject literature, including the phenomenon whereby problem phenomena are first and foremost identified in eastern Poland and Central Pomerania (Bański 2001; Węclawowicz et al. 2006; Gorzelak 2007; Korcelli et al. 2010; Czyż 2012; Stanny 2013). Analyses also indicate that the largest group is formed by areas in which natural problems are concentrated

(361 communes), followed by economic (194), social and economic (188), and social (182). There is thus a key interdependence between the social and economic areas, hence the recognition that further delimitation should combine together these two types.

The ultimate delimitation of precisely-defined geographical regions was based on the assumption that the procedure involved would be deductive, and in line with the premises that:

1. a dual procedure based on the distinguishing of socioeconomic and natural areas would be followed, given the high level of concordance in the case of these areas;
2. the areas identified ought to have a 'critical mass', in the sense that they should comprise at least a certain minimal number of communes (a figure of 10 gminas was decided upon, with the exception of the *Ponidzki* problem area);
3. the areas distinguished should be as contiguous as possible.

The result of the delimitation work engaged in is the proposal presented on the appended map. The twenty-four areas distinguished were 14 of a socioeconomic nature and 10 that were natural in character. It was decided that some of these might be further aggregated into groups of area, given proximity and a context of broader geographical and/or historic-cultural structures.

Obviously, the areas identified are approximate in nature (though capable of being defined in more detail by reference to the communes – making them up). What are nevertheless made quite clear are general regularities as regards the territorial and developmental handicapping of large parts of Poland, which are simultaneously to be viewed as points of reference where targeted regional policy is concerned.

Conclusions

The delimitation of problem areas detailed here mostly served to confirm territorial divisions already known from the subject literature. However, from a macrospatial point

of view it is clear that problem areas concentrate, not merely in 'the east' of Poland as broadly construed, but also in 'the north' of Poland as perceived in an analogous way. At the same time, the Eastern Poland that is the recipient of a special policy is shown not to have been delimited in an optimal way. For this is by no means a uniform area in the context of Poland's division into regions. When it comes to the intensity of social and economic problems that have arisen, it would be more appropriate to refer to Northern Poland as a wider problem area. In this region lie those problem areas that fall beyond a triangle characterised by the highest level of socioeconomic activity, as well as density of population (whose apex is located in the Tri-City, and whose base runs along the corridor of the A4 motorway).

The work reveals that a very mosaic-like configuration of variables describing levels of development and quality of life is present in many regions of the country. Units that

emerge as well-developed border directly on to areas very much lagging behind and beset by problems. This is evidence of insufficient diffusion of development factors and their excessive patchiness, and it offers indications for strategic intervention that should seek to remove or limit barriers to the diffusion process of this kind. Among other things, efforts should be made to favour the deglomeration of job opportunities and public services in metropolitan areas, support for cooperation between units of local-government administration with actual or potential functional areas, the improvement of conditions as regards commutes to work, and job creation in towns and cities that are in decline, most especially in the context of Poland's ongoing process of depopulation.

Editors' note:

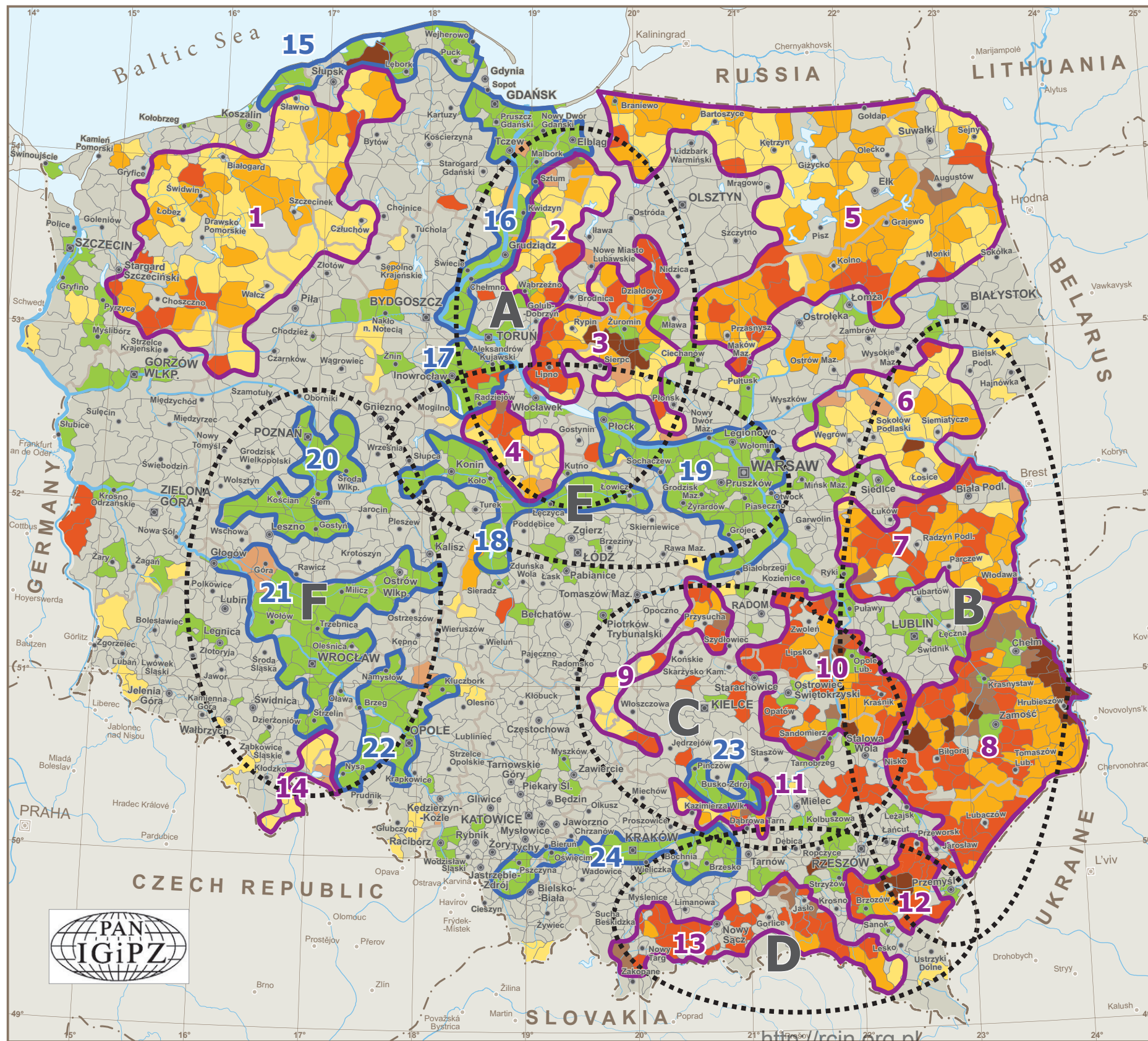
Unless otherwise stated, the sources of tables and figures are the authors', on the basis of their own research.

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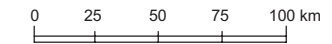
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DELIMITATION OF PROBLEM AREAS IN POLAND

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Scale 1:3,000,000



Types of problem areas

S E PS Borders of :
SE P PE PSE socio-economic problem areas
 natural problem areas
 regional concentration of problem areas

S – social; E – economic; P – natural;

Capital categories:

- Poland
- voivodeship
- subregional
- powiat

PROBLEM AREAS IN POLAND (2014)

No.	Area group*	Name (in Polish)	Number of communes	Area (km ²)	Number of population (thous.)
Socio-economic					
1		Pomorski	77	17,779	695
2	A	Powiański	28	3,799	236
3	A	Brodnicko-Mławski	54	6,570	398
4	A	Kujawski	22	2,344	134
5		Północno-Wschodni	125	24,092	1,091
6	B	Podlaski	55	7,051	316
7	B	Polesko-Lukowski	58	7,703	438
8	B	Lubelski	105	13,244	829
9	C	Przysusko-Piłicki	21	2,878	118
10	C	Sandomiersko-Swiętokrzyski	68	7,537	664
11	C	Kazimierski	16	1,229	104
12	D	Strzyżowsko-Dynowski	27	2,667	228
13	D	Karpacki	62	6,192	783
14	D	Kłodzki	10	1,678	90
Total			728	104,763	6,124
Natural					
15		Nadbałtycki	20	3,218	316
16		Dolnej Wisły	38	4,085	1,188
17	E	Kujawski	13	1,508	177
18	E	Konińsko-Lowicki	32	3,511	356
19	E	Warszawsko-Kampinoski	72	6,502	3,128
20	F	Leszczyński	23	3,350	967
21	F	Wrocławsko-Kaliski	40	6,794	1,217
22	F	Opolski	22	3,259	385
23		Podizki	7	906	58
24		Podbeskidzki	39	3,163	1,437
Total			306	36,296	9,229

*Area group (in Polish): A – Pomorsko-Chelmińska; B – Podlasko-Lubelska; C – Północnomalopolska; D – Południowomalopolska; E – Środkowopolska; F – Wielkopolsko-Śląska.

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