

## REGIONAL INCLUSIVE DEVELOPMENT IN BULGARIA - ENVIRONMENTAL ASPECTS

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### INTRODUCTION

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The use of GDP alone as the main measure of socio-economic development outcomes does not allow for an objective assessment of the reduction of inequality and the improvement of living standards of all members of society. Evaluating the impact of economic growth implies the use of other measures that could complement the real picture of this growth on the prosperity of society. The concept of inclusive development encompasses different aspects and issues. It is not possible to measure progress with one or several indicators, but rather it is advisable to use a set of indicators. The term inclusive development and its synonyms became very popular and fashionable at the beginning of the 21st century (OECD, (2015).

The review of the literature on inclusive growth and development and its measurement shows that publications on a national level with a normative approach predominate, i.e. they are related to proposing policies, strategies, measures. Publications on regions are less common. In research, the measurement of various indicators and summary indices includes policy recommendations, but these are related to specific regions abroad and are not applicable to Bulgaria. Apart from economic factors, there are others with important implications for creating well-developed and inclusive regions - education, health, environment, transport infrastructure, security are important to support inclusion and equality.

#### The aim of the research

The aim of the research is to assess the regional differences of selected environmental indicators in districts in Bulgaria.

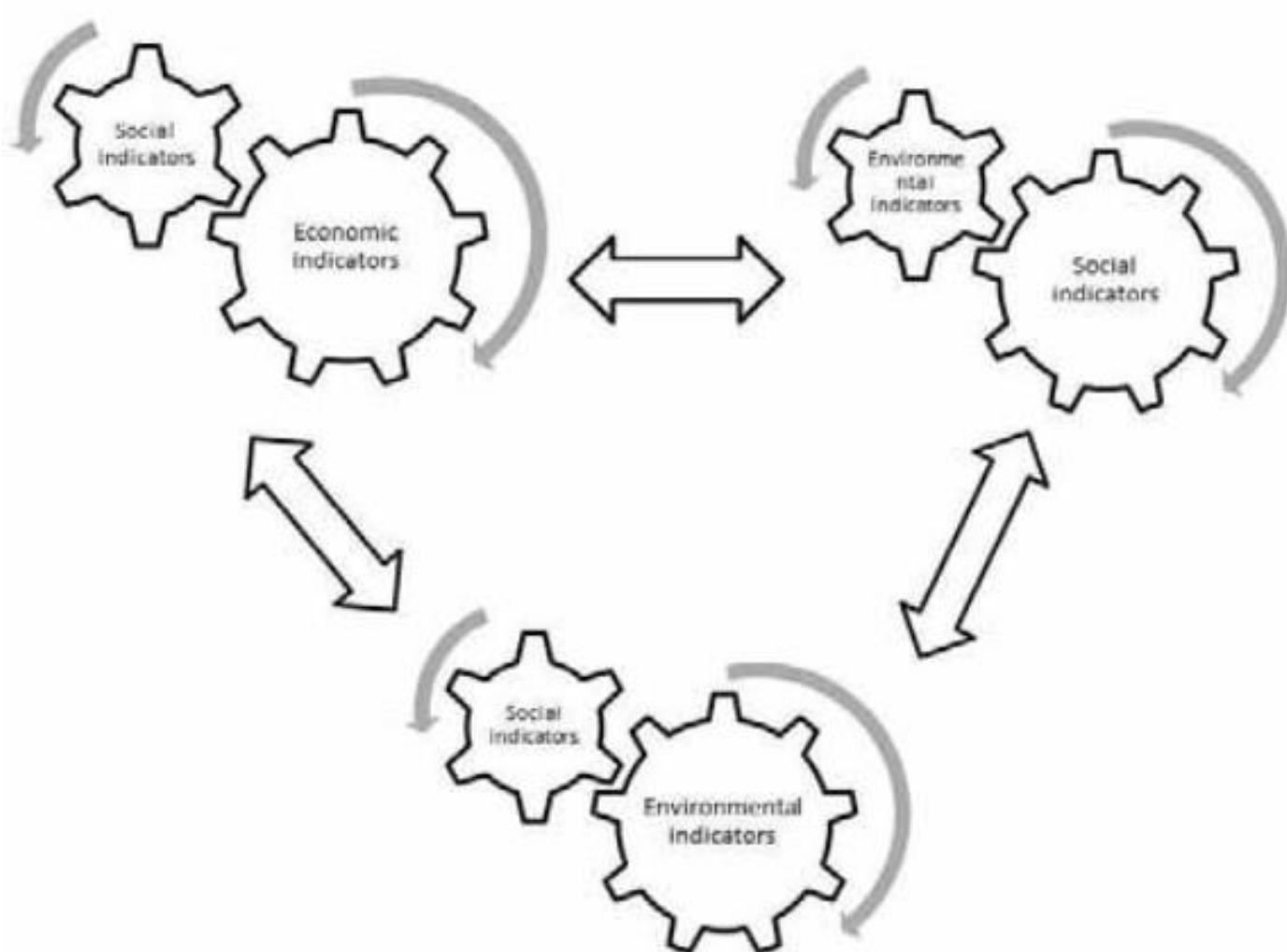
### Theoretical background

The study is based on a methodology for defining and assessing inclusive regional development that meets necessary requirements, proposed and justified by Mochurova&Totev, 2022.

Various indicators are used in the analysis of the relationship between the economic, social and environmental regional indicators as the aim is to see the links between them as shown in the following diagram.

Figure 1

Indicators for inclusive development



Source: Mochurova& Totev, 2022

Summary results of the study of regional inclusive development based on all indicators (economic, social and environmental) is presented in Totev et al, 2021. The Social Progress of the Districts of Bulgaria is studied by Kotseva-Tikova, 2021. The current research presents the study of environmental indicators. The state of the environment is characterised by various indicators in diverse areas - ambient air, climate change, water resources, soil conditions, biodiversity, forests, waste and material resources, radiation background, noise pollution, etc.

### Main findings

Data limitations are taken into account. For some of the indicators in Bulgaria, data is available only on a national level or at specific measurement points, or on a level of natural geographic areas which do not coincide with the administrative division of the country and, consequently, no data is available on a district level. Indicators are selected that are relevant to the most important environmental characteristics, which are also of immediate relevance to the quality of life of the population and relate to air and water quality, waste treatment and noise distribution.

In order to avoid the requirement of confidentiality of information on air pollution by district, the districts in Bulgaria are ranked according to the level of emissions (respectively, rank 1 to the least polluted and rank 28 goes to the most polluted). This makes it possible to establish the relative pollution in an area compared to others, and to determine changes in the ranks.

The indicators examined were sulphur oxides, nitrogen oxides, non-methane volatile organic compounds (NMVOCs), methane, carbon dioxide, ammonia, total suspended particulates. There is a strong correlation between ambient air indicators, i.e. no significant difference in ranking by region.

The study finds a weak to moderate correlation between the district rankings for GDP per capita and the corresponding ambient air indicators. Nine districts ranked more than once in the negative top five in 2017 for the individual indicators monitored - Varna, Stara Zagora and Plovdiv six, five and four times respectively, while Burgas, Sofia and Sofia-City ranked for three pollutants. Therefore, these districts can be considered the most polluted in terms of ambient air compared to the others.

According to the calculated cumulative pollution indicator (air, water, noise, waste), the relatively most polluted districts in Bulgaria are Stara Zagora, Sofia region, Varna, Targovishte, Burgas and Haskovo.

The analysis of regional differences in the state of the environment in terms of ambient air is complemented by selected indicators for water, waste and noise. Areas with low GDP rank first in terms of air cleanliness and, conversely, those with high GDP have relatively dirtier air and higher noise pollution. The correlation coefficient between the summary environmental indicator of districts and the ranks of GDP per capita is moderately negative (-0.40).

There are no districts that do not meet the requirement for inclusive growth in terms of environmental indicators according to the methodology used.

### MAIN RESULTS AND CONCLUSIONS

The assessment of pollution in Bulgaria shows that the sustained upward trend in GDP is not linked to an increase in pollution. On a national level, emissions of major air pollutants are decreasing, while at a district level the change in pollution for the monitored indicators in 2017 compared to 2008 is insignificant.

Statistical analysis reveals relatively high correlation coefficients between individual observed pollutants by districts - polluted districts are highly polluted in all observed indicators. There is a linear correlation between regions with high GDP per capita and pollution. In part, this correlation can be explained by the relatively better developed Energy, Transport and Industry sectors, which are also the source of higher emissions, in the higher GDP regions. At the same time, it is interesting to note that an increase in GDP generally leads to an increase in greenhouse gas emissions, but that its increase over time is not correlated with a rise in pollution levels.

Regional policy is difficult to implement in a way that fully meets economic, social and environmental criteria. The main factors in Bulgaria shaping regional disparities of an economic and social nature are demographic indicators and, above all, population density and migration processes, which, due to their high inertia, can hardly be directly influenced by any targeted regional policy.

Regional policy should set achievable goals with a specific time horizon and avoid the traps of current and previous clichés that exist in the minds of both politicians and a large part of economists about what it should be. For example, such clichés include the need for every country in the EU to link its development as much as possible to the so-called 'Knowledge Economy', 'Low Carbon Economy', etc. The latter is linked, for example, to drastic decarbonisation, making commitments for which we are probably not ready, a forced energy transition without transitional fuels being provided.

These desires are difficult to realise because they are not within the power of the economies of most EU Member States and remain virtually uncovered. Nonetheless, they underpin (at least in intent) the economic policies of weaker EU economies as well. This leads to official economic policies being promulgated that are not feasible. Examples are given and cutting-edge ideas are presented that are not applicable in Bulgaria or can only be implemented in Sofia only. Policies concerning the EU Green Deal are associated with a number of uncertainties and questionable benefits for inclusive development post 2020. In the short and medium term, inclusive regional development policies need to be prioritised in terms of social indicators, instead of environmental ones.

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