

## INDICATORS FOR ASSESSING THE SOCIAL SUSTAINABILITY OF REGIONS IN AN ENVIRONMENT OF CHANGE

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### Abstract

The article reveals how the issue of regional social sustainability is becoming increasingly important in the modern environment of change theoretical principles are distinguished, based on regional social sustainability indicators. A variety of methods and tools for measuring sustainability can be found in scientific sources, but indicators to measure the social sustainability of regions are poorly disclosed, although they play an important role in an environment of change. In response to recent changes in the world, it is important to provide new and effective ways to meet the needs of today's society. Observing the problems of the regions in recent years in the period of change, one of the main goals becomes to strengthen the results of regional development and to establish the main sustainability indicators for the assessment of social sustainability of the regions.

**Purpose** – The aim of this article is to identify key indicators for assessing the social sustainability of regions on the basis of theoretical analysis.

**Design/methodology/approach** – In order to conceptually define the indicators of social sustainability of the regions, a systematic and logical analysis of the scientific literature was performed in the Google scholar system.

**Finding** – the analysis of the scientific literature allowed to determine the main indicators of the assessment of the social sustainability of the regions. The developed model of regional social sustainability assessment indicators reveals the main indicators of social sustainability assessment, which enable the country's regions to overcome adverse events.

**Research limitations/implications** – the limitation of the study is that too little attention is paid to indicators of institutional data that the academic literature describes as important for social sustainability.

**Practical implications** – the results of this study can be useful in strengthening social sustainability in regions during changes.

**Originality/Value** – Based on the results of the analysis of scientific literature sources, the author of the article identified the main social, economic, ecological - energy and demographic indicators of social sustainability of the regions.

**Keywords:** regions, social sustainability, indicators.

**Research type:** literature review

**Scientific problem** – the problem of regions is widely discussed in scientific sources. However, the social sustainability of regions in a period of change is a relatively new phenomenon, and indicators for assessing social sustainability in regions are generally not well studied.

## Introduction

In response to recent changes in the world, it is important to provide new and effective ways to meet the needs of today's society. The issue of regions and the development of regional social sustainability is a very relevant topic today, both nationally and internationally. European Committee of the Regions (2020) emphasizes that effective planning for a post-2020 regional development strategy must take account of the challenges facing the regions and ensure better coordination between all levels of government in tackling crises. Local and regional authorities are called upon to mitigate the socio-economic impact of the crisis on the regions by developing joint strategies and better coordination with all key actors, especially in the event of an emergency. Giannakis and Bruggeman, (2020) note that regional policy depends on the political, economic, social, and ecological development of a region, which evolves into three interrelated forms of regional policy: forecasting, programming, and planning. Forecasting includes forecasts on the form of management, parameters of socio-economic development. Programming is a practical intervention in regional development, when development documents are prepared, which set out objectives, resources, etc. Planning is linked to the setting of goals and objectives for a specific period. Regional development planning must be a continuous process involving not only government institutions but also broad sections of society (Yun et al., 2020). Regional policy is a targeted activity of municipalities and state institutions and other entities, which has a different impact on regional economic and social development, in order to reduce economic and social disparities between and within regions and promote sustainable, even development throughout the state Development Act (2000). As a multifaceted concept, sustainability requires measures that underpin different areas of sustainability to determine whether a system is sustainable or not. Observing the problems of the regions in recent years in the period of change, one of the main goals becomes to strengthen the results of regional development and to establish the main sustainability indicators for the assessment of the social sustainability of the regions. Sustainability indicators can be a useful tool for planning actions and measuring the results of sustainability planning (Mascarenhas et al., 2015).

The relevance of the study is substantiated by the main goal of the regional policy - to reduce social and economic disparities between and within regions, to promote the balanced and sustainable development of the entire territory of the state. In response to growing regional economic and social disparities, there is a need to assess the social sustainability of regions and to set sustainability indicators. Although regional social sustainability is analyzed in research, the identification of regional social sustainability indicators is a little explored area.

Exploration of the topic - regional development was analyzed by Ginevich and Podvezko (2009), Shabanov and others. (2016) et al., Regional development was studied by Svetikas (2014), Žitkus and Mickevičienė (2013), etc., regional sustainability and social sustainability indicators were analyzed by Foster and Barnes (2012), Boschma (2015), Mascarenhas et al. (2015), Hendrik et al. (2015), Bramwell and Pierre (2017), Kahn et al. (2018), Yun et al. (2020) and other authors.

In this period of change, Lithuania is facing a problem - how to ensure equal opportunities for all residents of the country, regardless of the region in which they live. It is important to recognize that the prevailing social disparities are a serious problem in the country and that measures must be taken to reduce them. As one of the tools to promote social sustainability in the regions is the rationale for social sustainability indicators.

### **Determining social sustainability indicators**

The development of the economic, social and environmental condition of the regions and the issue of reducing the differences between the country's regions are receiving more and more attention among politicians, scientists and regional development specialists. In this period of change, when the country's various systems are becoming increasingly complex due to a rapidly changing environment, rapidly evolving technologies and growing societal needs, there are endless problems such as: social inequality, poverty, unemployment, economic downturns and so on. In such a situation, various measures must be taken to address these problems and the focus must be on regional development. In recent years, the discussion on future perspectives has evolved into a discussion on responsiveness, adaptability and the social sustainability of regions (Gečienė, 2020). Key dimensions of sustainability include economic growth, environmental protection and social responsibility, based on sustainable innovation. Scoones, (2007) defines sustainability as recovery from stress and maintenance of a stable state. A variety of methods and tools for measuring sustainability can be found in scientific sources, but indicators to assess the social sustainability of regions are poorly disclosed, although they play an important role in an environment of change. Politicians, authorities and decision-makers are increasingly recognizing that sustainability models must be applied at regional level if sustainability goals are to be achieved. This requires indicators that together can measure the social sustainability of regions (Christopherson et al., 2010). Properly defined and applied sustainability indicators are powerful tools to identify and evaluate optimal action plans and support a structured and coherent decision-making process (Ramos and Caeiro, 2010). Volkmann et al., (2019) argue that local and regional sustainability indicators are labeled as highly effective monitoring tools for assessing complex phenomena, enhancing sustainable development, providing wide access to information, involving stakeholders, and supporting decision-making. Sustainability indicators also allow comparisons with other municipalities and regions. Therefore, the development of sustainability indicators cannot be a purely technical or scientific process, it should be an open communication and policy process in which public participation is one of the key components in the development and implementation of sustainability indicator sets (Ramos and Caeiro, 2010). Researcher Ramos (2009) notes that the definition of sustainability indicators requires the inclusion of areas such as justice, poverty, cultural values, health threats, economic quality, biodiversity and risk management. Giannakis and Bruggeman, (2020) identify the following indicators of regional social sustainability as strategic options: environmental sustainability; territorial balancing; city structure; improvement and diversification of tourism; preservation and enhancement of the historical and archaeological cultural heritage; structuring of collective equipment networks; structuring of transport and logistics networks; strategic goals and development directions. Other researchers, Žitkus and Mickevičienė, (2013) distinguish three features of regional sustainability according to different economic theories:

1) the region as a place of export specialization (origins: classical, neoclassical, Keynesian, growth, endogenous growth, new trade theories);

2) the region as a source of growing profits (sources: theories of the Marshall's industrial area, localization economics, transaction costs, endogenous growth of the region, agglomeration economics);

3) region as an axis of knowledge (sources: Jacob's urban growth, urban economics, institutional economics, business strategy economics, evolutionary economic theories). The above-mentioned authors note that regional development and sustainability include the following socio-economic phenomena: efficient use of local resources; reducing social and

economic disparities; creating conditions for further development; ensuring equal opportunities and a higher standard of living; transition to programmatic financing of individual development projects; population growth, satisfaction of social, political, cultural and material needs (Žitkus and Mickevičienė, 2013). Graymore et al., (2009) argue that sustainability assessments range from single indicators to multidisciplinary sets of indicators. The above authors present 4 sets of sustainability indicators: social (capacity building in the region), economic (creating prosperity through sustainability), environmental (natural resource base) and institutional (monitoring and evaluation). Svetikas, meanwhile, (2014) notes that social, demographic, economic, political, and physical indicators must be used to assess the social sustainability of regions. Clark et al., (2010); Hendriks et al., (2015) distinguishes four indicators of socio-economic sustainability of regions:

1) ecological footprint - ecosystem health, sustainability of consumption, environmental indicators, availability of natural resources;

(2) "well-being assessment" means economic and social sustainability, equity, health and population, wealth, knowledge and culture, community, equity, land, water, air, biodiversity and resource use;

3) quality of life - participation in cultural and recreational activities, health, education, income, access to housing, employment, water quality and the amount of open space;

4) Availability of natural resources - resources and capacities available to the population on a regional scale.

It can be observed that these four groups of indicators cover not only socio-economic, but also ecological (ecological footprint) indicators. Another researcher, Atkočiūnienė (2014), presents five indicators of economic activity for the assessment of regional sustainability:

1) development of human resources;

2) development of technologies and social innovations;

3) improvement of transport and communication infrastructure;

4) capital market development;

5) application of modern management methods

Unlike other researchers, Atkočiūnienė (2014) presents an indicator of sustainability - the development of human resources. The importance of human resources for regional sustainability is highlighted in other sources, which point to the potential of human resources in regional policy as regional economies change rapidly, borders weaken, regions intertwine and form larger ones. The main driving force of the economy is human resources and accumulated knowledge, which become a powerful tool to help regions identify and assess their strengths and weaknesses (Šneiderienė and Juščius, 2021). Gečienė, (2020) found that there are many indicators of social and economic sustainability: employment rate; income distribution and growth; regional gross domestic product; regional income equality and various other measures. Other researchers: Foster and Barnes (2012), Volkmann et al. (2019), Tolstykh et al. (2020a), Tolstykh et al. (2020 b), Willi et al. (2018), Mascarenhas et al. (2015), Hendrik et al. (2015), Boschma (2015), Chaminade and Randelli (2020), and others. also provides various economic, ecological, energy, social, demographic, sustainable development indicators to assess the sustainability of regions: regional gross domestic product; labor productivity; public and private investment; the purchasing power of municipalities; household income and expenditure; employment; population education; demographic change; risk of poverty; health care and mortality; political participation; tourism intensity; energy consumption; species of fauna and flora; land use; recovery and disposal of waste, etc. Other researchers, Willi et al., (2018) systematize sustainability indicators into larger areas and

point to: environmental, economic, social, and institutional aspects as the main groups of sustainability indicators.

An analysis of scientific sources has revealed that the social sustainability of regions is a recovery from tensions and the maintenance of a stable state. Most researchers analyze and identify similar indicators for assessing the social sustainability of regions, only to describe them in other words. After a theoretical analysis of the scientific literature, it has been established that the main indicators assessing the social sustainability of regions are social, economic, ecological - energy and demographic.

### Methodology of investigation

In order to determine the indicators of social sustainability of the regions, an analysis of the scientific literature was performed. The search for publications was performed on the google scholar platform. Keywords used: social sustainability, regions, regions in times of change, regional social sustainability, sustainability indicators, regional social sustainability indicators. The search period covers the last two years. In the first stage of the research organization, a total of ten articles were selected that fully corresponded to the topic and purpose of the research. In the second step, the query for the above keywords was repeated, but the time filter was not applied. At this stage, the aim was to best match the thematic objective of the study in order to identify the authors who carry out research in the field of regional social sustainability and who are thematic authorities. Eighteen scientific sources were selected for the analysis in the second stage of the research organization.

At the stage of the analysis of the academic literature, the indicators of social sustainability of the regions were refined. The systematized results of the study are presented in Table (No. 1), and the summarized results of the study are presented in the model of regional social sustainability assessment indicators (Figure No. 1).

Methods: systematic and logical analysis of the construct of regional social sustainability indicators.

### Results

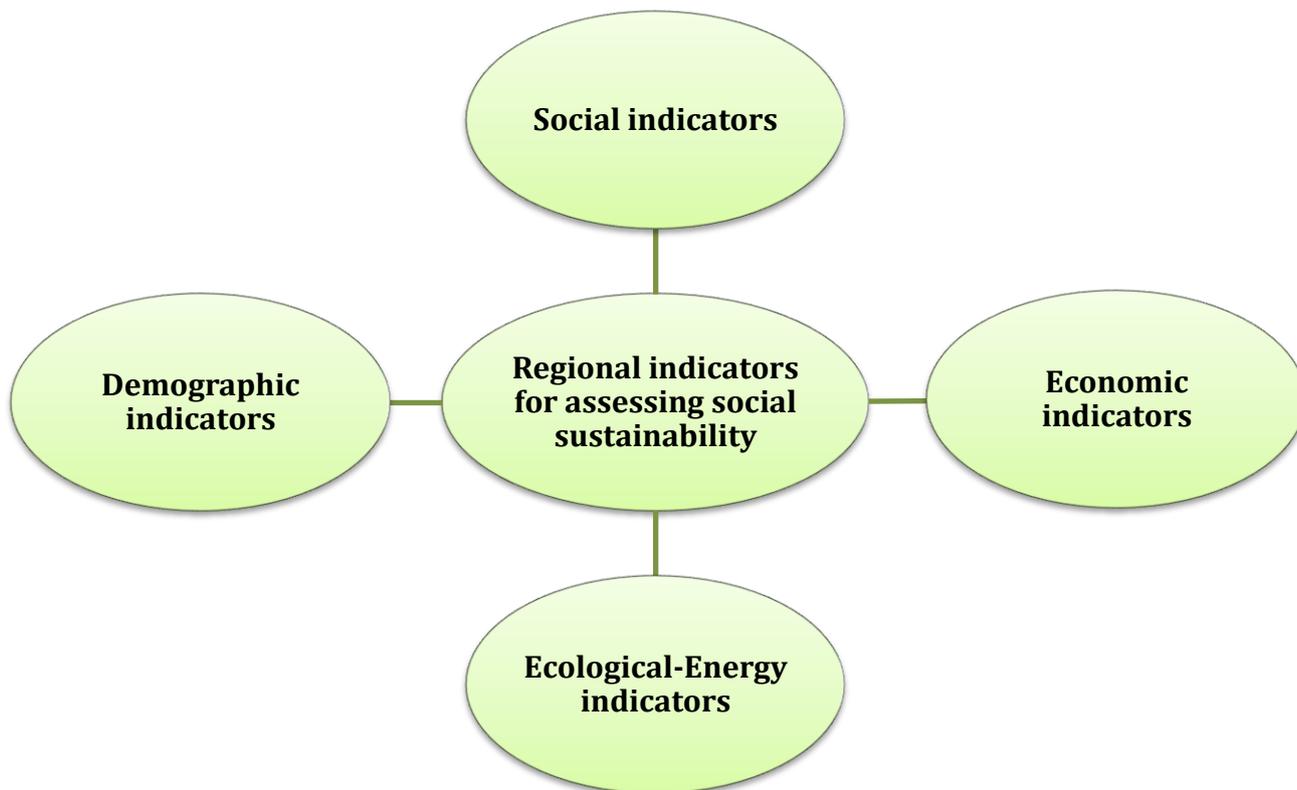
After analyzing the scientific literature, indicators important for assessing the social sustainability of regions were identified (Table No. 1).

**Table 1. Social sustainability indicators in the regions**

Regional social sustainability indicators	Authors
<ul style="list-style-type: none"> <li>• social sustainability;</li> <li>• reducing social disparities;</li> <li>• strengthening social capacity in the region;</li> <li>• meeting social needs;</li> <li>• labor productivity, employment;</li> <li>• development of technology and social innovation;</li> <li>• ensuring equal opportunities and a higher standard of living;</li> <li>• justice;</li> <li>• poverty risk, risk management;</li> <li>• health care and mortality, health and population;</li> <li>• cultural values, meeting cultural needs, recreational activities;</li> <li>• community strengthening;</li> </ul>	<p>Graymore et al., 2009; Svetikas, 2014; Tolstykh et al., 2020a; Ramos, 2009; Žitkus and Mickevičienė, 2013; Willi et al., 2018; Clark et al., 2010; Hendrik et al., 2015; Volkman et al., 2019; Tolstykh et al., 2020 b; Foster and Barnes, 2012; Mascarenhas et al., 2015;</p>

Regional social sustainability indicators	Authors
<ul style="list-style-type: none"> <li>• institutional aspects - monitoring and evaluation;</li> <li>• application of modern management methods;</li> <li>• political participation, meeting political needs;</li> <li>• population education - the region as an axis of knowledge;</li> <li>• creating conditions for further development, strategic goals and development directions;</li> <li>• quality of life.</li> </ul>	<p>Boschma, 2015; Chaminade and Randelli, 2020; Gečienė, 2020.</p>
<ul style="list-style-type: none"> <li>• Economic sustainability, economic quality;</li> <li>• reducing economic disparities;</li> <li>• meeting material needs;</li> <li>• capital market development;</li> <li>• household income and expenditure, assets, equity;</li> <li>• public and private investment;</li> <li>• regional gross domestic product;</li> <li>• the purchasing power of municipalities;</li> <li>• development, diversification and intensity of tourism;</li> <li>• preservation and enhancement of the historical and archaeological cultural heritage;</li> <li>• structuring of collective equipment networks;</li> <li>• structuring of transport and logistics networks, improvement of transport and communication infrastructure;</li> <li>• efficient use of local resources;</li> <li>• transition to programmatic financing of individual development projects;</li> <li>• building economic prosperity through sustainability;</li> <li>• region as a place of export specialization;</li> <li>• region as a source of growing profits.</li> </ul>	<p>Ramos, 2009; Svetikas, 2014; Giannakis and Bruggeman, 2020; Žitkus and Mickevičienė, 2013; Graymore et al., 2009; Clark et al., 2010; Hendrik et al., 2015; Volkman et al., 2019; Tolstykh et al., 2020a; Tolstykh et al. 2020 b; Willi et al., 2018; Foster and Barnes, 2012; Mascarenhas et al., 2015; Hendrik et al., 2015; Boschma, 2015; Chaminade and Randelli, 2020; Šneiderienė and Juščius, 2021 Atkočiūnienė, 2014</p>
<ul style="list-style-type: none"> <li>• Ecological footprint - ecosystem health, sustainability of consumption;</li> <li>• environmental indicators, environmental protection;</li> <li>• natural resource base, accessibility;</li> <li>• welfare assessment - land, water, air quality, biodiversity and open space;</li> <li>• availability and use of natural resources - the resources and capacities available to the population at regional level;</li> <li>• energy consumption;</li> <li>• species of fauna and flora;</li> <li>• waste recovery and disposal.</li> </ul>	<p>Žitkus and Mickevičienė, 2013; Graymore et al., 2009; Clark et al., 2010; Hendrik et al., 2015; Willi et al., 2018; Volkman et al., 2019; Tolstykh et al., 2020a; Tolstykh et al., 2020 b.</p>
<ul style="list-style-type: none"> <li>• Demographic development;</li> <li>• human resource development;</li> <li>• housing affordability;</li> <li>• population growth.</li> </ul>	<p>Šneiderienė and Juščius, 2021; Atkočiūnienė, 2014; Svetikas, 2014.</p>

Revealed regional social sustainability assessment indicators (Table 1) can be divided into larger groups, namely: social; economic; groups of ecological - energy and demographic indicators. Systematized, generalized indicators are presented in the (Figure 1).



Source: Compiled by the author

**Figure 1. Types of indicators for assessing the social sustainability of regions**

A model of regional social sustainability assessment indicators has been developed (Figure 1), in which regional social sustainability indicators are systematized and divided into larger groups of social sustainability indicators, the social sustainability indicators in each group are important for social sustainability assessment in the regions. Social sustainability in the country's regions is particularly important in a period of change.

**Conclusions**

On the basis of theoretical analysis, the identification of indicators relevant for the assessment of social sustainability of regions revealed that the individual indicators, which are most often singled out in scientific sources, form four groups of social sustainability indicators. All four groups of indicators connect the most the social sustainability indicators of the regions, which have been identified by research as the most suitable for the assessment of social sustainability in the regions, are: groups of social, economic, ecological - energy and demographic indicators.

Refined types of regional social sustainability assessment indicators reveals the main indicators of social sustainability assessment, which enable regions to overcome adverse events in a period of change and help regions to recover from tensions and maintain a stable state.

In order to avoid vulnerability and strengthen sustainability in the regions, economic growth, the achievement of ecological and energy goals, the strengthening of demographic indicators and the development of social sustainability are needed.

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