Chapter 18
Regional Disparities in Sustainable Development of Slovenia—Cohesion or Marginalization?

Katja Vintar Mally

18.1 Introduction

Sustainable development as a contemporary development paradigm imposes the requirement that progress in the economic, social, and environmental spheres be balanced. Sustainable development in close concert with environmental ethics strives to eliminate any kind of marginalization of populations or parts of the world. In investigating regional disparities we therefore proceed from the assumption that those regions which fail to follow the requirements of sustainable development will over time become even more marginalized.

Contemporary understanding of the process of marginalization focuses on geometric, ecological, economic and social types of marginality (Leimgruber 2007; Leimgruber 2010), in which marginalization is understood mainly as weak, inadequate integration into predominant structures and processes or as a lower level of development. Both are reflected in different dimensions of marginalization, but usually its socio-economic aspect is given greatest emphasis (Schmidt 2007). In order to better understand how marginalization occurs or emerges, it is important to know how systems operate (Déry et al. 2012), which is also in keeping with the approach used to study sustainable development. The crucial requirement of sustainable development is in fact this balancing of different development goals, in which right from the start there is a clash between socio-economic and environmental goals, since in the past the pursuit of the former as a rule occurred to the detriment of achieving the later. Pelc (2010) concludes that areas that are marginal based on social and economic criteria, and areas that are marginal based on environmental criteria, are usually mutually exclusive. Socio-economically more developed regions (i.e. central regions) are frequently more degraded and thus more

K. Vintar Mally (✉)
Faculty of Arts, Department of Geography, University of Ljubljana,
Aškerčeva cesta 2, 1000 Ljubljana, Slovenia
e-mail: katja.vintar@ff.uni-lj.si

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marginalized from the environmental standpoint due to the environmental pressures of various human activities, while regions with a well-preserved natural environment (with high quality water resources, relatively unpolluted air and soil, greater biodiversity) have preserved their valuable ecosystem services precisely because of their social, economic, and geographical marginality.

In Slovenia, balancing regional development and guiding it towards the goals of sustainability in past decades has proven to be a difficult challenge. If we judge the country based on the extent of the use of natural resources and the pressure on the environment's ability to absorb the load, as is for example taken into consideration by calculations of the ecological footprint, its development model to date has been highly unsustainable. In the time since Slovenia's independence (1991) up until the global financial and economic crisis, a time of considerable economic growth, the ecological footprint of the average Slovenian inhabitant more than doubled, though in recent years, due mainly to the effects of the crisis, it has been somewhat reduced. But the Slovenian ecological footprint (5.8 global ha per capita in 2012) is still more than twice the biocapacity of the country's territory (2.4 global ha per capita) (Global Footprint Network 2016). The appropriation of natural resources and ecosystem services, which is above average on the European as well as the global scale, however, is not reflected in a proportionate socio-economic advancement of the country. Slovenia did raise its human development index from 0.766 to 0.880 in the period 1990–2014, but not its relative position, remaining in 25th place among all the countries of the world (UNDP 2015). Here it is important to stress that the number of inhabitants in the country has remained essentially unchanged and that many countries have achieved a similar level of prosperity with lower pressures on the environment and use of natural resources.

Slovenia is a member of the European Union, where sustainable development is given priority in various sector policies, the umbrella strategy Europe 2020 (European Commission 2010), and the special Sustainable Development Strategy (Council of the European Union 2006). In Slovenia, sustainable development was strongly emphasized in Slovenia's Development Strategy (IMAD 2005), which as the umbrella development strategy in the country "based on the principles of sustainable development and the integration of development policies" (IMAD 2005, p. 15) also emphasizes balanced regional development and the reduction of developmental lags in the least developed regions in the country as being among important development goals. The whole of the cohesion policy of the European Union (European Commission 2016) also strives towards this same goal.

At the regional level development trends in Slovenia are monitored only through examining the data from the so-called statistical regions, since an intermediate administrative level between the municipalities and the country as a whole does not exist. The next section of this chapter presents a comparison of the results of two studies of the development trends and current state in Slovenian regions that were carried out using indicators of sustainable development in the periods 1996–2002 (Vintar 2003) and 2010–2014 (Vintar Mally in press). The results of this evaluation

of sustainability are compared with the findings of other development evaluations used by the government to monitor and encourage development in the direction of greater cohesion.

18.2 Economic, Social and Environmental Development Disparities in the Light of Sustainable Development

Guiding regions towards a more sustainable development path requires ongoing "measurement" of their progress. This is usually conducted using sustainable development indicators. Although the concept of sustainable development is often criticized for having too broad and vague a definition, it is in fact these indicators for monitoring it that define it most clearly. Thus, particular dimensions of sustainability or similar indicators appear repeatedly in different frameworks of indicators (see for example United Nations 2007; European Union 2015), and there is generally no dilemma as to whether for an increase in the level of sustainability it is desired that we "measure" increasingly higher or increasingly lower values.

In studies at the national or even more detailed spatial level, the set of indicators must be additionally adjusted to the specific features of the country and the availability of data. For the evaluation of development disparities among Slovenian regions we thus selected 32 indicators for the period 1996–2002, which we then also calculated for the period 2010–2014, though some of the original indicators were adjusted or replaced due to improvements in the collection of statistical data. These changes limit directly comparable results between the two periods but within a particular period they are entirely comparable. Both studies included 6 economic, 12 social, and 14 environmental indicators, which were selected as being representative of particular dimensions of sustainable development and by means of which we attempted to evaluate to what extent particular regions approach or diverge from the general goals of sustainable development.

For all indicators the calculation of the value for each region was followed by standardization, in order to eliminate differences due to units of measurements of variables. For each indicator we assigned scores to regions in a range from −2 (− −) for a negative contribution to sustainable development to +2 (++) for a positive contribution to sustainable development. As a basis for assigning scores we used the arithmetic mean of regions to divide positive and negative scores and the standard deviation to determine the threshold for doubling negative or positive scores. Thus if the value of the indicator for a particular region showed an above average successful approach towards the goal and was less than one standard deviation from the arithmetic mean of regions, we assigned a score of +1 (+), and for a larger deviation then +2 (++). Negative scores were assigned based on the same principle to regions with below average achievements. The assigning of scores was based on the prior decision as to whether it is desirable for a particular indicator from the standpoint of the goals of sustainable development to have a

higher value (for example, increase in the extent of protected areas, spending on research and development, gross domestic product, the share of people with higher education, etc.) or as low a value as possible (for example, the share of unemployed, index of aging, water consumption per capita, production of municipal waste per capita, etc.). The overall evaluation is designed from the standpoint of an economically developed country, in which the majority of the population have their material needs satisfied and which strives towards the reduction of excessive pressures on the environment, dematerialization, and the elimination of interregional disparities in the welfare of inhabitants. It is important to stress that the same evaluation in developing countries would need to take into account reverse starting points in particular indicators with respect to desirable or undesirable phenomena. In such countries an increase in the aging index of the population, for example, would be evaluated as a positive contribution to sustainable development, since it would indicate a slowdown in the fertility rate and population growth as a precondition for faster socio-economic advancement, while in countries with an overly aged population a further increase in the index would only increase the threat to the social security system.

Based on the scores of regions for individual indicators, an average score for the economic, social, and environmental development of the region was calculated in which each indicator included carried equal weight in the final value. Based on the same principle the arithmetic mean was calculated for all three areas, which we call the indicator of sustainable regional development (ISRD).

Slovenia ranks among high income countries of the world, since according to gross national income per capita in 2014 (30,360 USD per capita, PPP) it occupied 36th place in the world and 17th place in Europe (World Bank 2016). During the economic crisis Slovenia's lag behind the average for the European Union increased sharply and in 2014 it achieved only 83% of average GDP per capita (PPP) for the European Union (IMAD 2016). However, based on the criteria of income we nevertheless cannot claim that the country or its individual regions are marginal. But certainly there are large economic disparities among Slovenian regions, as also indicated by the ratio between the region with the lowest (the Pomurska region) and the highest (Osrednjeslovenska region) GDP per capita, which over the period 1995–2014 increased from 1:1.8 to 1:2.1 (Statistical Office of the Republic of Slovenia 2016). For the evaluation of the successfulness of economic development of Slovenian regions in pursuing sustainable goals the following six indicators were used:

- Gross domestic product (€/capita),
- Gross value added (€/capita),
- Expenditure on fixed assets (€/capita),
- Average Research and Development expenditure (% of GDP),
- Disposable income (€/capita),
- Service sector employees (%).

Table 18.1 Average scores of Slovenian statistical regions in the main development spheres, 2010–2014

Statistical region	Economic indicators—average	Social indicators—average	Environmental indicators—average	ISRD
Pomurska	−1.17	−1.08	−0.07	−0.77
Podravska	−0.83	−0.67	−0.79	−0.76
Koroška	−0.83	−0.08	0.50	−0.14
Savinjska	0.17	−0.67	0.00	−0.17
Zasavska	−1.17	−0.92	0.00	−0.70
Spodnjeposavska	−0.67	−0.58	−0.36	−0.54
Jugovzhodna Slovenija	0.67	0.08	0.57	0.44
Osrednjeslovenska	2.00	0.92	−0.36	0.85
Gorenjska	0.00	1.17	−0.21	0.32
Notranjsko-kraška	−0.67	0.92	0.57	0.27
Goriška	0.50	0.92	−0.07	0.45
Obalno-kraška	0.50	0.25	0.14	0.30

For all the selected indicators, a higher value is desired for achieving greater economic sustainability, with the purpose of achieving greater material well-being in the regions, increasing the economic power of the population and the economy, and improving the employment structure and competitiveness of the economy. The average score of the economic sphere for the period 2010–2014 (Table 18.1) was highest in the Osrednjeslovenska region, which has a score that is higher by 3.17 than that of the economically weakest Pomurska region. Regions of the eastern part of Slovenia (especially Pomurska, Podravska, Koroška, and Zasavska) are pushed most to the economic periphery of the country (Fig. 18.1), and this situation was also shown by these regions in a study at the end of the 20th century. In general the rankings of the regions did not change essentially between the two periods, which indicates that these economic disparities are deeply rooted.

Similar findings also apply for disparities achieving social goals of sustainable development, which are based on ensuring the highest quality possible education, health care, and housing conditions for the population. With respect to preventing marginalization, in addition to access to public services the prevention of poverty and social exclusion is also very important, especially for more vulnerable groups (for example, unemployed women and less well educated people), as is maintaining the vitality of the population and reliance on endogenous human resources in the region. The aspects of social sustainability mentioned were studied using twelve indicators:

- Unemployed with uncompleted or completed primary school (%),
- Share of unemployed women (%),
- Population density (inhabitants/km^2),
- Population growth index,

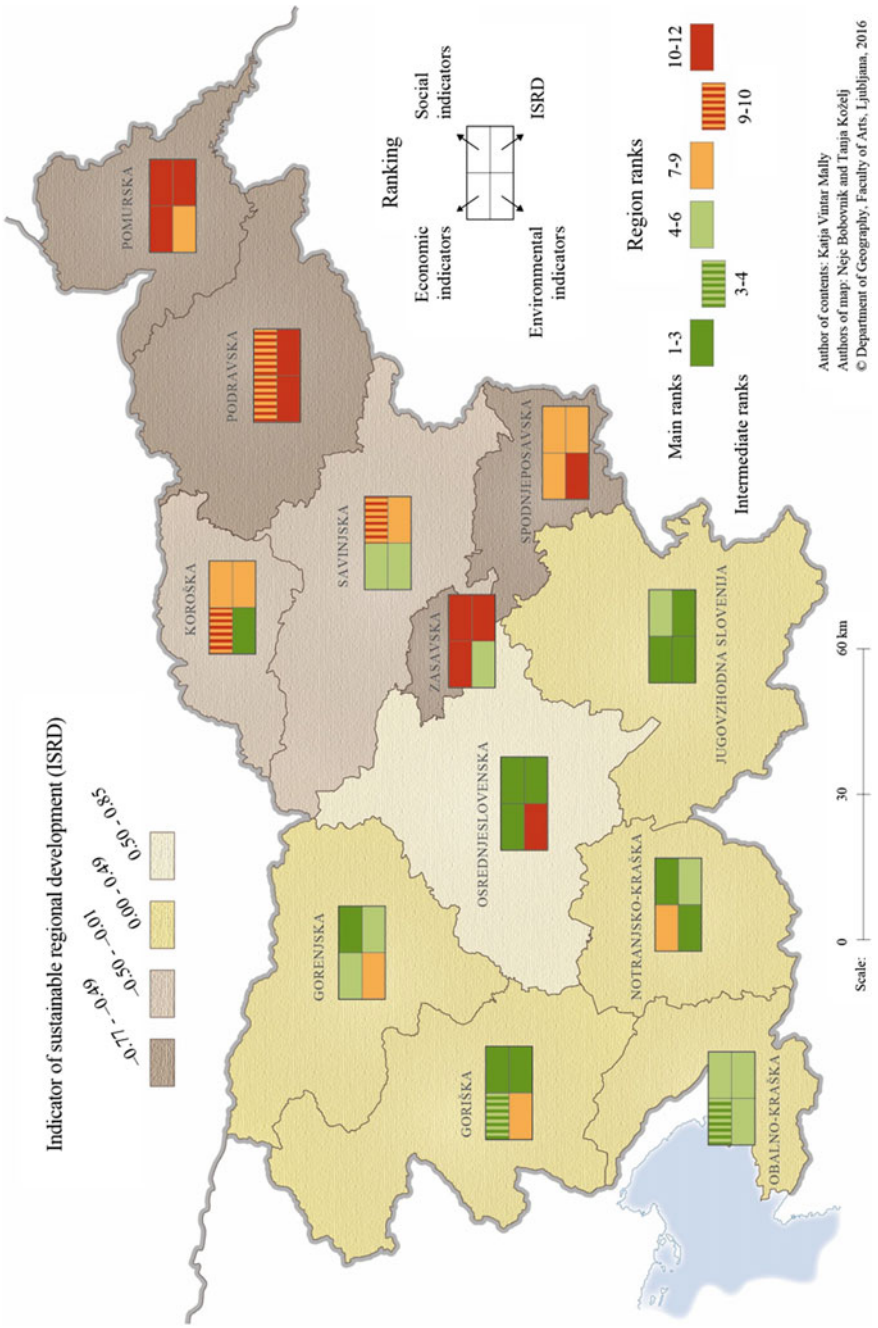

Fig. 18.1 Indicator of sustainable regional development and rankings of regions in the main development fields, 2010–2014

- Aging index,
- Average age at death (years),
- Recipients of social assistance benefits in cash (no. of recipients/1,000 inhabitants),
- Usable floor area (m^2/capita),
- Registered unemployment rate (%),
- Number of students per 1,000 inhabitants,
- Internet users (index),
- College degree holders (25–64 years) (%).

Social indicators monitor progress in increasing the quality of life, which improved according to some criteria but worsened according to others in Slovenian regions between the two periods studied. The population of Slovenia is very slowly increasing: over the period 1996–2014 it grew from 1,990,266 to 2,061,085 (Statistical Office of the Republic of Slovenia 2016), but at the same time some regions recorded a decline in population (especially Zasavska, Pomurska, and Koroška region), and calculations and comparisons of the indicators also point to a rapid aging of the population in all regions. In general the educational level of the population, housing conditions, and infrastructure improved, and life expectancy increased. On the other hand, the financial-economic crisis after 2008 was reflected in higher unemployment and significantly increased the number of people subjected to poverty and social exclusion.

Based on the average scores of regions in the social sphere it can be seen that the top six places (Fig. 18.1 and Table 18.1) are occupied by regions from the western half of the country, with the best conditions shown by the Gorenjska region, followed by Goriška, Notranjsko-kraška, and Osrednjeslovenska region. The absolute range of disparities in social scores (2.25) is smaller than that for economic scores but still greater than the range in environmental scores (1.36). Regions in the eastern part of the country show an above average aging of the population, and some also show a drop in the number of inhabitants; they have a poorer education structure and more difficulties in providing employment, and an increased risk of social exclusion for inhabitants.

A comprehensive evaluation of the current state and trends in the environmental sphere was most difficult since there is a lack of synthetic indicators and it is therefore necessary to use a larger number of indicators in order to capture at least the most important issues. With the combination of environmental indicators included we tried to cover all environmental elements (air, water, soil, biodiversity, space), either through evaluating their current state, the pressures they face from economic activities and population, or the responses of society to existing environmental problems. The final selection of fourteen key environmental indicators comprised the following:

- Organically farmed land (%),
- Wooded areas (m^2/capita),
- Road freight transport growth index,
- Intensively farmed land (m^2/capita),
- Quality of air (assessment),
- Municipal waste (kg/capita),
- Natura 2000 sites (%),
- Water consumption (m^3/capita),
- Average expenditure on environmental protection (% GDP),
- Built-up areas (%),
- Treated wastewater (m^3/capita),
- Housing with district heating in place (%),
- Motorization rate (cars/1,000 people),
- Livestock density index (LSU/ha).

In both periods studied the analysis of environmental indicators showed that interregional disparities in this sphere were the smallest, and scores in comparison to social and economic ones were more or less evenly distributed. At the same time the order of the ranking of the regions changed most between the two periods with respect to the average score for the environmental sphere. We can thus conclude that through a sound policy in the environmental sphere we could most easily achieve cohesion, as supported also by the fact that in most of the country the environment is still in a well preserved state.

The most favorable score in the environmental sphere in the period 2010–2014 was shared by the regions of Jugovzhodna Slovenija and Notranjsko-kraška, followed by Koroška (Fig. 18.1 and Table 18.1). The regions of Podravska, Osrednjeslovenska, and Spodnjeposavska most lagged behind the achievements of other regions. Regardless of the existing disparities among the regions it should be emphasized that since the end of the 20th century great progress has been achieved in the country in reducing air pollution and in monitoring pollutants, which can be seen in particular in the improved quality of water resources and air (replacement of energy sources, installation of desulphurization units and filters on the biggest air polluters, systematic construction of wastewater treatment plants, improved waste management, etc.). Likewise, there has been a growing trend towards environmentally friendly agricultural production (especially the growth of organic farming) and greater attention given to protected natural areas (national protected areas, the Natura 2000 European network of areas). On the other hand there have been some negative trends of increased traffic and the extent of material-energy flows, and an increasingly greater concentration of pressures from settlement, economic activities, and infrastructure in lowland areas, especially in the vicinity of regional centers.

18.3 Regional Disparities in Slovenia According to Different Measures of Development

A comparison of Slovenian regions according to the value of the synthetic indicator of sustainable regional development (ISRD) in both periods studied shows that the six westernmost regions have maintained above average (positive) values and the other six regions have below average (negative) values (Fig. 18.1). The ranking of regions has not essentially changed, since the rank of a particular region changed between the two periods by at most two places (in the second period there was an improvement in position by two places for Jugovzhodna Slovenija and a drop by two places for the Gorenjska and Podravska regions). The range of values in the period 2010–2014 was somewhat smaller but due to changes in the indicators included and the method of assigning scores we cannot attribute this directly to a reduction in disparities among regions. Due to greater development disparities between the eastern and western halves in the social and economic spheres there also appears a sharp dividing line between the two parts of the country in the ISRD (Table 18.2).

A comparison of the ISRD with the so-called development risk index (DRI), which is used at the national level for ranking regions according to level of development in particular program periods, shows greater differences in the rankings of regions. The latest available calculations of DRI are for the current program

Table 18.2 Changes in the development risk index and the indicator of sustainable regional development since the end of the 20th century

Statistical region	DRI[a]				ISRD			
	2001-2005[b]		2010-2014[c]		1996–2002		2010–2014	
	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking
Osrednjeslovenska	8.7	1	35.5	1	0.74	1	0.85	1
Obalno-kraška	82.4	2	81.4	4	0.42	4	0.30	5
Gorenjska	83.1	3	66.6	3	0.67	2	0.32	4
Savinjska	92.3	4	92.6	5	-0.19	7	-0.17	8
Goriška	93.8	5	100.4	6	0.57	3	0.45	2
Jugovzhodna Slovenija	101.7	6	64.7	2	0.28	5	0.44	3
Koroška	103.9	7	121.6	8	-0.30	8	-0.14	7
Zasavska	113.9	8	125.1	11	-0.82	11	-0.70	10
Spodnjeposavska	116.8	9	101.5	7	-0.70	10	-0.54	9
Podravska	116.8	10	123.9	9	-0.70	9	-0.76	11
Notranjsko-kraška	127.0	11	124.8	10	0.07	6	0.27	6
Pomurska	159.5	12	161.8	12	-1.12	12	-0.77	12

Sources Vintar (2003), Pečar and Kavaš (2006), Pravilnik o razvrstitvi (2014); own calculations

[a]A higher value of the index means greater risk to the development of the region

[b]Period of data by means of which the development risk index was calculated for the program period 2007–2013

[c]Period of data by means of which the development risk index was calculated for the program period 2014–2020

period 2014–2020 and are based on data from the last few years before the start of this period (Table 18.2). In comparison with ISRD, DRI includes a smaller number of indicators, and the selection also changed in part based on the availability of data. The most recent set encompasses 14 indicators: GDP per capita, gross value added per employee, gross fixed capital formation in GDP, unemployment rate for young people (15–29 years), employment rate (20–64 years), proportion of the population with tertiary education (25–64 years), the share of gross domestic expenditure on research and development in GDP, the proportion of treated wastewater with at least secondary treatment, the proportion of protected land areas in the region, the share of the estimated damage caused by natural disasters in GDP, the unemployment rate, the index of aging, disposable income per capita, and population density (Pravilnik o razvrstitvi 2014).

The results of both synthetic indicators are not directly comparable due to different methods of standardization but we can compare the relative position of regions with respect to the selected method of evaluation. Due to the predominance of economic and social indicators in DRI (only three indicators could be characterized as environmental) the rankings of the regions differ significantly between DRI and ISRD: for example, two regions are ranked four places higher (Goriška and Notranjsko-kraška), and one region (Savinjska) is three places lower. With respect to DRI the Osrednjeslovenska region has the lowest development risk and the Pomurska region has the highest (Table 18.2). The governmental Institute of Macroeconomic Analysis and Development found that during the time of the last crisis, regional disparities in level of economic development and risk of poverty became smaller, but this was a result of the greater drop in economic activity or in other words the greater economic decline of regions that before 2008 had a more advantageous position (IMAD 2016). This thus does not mean a reduction in the marginalization of the least developed regions of the country. A more detailed insight into the disparities in the level of development of particular parts of the country is given by the coefficient of development of municipalities, which is used by the government to determine the level of co-financing of investments in Slovenian municipalities. The index is calculated from ten indicators that cover economic strength of the population and of the economy (income tax base per capita, gross value added of companies per employee), demographic characteristics (index of aging, density of settlement), employment opportunities (number of jobs for the size of the economically active population, unemployment rate, employment rate), environmental protection (share of Natura 2000 areas, proportion of the population with a connection to the public sewer system) and cultural heritage (cultural monuments and infrastructure) (Ministry of Finance of the Republic of Slovenia 2015).

Strikingly high values for the coefficient of development of municipalities are shown, as expected, for the central part of the country, especially the municipalities in the Osrednjeslovenska region, while low values point to the marginalization of particular areas along the border, especially those that are also in high mountain or forested Dinaric karst areas, or have poor transport connections with national and/or regional centers. Greater frequency of municipalities with a low coefficient of development is also noticeable in regions that lag behind economically (Fig. 18.2).

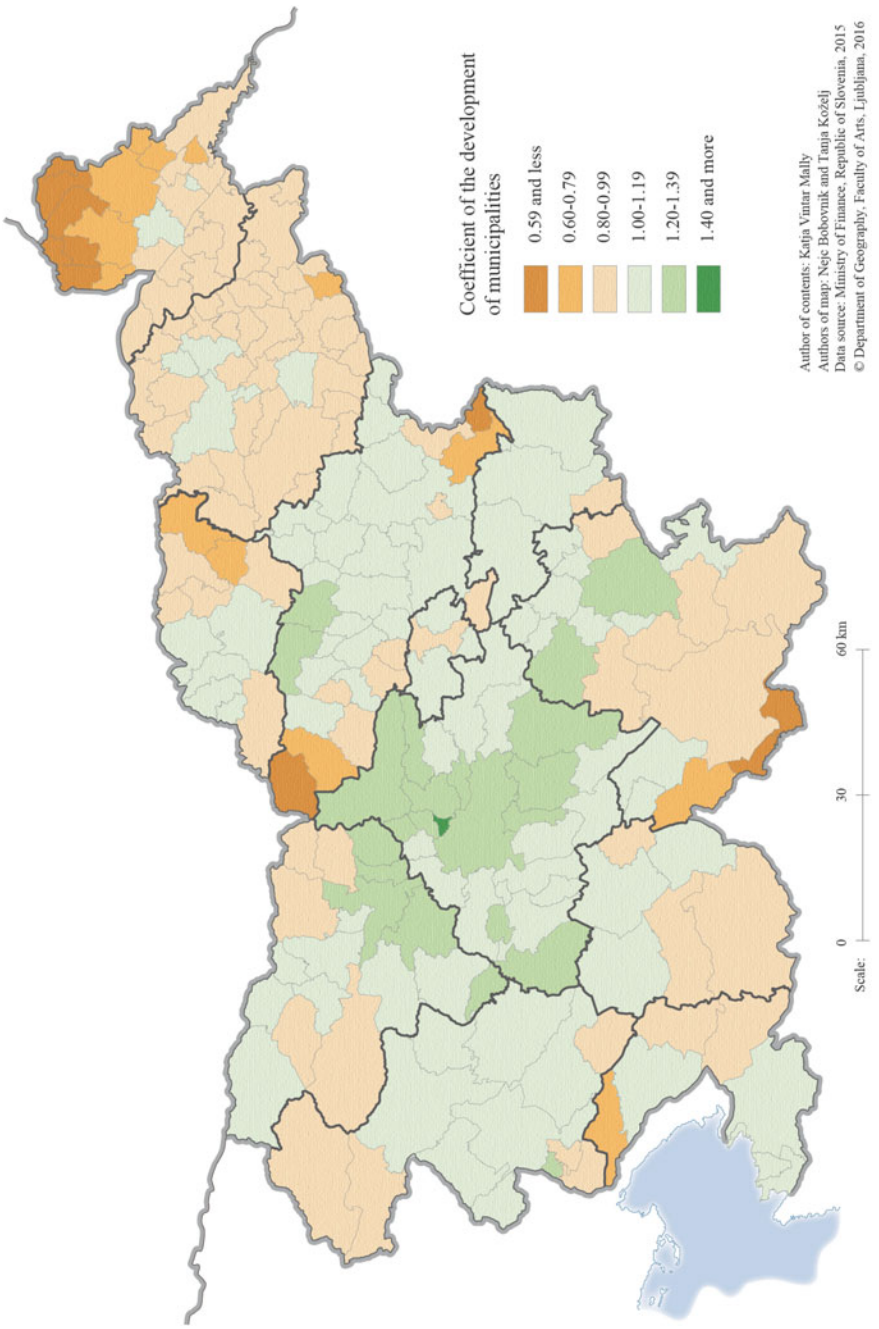

Fig. 18.2 Coefficient of the development of Slovenian municipalities in 2015

18.4 Conclusion

Quality of life for the 21st century population is no longer represented merely in terms of socio-economic well-being, such as that enabled by classical centers of power (for example, urban areas or regional and national centers), but also in terms of a high quality living environment, of which an indispensable part is an unspoiled and unpolluted natural environment offering numerous ecosystem services, which are valued also from aesthetic, recreational and other nonmaterial aspects. Sustainable development guides us toward balancing different development goals and the creation of the living conditions described. In general we cannot say of Slovenian regions that the disparities among them are growing, or that cohesion is increasing, since very diverse trends are recorded in different areas. But we can with certainty conclude that the prevailing development model in the country is still unsustainable, and that economic and social disparities are the most deeply rooted within it.

Evaluation using indicators can have a strong communicative value for the broader public, experts, and sectoral policymakers, since it indicates weaknesses in the functioning of the system, as a result of which particular parts of the system lag behind in the pursuit of contemporary development goals and thus become susceptible to marginalization. Usually these are areas that even now are faced with a range of problems, hence their ability or flexibility in coping with new challenges such as those brought on by climate change or broader social changes is questionable. Experience to date shows that without deliberate long-term measures in regional development we cannot expect cohesion, since certain regional disparities are very deep-rooted and create an additional obstacle to following a more sustainable path.

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