A Regional Evaluation of Sustainability with Special Regard to Social Aspects[1]

KLÁRA TÓTH SZITA, Ph.D.
ASSOCIATE PROFESSOR
e-mail: regszita@uni-miskolc.hu

ESZTER SIPOS NÁNDORI
LECTURER
e-mail: stsne@uni-miskolc.hu

SUMMARY

Today sustainable development is an organic part of the community policies of the European Union including regional policy. Sustainability is important not only for products and services, but also for regions. Regional evaluation of sustainability is an emerging research field. The assessment of regional social performance has not been elaborated yet. Social life cycle assessment, however, would be suitable for this task. This study aims to utilise Social Life Cycle Assessment and indicators to assess regional sustainability. To test the assessment system, this study analyses the social performance of Northern Hungary.
Key words: regional policy, sustainability, social LCA

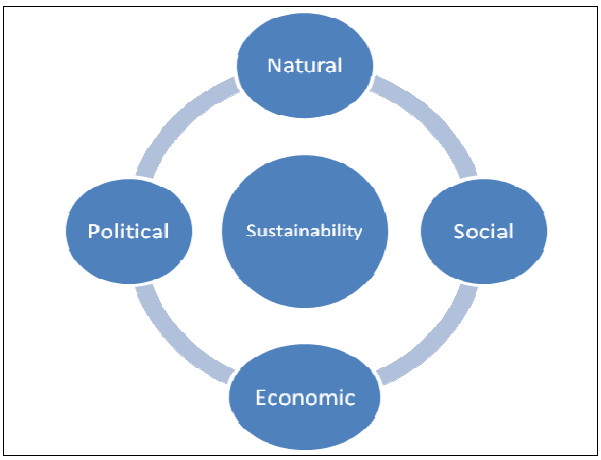
INTRODUCTION

Today sustainable development is an organic part of the community policies of the European Union including regional policy (especially after Johannesburg and Lisbon). Sustainability is important not only for products and services, but also for regions. The regional environmental performance can be assessed with Life Cycle Assessment. Environmental sustainability is in primary focus and there have been many attempts to achieve this objective. Another dimension of regional sustainability, the social one, has, however, been strongly neglected. The assessment of regional social performance has not been elaborated yet. Social life cycle assessment, however, would be suitable for this task. It was designed to assess the social and socio-economic aspects of products and services and their potential impacts (either positive or negative) throughout their life cycle. It can be applied on its own or in combination with Environmental Life Cycle Assessment.[2] This assessment method also has limitations. It requires many qualitative data as numeric information is less capable of assessing social aspects. As extensive data collection is needed for the evaluation, this method is quite expensive.[3] Another method for the assessment of social regional performance could be the use of indicators. This study aims at utilising Social Life Cycle Assessment and indicators to assess regional sustainability. To test the assessment system, this study analyses the social performance of Northern Hungary.

SUSTAINABILITY

The welfare of the society and the improvement of living standards can only be assured in the long run by integrating the efforts to increase economic and social growth while, at the same time, preserving natural resources and heritage and using them in a sustainable way in order to achieve an acceptable environmental quality. The common segment of economic and environmental strategies is the improvement of competitiveness. This is based on innovation, the sustainable use of natural resources, the qualitative reproduction of human resources and the balanced development of social and environmental infrastructure.[4]
To ensure sustainability, decisions have to be made that consider the long-term economy, ecology and the equality of all communities. Sustainability is built from the actions of people and businesses at local level, and it extends outwards in a spiral.
The dimensions of sustainability can be seen in Figure 1. The main value belonging to the natural dimension is to protect natural systems and use resources wisely. The political dimension involves making decisions through democratic means, while the economic dimension emphasises appropriate development and the satisfaction of livelihoods for each member of the population. The social dimension refers to people caring for each other and the appreciation of social justice and peace.[5]

[1] *"Supported by OTKA 76870/2009 research"*
[2] *United Nations Environmental Programme (2009) p 37*
[3] *United Nations Environmental Programme (2009) p 9*
[4] *Roncz Judit – dr Szita Tóth Klára: Energy consumption as an indicator of sustainability p 1*
[5] *http://www.unescoapceiu.org/bbs/files/doc/2002/esd/TLSF/intro/mod03/uncom_c_bod.htm*

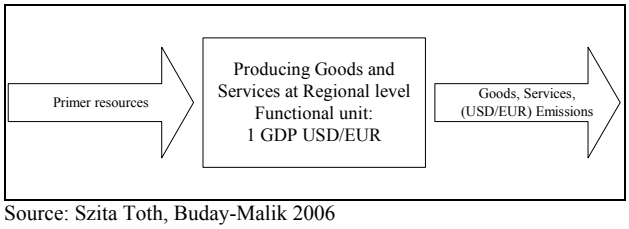


Source: own compilation based on http://www.unescoapceiu.org/bbs/files/doc/2002/esd/TLSF/intro/mod03/uncom_c_bod.htm

Figure 1. Dimensions of sustainability

To evaluate the progress toward sustainability, it has to be measured. There are several ways to measure sustainable development. One of them is the calculation of the ecological footprint, which includes some aspects of land use[6]. The Human Development Index (HDI) can also be used to measure sustainability. It measures the development of human resources and combines three components. It takes into consideration average life expectancy at birth as an index of health and longevity, knowledge gained in education as a measure of the individuals' knowledge, and GDP per capita as a measure of income and living standards.[7]

Analysis can also be carried out with the help of indicators[8] or with the Life Cycle Assessment (LCA) based approach. The latter approach helps with the sustainability assessment of products, services, systems and also regions, by taking into account materials, products or services. Sustainability evaluation can be conducted by setting up an input-output analysis for the functional unit of GDP produced by the region. The inventory is based on the primer resources as inputs and the emissions, environmental effect, etc. as outputs. The model of regional sustainability assessment is presented in Figure 2.

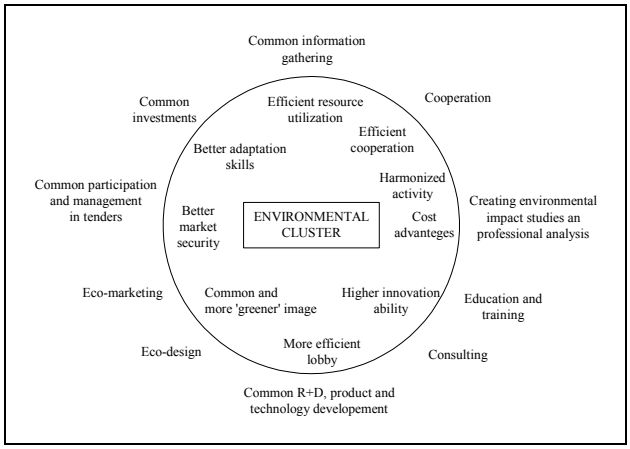


Source: Szita Toth, Buday-Malik 2006

Figure 2. LCA model for regional sustainability assessment

The environmental dimension of regional sustainability has developed significantly recently due to environmental clusters. In the past five years, the number of these clusters has grown significantly based on triple helix (research institutes, industry and regional organizations). They could effectively contribute to the enhancement of environmental policy tools and the improvement of the environmental performance of industrial actors. There is strong government support to encourage cooperation in order to promote environmental thinking. The European Union supports the cooperation actions of research driven clusters in the fields of environmental industry and protection.

The key responsibilities of environmental clusters are to create special competences in the field; to promote life-cycle thinking and monetary-flow analysis; to improve the eco- and energy- efficiency of products and services inside the cluster; to participate in building environmentally friendly infrastructure development; to eco-innovate and improve regional environmental data management; to initiate cooperation actions in the environmental industry, and to support environmental and innovation policy-making (e.g. through participation in joint research or the development of regional policy tools). The operation of research-driven environmental clusters is shown in Figure 3. The inner circle represents the common research drives, while the outer circle refers to the results obtained.

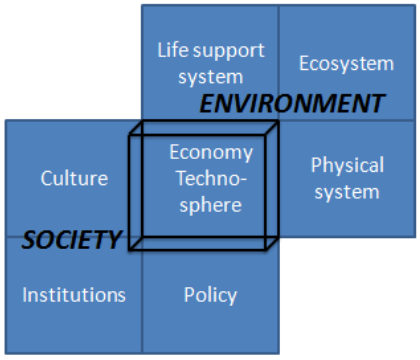


Source: Buday-Malik, Szita Toth, Roncz J, 2009

Figure 3. The operation of research-driven environmental clusters

The environment and the society are related to each other. Figure 4 represents the linkage between these two dimensions.

[6] *Finnveden et al. (2009) p 11*
[7] *Kristóf T. (2003) p 1091*
[8] *United Nations (2008) p 6*



Source: Huppes, Gjalt – Ishikawa, Masanobu (2009) p 1694

Figure 4. The common segment of the environment and the society

The economy and the technosphere, which include production and consumption, make up the common segment of the environment and the society. In spite of the developing environmental dimension of regional sustainability, however, the social component has been neglected so far. The next chapter summerizes what the social aspect of regional sustainability refers to and what the ways to measure it are.

Social Sustainability of Regions

LCA can renew the regional performance assessment system. With inspiration from Environmental LCA, the development of methods for Social LCA has started.[9] The integration of social components requires that greater priority is given to the participation of stakeholders and the treatment of utility.

Social LCA has to be carried out in four steps. First, the scope and the goal have to be defined. The ultimate goal of S-LCA is to promote social conditions and human well-being.[10] Scoping has to include the goal of the study, the inventory scope and system boundaries, the functional unit, the alternatives, data collection requirements, allocation procedure and critical review. The next step is the inventory analysis. In data collection, the reliability of data always has to be considered. Different methods of data collection can be used depending on the scope. The next step is impact assessment, which involves classification, characterization, normalization and analysis as in an environmental LCA study. The last step of Social LCA is the interpretation of the results and the evaluation.[11]

When using indicators to assess social performance, the question of what kind of indices to use arises. There are no indicator-lists that can be used as a guide.

Quantitative data are easier to evaluate, but they are considered to be too insufficient to refer to all aspects of social impacts. Qualitative data, however, can cover all aspects of social performance, but are much more expensive to collect. Thus, a combination of qualitative and quantitative data can be considered to be the best solution. Choosing the most suitable indicators for the given task can sometimes be difficult. Most indicator-lists express the complexity of the given individual topic.[12] Before starting the data collection and the analysis, each indicator needs to be clearly defined.

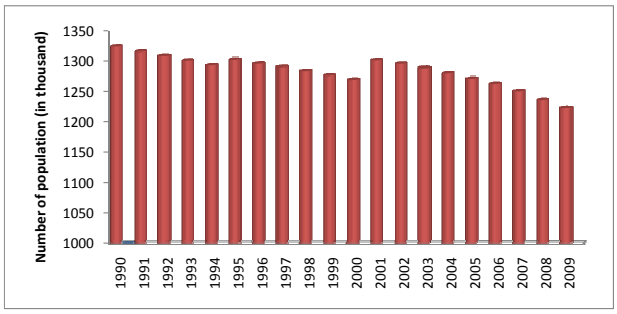
This study gives an example of the assessment of regional performance from social aspects. Social indicators are used to evaluate the regional performance of Northern Hungary. To undertake the analysis, only quantitative data are used as qualitative data are currently not available. The assessment of Northern Hungary is carried out by the analysis of demographic and labour market data.

Assessment of the Social Performance of Northern Hungary

Northern Hungary has had to face severe economic and social challenges since the transition to the market economy. In spite of its natural and environmental potential, the performance of the region is very poor both in terms of economic and social progress. Currently a real struggle is being fought for economic competitiveness and for a better quality of life.

The assessment of the social performance of Northern Hungary is carried out using social indicators. Comparisons are made between Northern Hungary and the whole country in the case of the most important social indicators. Then the performance of the region is evaluated by assessing changes in the past eight years.

One of the social indicators is the size of, and the changes in, the population. Figure 5 shows the size of the population in Northern Hungary.

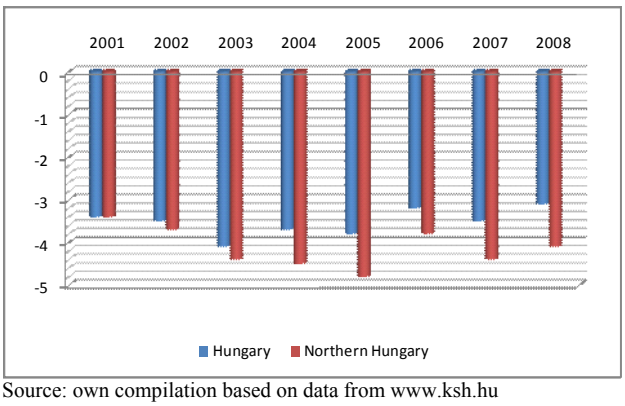


Source: own compilation based on data from www.ksh.hu and www.registar.hu

Figure 5. The population of Northern Hungary (1990 – 2009)

[9] *Finnveden et al. (2009) p 2*
[10] *United Nations Environment Programme (2009) p 22*
[11] *United Nations Environment Programme (2009) p 10-14*
[12] *United Nations Environment Programme (2009) p 8-9*

The decline in the size of the population has been interrupted two times in the past twenty years. First, in 1995, when the size of the population slightly increased by 0.8 percent. The second increase was in 2001, but this is probably due to methodological changes. The 2001 census corrected the data derived from calculations.
Besides looking at the total number of, and the changes in, the population, the composition of these changes is also worth examining. Population changes can have two sources: vital events and migration. Vital events include birth and death and the natural increase or decrease which expresses the sum of these two factors. Figure 6 shows the natural increase and decrease per thousand inhabitants for Hungary and Northern Hungary.

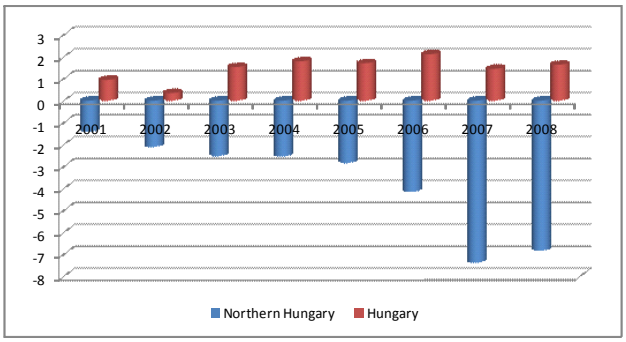


Source: own compilation based on data from www.ksh.hu

Figure 6. Natural increase (+) and decrease (-) per thousand inhabitants (2001-2008)

In the examined period, the balance was always negative for both of them, and in Northern Hungary the natural decrease was always higher. Even if the live birth rate per thousand inhabitants is higher in the region than the national average, deaths per thousand inhabitants is also higher.[13]
Note that one of the highest fertility rate indicators can be found in Northern Hungary. This is due to the fact that the fertility rate is extremely high among women younger than 14 (which is three times higher than the national average) and among women between 15 and 19 years old (twice as high as the national average)[14] while the fertility rate of those above 25 is lower than in Hungary.[15]
This leads to the unfavourable fact that young mothers leave the education system without getting any qualifications and thus cannot reach the living standard necessary to satisfy the minimum needs. Founding a family at an early age can be a reason for poverty and deprivation.[16]

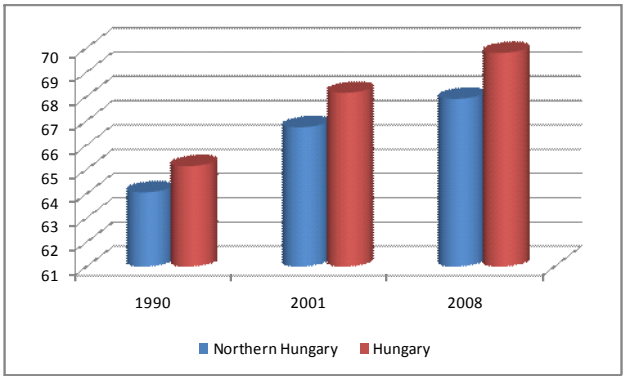
Changes in the size of the population can also be caused by migration. Figure 7 shows the net migration per thousand inhabitants. In the case of Northern Hungary, this measure is the sum of internal and international net migration, while at the national level this is equal to international net migration.
Figure 7 shows that while net migration in Hungary has been positive, in case of Northern Hungary it has always been negative. A considerable increase in net migration can be seen for the examined period. Even if the international net migration was positive in the region between 2001 and 2008, it was counterbalanced by the negative national net migration.



Source: own compilation based on data from www.ksh.hu

Figure 7. Net migration per thousand inhabitants (2001-2008)

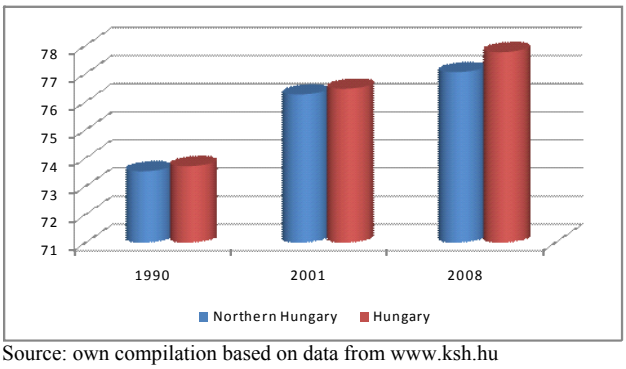
Not only population data, but also average life expectancy is an important social indicator of regional performance. The average life expectancy is shown for men in Figure 8, and for women in Figure 9. This value is much lower for men than for women, which is a problem throughout the country. In the case of Northern Hungary, however, all values are lower than the national average. The difference between regional and national data is more important in case of men.



Source: own compilation based on data from www.ksh.hu

Figure 8. Average life expectancy for men (1990, 2001, 2008)

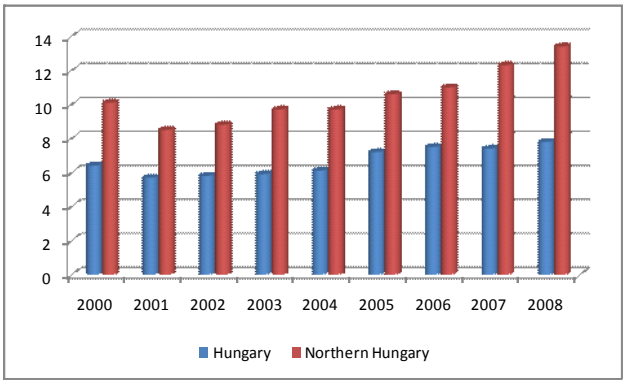
[13] *www.ksh.hu*
[14] *Darók, I. (2006) p10*
[15] *Tóth Szita, K. – Buday-Malik, A. (2006) p 5*
[16] *Siposné Nándori, E. (2009) p 3*



Source: own compilation based on data from www.ksh.hu

Figure 9. Average life expectancy for women (1990, 2001, 2008)

Besides demographic data, the labour market position of the region is also worth assessing. The unemployment rate can be a measure of regional performance (see Figure 10). The trend of the rate is the same in the region as at the national level, but for Northern Hungary it is always higher than the national average. It has been increasing since 2001 and for four years it has been over 10 percent, while the national average has been below 8 percent.



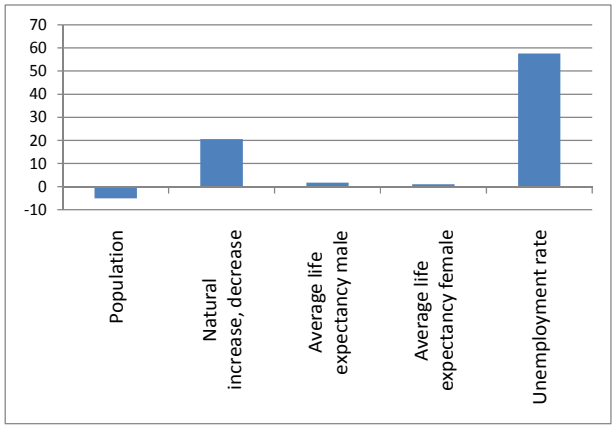
Source: own compilation based on data from www.ksh.hu

Figure 10. Unemployment rate (2000-2008)

Besides comparing the social indicators of Northern Hungary to the national average, the change in these indicators is also examined between 2001 and 2008. Figure 11 shows some of the changes in the indicators mentioned above.

Changes in international and national net migration per thousand inhabitants, however, are not included in the figure, because their values are extremely high (377% and 341%). So net migration has increased most, but most of the other social indicators have also changed unfavourable for eight years. The natural decrease has grown by more than 20%, which worsens the unfavourable trend of net migration. The unemployment rate has also increased considerably, by almost 60%.

A slight improvement of average life expectancy can be seen for the examined period, but this improvement still lags behind the values of other European countries. The size of the population has decreased, which is a direct consequence of the growing natural decrease and the negative net migration.



Source: own compilation based on data from www.ksh.hu and www.registar.hu

Figure 11. Change in social indicators in Northern Hungary between 2001 and 2008 (in percentage)

CONCLUSIONS

The assessment of social aspects of regional performance has many limitations. Data availability is one of them, as qualitative data are rarely available and quantitative data are not sufficient to cover all aspects of social performance. Using quantitative data for the assessment, however, can give some insight in the region's social performance. By comparing regional data to a benchmark or to national level data, information can be acquired about the relative position of the region. Time series can help to determine the direction of changes in social performance.

Another limitation of the assessment is the lack of available indicator-lists. The elaboration of such a list could be useful for the assessment and would make the results of the assessment comparable among regions.

Northern Hungary seems to be in a very difficult situation regarding its social progress and the indices related to sustainability and human development cannot be claimed to be good. A more sophisticated assessment of the region's social performance would be carried out with the inclusion of qualitative indices as well.

REFERENCES

DARÓK, Ildikó (2006): Szegények, munkanélküliek, hajléktalanok; 2009. november 17.;
http://mek.niif.hu/03400/03477/pdf/3_szegeny.pdf;
FINNVEDEN, Goren et al. (2009) Recent developments in Life Cycle Assessment, Journal of Environmental Management, 91, pp 1-21
GRIEBHAMMER, Rainer et al. (2006) Feasibility Study: Integration of social aspects into LCA
HUPPES, Gjalt – Ishikawa, Masanobu (2009) Eco-efficiency guiding micro-level actions towards sustainability: Ten basic steps for analysis, Ecological Economics, 68, pp 1687-1700
KRISTÓF, Tamás (2003) Magyarország gazdasági fejlettségének lehetséges forgatókönyvei, Statisztikai Szemle, 81., Number 12. pp 1090-1104.
RONCZ, Judit –SZITA TÓTH, Klára: Energy consumption as an indicator of sustainability - the Role of Clusters In: Book of Proceedings Environmental accounting - Sustainable Development Indicators: April 23-24, 2009, Prague, Czech Republic. Prague, Csehország, 2009.04.23-2009.04.24. Prague
SIPOSNÉ NÁNDORI, Eszter (2009) Elszegényedés Észak-Magyarországon, Észak-Magyarországi Stratégiai Füzetek (under publication)
TÓTH SZITA, Klára – BUDAY-MALIK, Adrienn (2006) The county of Borsod-Abaúj-Zemplén: on the way to sustainability?; European Integration Studies, Miskolc, Volume 5. Number 1. pp 31-57.
United Nations (2008) Measuring Sustainable Development, Report of the Joint UNECE/OECD/Eurostat Working Group on Statistics for Sustainable Development; New York and Geneva
United Nations Environmental Programme (2009) Guidelines for Social Life Cycle Assessment of Products, UNEP-SETAC
www.unescoapceiu.org/bbs/files/doc/2002/esd/TLSF/intro/mod03/uncom_c_bod.htm