The Sustainable City in Romania
From Vision to Reality

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Publisher: KIT Scientific Publishing
Place of publication: KIT Scientific Publishing
Year of publication: 2016
Published on OpenEdition Books: 13 September 2019
Series: KIT Scientific Publishing
Electronic ISBN: 9791036538223

http://books.openedition.org

Electronic reference
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1 The Concept of Sustainable Development and its Operationalisation

In a time of major technological developments on a global level starting in the 1970’s and 80’s, the world began to monitor select dangers and undesired effects of human activities, especially industrial ones. After the Conference for Environment in Stockholm in 1972 and the first report of the Club of Rome, "The Limits to the Growth" in 1972 (cf. Meadows 1972), it was understood that besides the positive effects of technological progress, undesired and negative effects can also appear. After this time, environmental awareness in the Western world increased. It was clear that the many regional and global environmental problems are very serious and need to be solved. We now confront a series of global problems which can be grouped into three categories: the increase of natural resource and energy consumption, environmental pollution, and the increase in world population (cf. Jischa 2014) (see Figure 1). Global discussions began on political, scientific and social scales in order to find solutions to the problems above which could be applicable in developed as well as developing countries. The Brundtland Report of the World Commission on Environment and Development represented a prominent result of these worldwide discussions. For the first time the concept of sustainable development was defined in this report and accepted as a possible global approach to complex new ecological, economic, and social problems (cf. Brundtland 1987).

The concept of sustainable development was discussed more often thereafter, as in 1992 at the Conference on Environment and Development in Rio de Janeiro, and was strongly emphasised in the conference’s resulting document Agenda 21, as well as during the 2002 follow-up conference Rio+10 in Johannesburg, South Africa (cf. Tulbure 2013). Since then many similar scientific consensuses have found that the evolution of technical, social and ecological systems must be analysed in synergistic relation to one another (cf. Jischa 2014).
Sustainable development has become a more widely used term today. However, perusal of related literature gives the impression that there are as many definitions of sustainable development as there are users of the term (cf. Banse et al. 2011). In order to make this concept more understandable, rules, strategies and principles of sustainable development have been defined (cf. Jischa 2014; Tulbure 2003). The general Brundtland definition has been accepted world-wide, but together with the rules, strategies and principles, it does not deliver a concrete methodology on resolving how to apply the concept of sustainable development to actual and specific situations, especially on local or even finer levels (cf. Parodi et al. 2010; Tulbure 2013).

The operationalisation of sustainable development means the translation of its goals into political measures and controlling instruments (cf. Jischa 2014; Lengsfeld et al. 2003). A general methodology for the operationalisation of sustainable development can be materialised in the following steps (cf. Tulbure 2003):

- defining the sustainability problem;
- establishing specific space and time scales;
- a systemic approach to the region by modeling the interactions therein;
- establishing concrete aims for the studied example by establishing priorities;
The Sustainable City in Romania – developing evaluation and control instruments, e.g. indicators; verifying the possible results obtained after introducing the proposed measures; applying the developed concept into practice.

The operationalisation is only possible when for an individual problem or case, concrete aims are established and from these aims, concepts to achieve them are developed (cf. Schauer 2000). Sustainability is to be newly defined for each different case. The space and time scales are to be established specific to each case (cf. Banse et al. 2011; Tulbure 2011).

Strategic possibilities for the operationalisation of sustainable development include:

(1) Establishing goals on a global scale, the measures to achieve these goals being prepared on global and national levels and applied at regional levels.
(2) Establishing goals on regional levels, the measures being prepared on regional levels and immediately applied; the effects of these measures are to be evaluated on national and global levels, as well.

An example of the first strategy is the goal of finding future sustainable energy supply systems with minimal effects on the environment. Such a project has been realized at the IIASA (International Institute for Applied Systems Analysis) in Laxenburg/Vienna, “Globale Energieperspektiven bis 2050 und darüber hinaus“. The IKARUS project (Instruments for Reducing Emissions of Gases relevant to Climatic Changes) developed by several institutes in Germany represents another example (cf. Tulbure 2003). These studies are based on mathematical models to describe industrial and economic processes. With the help of a database which describes economic, social and political components, simulations have been created and different development scenarios are explored. The goal is to identify ways for the proposed aims to help with the political decision making process by providing concrete data measures (cf. Banse et al. 2011).

The second strategy has seen applications as well, such as in Local Agenda 21, especially in Western Europe following the Rio-Conference in 1992. There are numerous national studies which endeavor to find ways for nations to develop sustainably within the global context, such as the action plan “Sustainable Netherlands” by Friends of Earth Netherlands in 1992 or the study, “Zukunftsfähiges Deutschland“ (Sustainable Germany), initiated by BUND (Friends of Earth – Association for Environment and Nature Protection) and Misereor and lead by the Wuppertal Institute for Climate, Environment and Energy (cf. BUND/Misereor 1996).

With the goal of executing the second strategy for operationalisation of sustainable development on regional levels, in 2006 the Network for Sustainability Strategies, Monitoring and Management in Southeastern Europe was established. This event took place in the context of a kick-off conference held in Romania, at the 1 Decembrie
1918 University in the city of Alba Iulia, and sponsored by the German Academic Exchange Service, DAAD (cf. Tulbure/Jischa 2006). In order to achieve best results with the launching of the new Network for Sustainability in Southeastern Europe, this conference was scientifically and organisationally assisted by several German partners, especially the Clausthal University of Technology, represented at the event by professor Dr.-Ing. M. Jischa, as well as the Institute for Technology Assessment and Systems Analysis, ITAS, of the Karlsruhe Institute of Technology, KIT, represented at the event by Dr. G. Banse. One frequently discussed strategy for sustainable development operationalisation during this event was in finding solutions for future sustainable energy supply systems on national and regional levels (cf. Tulbure 2014; Tulbure/Jischa 2006).

The field of developing future energy systems is currently debated on many organizational and governmental levels with the goal of assuring the sustainability of society. Present discussions regarding existing regional strategies for arranging optimal future energy systems are led by the goal of mitigating harmful effects of climate change (cf. Mueller/Lindeman 2013; Parodi et al 2010).

Part of what engineers do is to evaluate developments in technology; their evaluations have until now almost exclusively focused on technical aspects, like functionality and safety, and on economic, legally and financially limiting conditions (cf. Jischa 2014). With respect to sustainability more criteria have to be considered, such as environmental resource quality, social and human values, and quality of life (cf. Banse et al. 2011; Lengsfeld et al. 2003; Mueller/Lindeman 2011). Performing these types of evaluations requires interdisciplinary cooperation (Parodi et al. 2010). In order to support the activities of engineers when evaluating technologies a new discipline emerged, first in the USA, which combines different aspects of emerging technologies and perspectives on their use, called Technology Assessment (TA) (cf. Grunwald 2012; Jischa 2014; Tulbure 2013). TA means the methodical, systematic, organised process of:

- analysing a technology and its developmental possibilities,
- assessing the direct and indirect technical, economic, health, ecological, social and other impacts of this technology and possible alternatives,
- judging these impacts according to defined goals and values, and determining future goals,
- deriving possibilities for action and design and expanding upon these.

Well-founded decisions are more likely to be made and implemented by the appropriate institutions with the use of TA (cf. VDI 1991).

When reviewing the given methodology for operationalising sustainable development, one can recognise that many steps useful to this methodology can be also identified in the phases described by TA (cf. Tulbure 2013; Tulbure/Jischa 2006). Often a
concrete sustainability problem, especially related to a technological issue, can be addressed by carrying out a TA study.

On the global level, the operationalisation of sustainable development requires the definition of general goals for the whole world, as was attempted with the Rio-Conference and the better-known Kyoto Protocol. On a national level this requires the definition of goals and expansion of specific strategies according to the specific conditions of a country, as variances in national conditions require. This aspect is especially applicable to the social and cultural fields, where national particularities can be very different from one country to another (cf. Banse et al. 2011). On regional or local scales, measures taken usually represent those associated with Local Agendas 21, but this is not always the case, as there are still discussions in different parts of the world, as in Southeast Europe, on how to apply optimal conditions for sustainable development on regional or local scales (cf. Tulbure/Jischa 2006).

2 Urban Sustainability – Methodological Aspects

The practice of applying sustainable development on a local level (in order to achieve so-called urban sustainability) represents a fairly new direction for some countries in Southeast Europe (cf. Banse et al. 2011). More specifically, the operationalisation of sustainable development on the scale of companies or of industrial processes is a relatively new and interesting field (cf. Schauer 2000; Tulbure 2014).

Nevertheless, the field of urban sustainability is just beginning in Romania, as is generally the case throughout Southeast Europe (cf. Banse et al. 2011; Tulbure 2011). An appropriate means for developing strategies for urban sustainability could be achieved by using the analytical instruments of Technology Assessment, because very often the questions which arise through its methodology relate to the possibilities for the optimal integration of new technologies on local levels into the environment and society. These questions arise from present conditions in Eastern European countries which dominant political importance, relating to the process of modernisation of old technologies and implementation of new ones. For this reason TA should play a central role in the future technological, economic, environmental and social development of these countries (cf. Grunwald 2010; Jischa 2014; Tulbure 2013).

The importance of assuring urban sustainability has been pointed out by the UN Habitat Executive Director, Dr. J. Clos, who recognised during a UN Habitat Conference that there is “no sustainable development without sustainable urbanisation”. Furthermore, the vision of having future sustainable cities, by taking into account regional differences, is frequently discussed worldwide, but has also started to be debated in some Eastern European countries (cf. Banse et al. 2011; Tulbure 2011).
Discussions have begun in Romania, especially among scientific communities, on how to achieve future sustainable cities and establish a general methodology for this goal in accordance with the already developed and applied methodologies in other European countries by taking into consideration specific differences, especially on social and cultural levels (cf. Banse et al. 2011). In this regard, by applying the sustainability systemic analysis on a local level (cf. Tulbure 2003), the general methodology for sustainable urbanisation can be gleaned and actualized through the following steps:

- defining the sustainability problems on a local/regional level;
- establishing specific space and time scales;
- establishing concrete aims for the case in question;
- developing a systemic, region-specific approach by modeling interactions;
- developing concepts and measures by establishing priorities;
- developing evaluation and control instruments;
- verifying the possible results by measuring them after introducing the proposed measures, and by developing appropriate scenarios;
- applying the resulting concepts.

When analysing this methodology for sustainable urbanisation, one can recognise that “urban sustainability” refers to a transformation process under variable frame conditions, as is the general discussion regarding sustainability operationalisation (cf. Tulbure 2003). Urban sustainability management, as presented in Figure 2, emphasises development at the local level. This is accomplished by simultaneously considering economic, ecological and social aspects and representing them on the axes, as shown in Figure 2, by using relevant indicators for each considered field. The evaluation of the development path is possible, if desired (D) and undesired (U) ranges can be defined for each considered aspect, as shown in Figure 2. If the development is situated in the so-called “sustainable action range”, this means urban sustainability will be assured. If the development is situated in the so-called “unsustainable range”, development corrections can be made by introducing measures with the end of achieving urban sustainability, as emphasised in Figure 2.

This methodology is generally to be applied on a local or regional level, without any restrictions, but special attention must be paid to the following possible difficulties (cf. Jischa 2014; Tulbure 2003):

- The processes are complex and can contain uncertainties.
- There is a need to integrate quantitative as well as qualitative aspects into the analysis.
- If none exist, it is necessary to design indicators for urban sustainability, in order to succeed in evaluating development over time.
3 The Concept of Decoupling

Several newly discussed strategies for sustainable urban development have at their base the concept of “decoupling”, a relatively new term in sustainability literature. It was mentioned by the Club of Rome during its Conference “Governance of the Commons”, that took place in September 2013 in Ottawa, Canada (cf. Tulbure 2014). The discussion intended to rejuvenate the global debate on *Limits to Growth* (cf. Meadows 1972), and sustainable development, climate change and questions of equity.

Decoupling typically refers to the aim of breaking the long-held causal relationship between economic growth and growth in the consumption of natural resources. The essence of decoupling means to assure a high quality of life for all citizens in the world, but without rampant growth in energy consumption, with all its impacts on the environment and other resources. Decoupling goes beyond simple price adjustments or marginal policy shifts but strikes a blow at the heart of the fundamental yet mistaken belief that economic growth and natural resource use are two sides of the same coin, joined forever in a mutually reinforcing bind. Those who advocate decoupling believe that the binding knot can, and must be broken.
It is understood as a viable strategy for assuring the sustainability of our society. It has relevance both for developing and developed countries, allowing us to release the dependence of our well-being from that of the consumption of the limited treasures of the Earth. This can be supported by a massive investment in technological and social innovation, so that at least the per capita energy and resource consumption in developed countries will not increase further. Likewise, it is important to support developing countries in following a more sustainable development path. By using this fairly new direction in an optimal manner on local scales, with other strategies for social applications, it would be possible to take important steps for assuring urban sustainability.

4 Sustainable Cities in Romania: Examples

Regarding the situation in Romania, a currently debated question is how to transform a city in Romania into a regional or local model of sustainable development, into a sustainable city (cf. CC 2011). After joining the European Union in 2007, the word “sustainability” started to be heard more frequently in Romania. New opportunities for people to explore and learn from Western countries were suddenly opened up. Since then only small steps have been taken, sometimes because of bureaucracy, sometimes because of competing priorities, and sometimes because of lack of knowledge and lack of financial resources. Nevertheless, in the last several years some progress has been registered in the field of sustainable urban development (cf. CC 2011).

In order to emphasize this development, Sibiu, selected in 2007 to become the European Capital of Culture, and the five biggest cities in Romania will be considered: Bucharest, Cluj-Napoca, Timisoara, Iași and Constanța. In order to become sustainable cities, they all share certain needs (cf. CC 2011):

- urban regeneration;
- reduced energy consumption;
- more transportation options other than cars.

The Romanian Government approved in 2009 a program for the rehabilitation of residential urban buildings constructed between 1950 and 1990. There were four major benefits from this action plan:

- increasing the energy efficiency of the buildings;
- changing the facades;
- protecting the environment by reducing emissions;
- subsidizing money spent by building owners, e.g., through specific programmes it became possible to obtain funding from national and local governments for rehabilitation.
Also, the idea of constructing green buildings has very much come into discussion, as in the city of Cluj-Napoca. This city has the first “Green School” of Romania, established in 2012. The following savings have been registered for this building:

- energy savings: 30%;
- water savings: 50%;
- waste savings: 50–90%.

In this context, starting in 2013, the construction of green buildings has been encouraged by Romanian local authorities, for example by reducing local taxes for them by 50%.

Currently there are also discussions in the field of alternative transportation options. The populations of several cities agree that bicycles will need to be used more frequently. The largest bike-sharing project in the country was launched in 2010 in Bucharest, followed in 2011 by Cluj-Napoca and Constanta as well as by Timisoara in 2012. Each city is hoping that this initiative will help reduce their carbon footprint and sustain the development of an adequate infrastructure for cyclists (cf. CC 2011).

Another newly discussed strategy is based on the usage of bioenergies and biotechnologies, in order to establish future energy strategies for sustainable urban development (cf. Jischa 2005; Tulbure 2014). Bioenergy is a renewable energy made available from materials derived from biological sources, such as biomass. Biotechnologies use combinations of engineering processes with biological methods, based on microorganisms.

Taking into consideration the use of biotechnologies alongside the strategy of decoupling, these two newer directions, in a proper combination with other strategies for social application, would assist progress towards urban sustainability in Romania.

5 Sustainable Development Strategy of the Romanian Region Alba

The Alba Iulia Association for Intercommunity Development (AIDA)\(^1\) is a Romanian non-governmental organisation representing the interests of three urban and eight rural communities. This association of eleven local administrative units represents the interests of more than 120,000 inhabitants. AIDA aims to encourage economic and social development on a regional level through varied actions.

With approximately 66,000 inhabitants, Alba Iulia is the most important city in the association, and is symbolic of Romania’s history. Alba Iulia has a development strategy that aims to acknowledge optimal urban governance as a positive force in improving housing standards, equity and sustainability standards.

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The city’s Strategic Development Plan is designed to address issues related to improving the quality of pedestrian and public areas, and also to improve accessibility to the historic fortress area, which is a major tourism landmark. The environmental policy of Alba Iulia also targets transportation issues as they relate to the city’s relatively well-developed tourism industry (cf. CC 2011).

AIDA has several strategic objectives with the vision of improving the quality of life in the region (cf. CC 2011):

1. developing the local and regional infrastructure;
2. making economic progress by developing new jobs;
3. capitalizing on the anthropic and natural tourist potential;
4. promoting “green energy”;
5. promoting the local cultural values and traditions;
6. improving the educational, social and health infrastructure;
7. building regional, national or international partnerships.

In this strategy for sustainable development, several aspects will be necessary for future sustainable development of this region:

(a) the need for transnational cooperation in encouraging sustainable urban development;
(b) holistic education in urban sustainability;
(c) establishing a general model of a Romanian sustainable city.

The need for transnational cooperation has long been recognised by the Network for Sustainability Strategies, Monitoring and Management in South Eastern Europe at the 1 Decembrie 1918 University in Alba Iulia (cf. Tulbure/Jischa 2006). Such cooperation, especially via projects in sustainability monitoring in Southeast Europe, as well as in the field of university sustainability education in Southeast Europe, can have major impacts.

The field of holistic education for urban sustainability has an important goal in attempting to change public opinion and ways of thinking, as education is the key to achieving sustainability! In his book “Continuity, Innovation and Change”, HRH Prince Hassan, former President of the Club of Rome, pointed out the need for education as a key issue for achieving three human goals: continuity, innovation, and change. These are the fundamentals of sustainable development of our society, and are accomplished by taking into account regional differences. Three dimensions of education must be recognised: infrastructure, methodologies and values.

Establishing a general profile of a Romanian sustainable city is essential and demonstrative of the principal that sustainability can only function when tailored to each region. In applying this concept there is a need to evaluate systems in an integrated way, from technical, economic, environmental and social points of view. There are various major problems regarding urban sustainability in different parts of the world;
this means that specific regional conditions have to be taken into consideration. From this aspect it follows that there is a need to develop a general profile of a Romanian sustainable city, by taking into account local-scale conditions.

6 Conclusions

It should be mentioned that presently there is no consensus regarding a general definition for a Romanian sustainable city nor is there consensus upon a paradigm for what components should be included in this concept. Generally there is agreement that a sustainable city should meet the needs of the present without compromising the ability of future generations to meet their own needs. The inherent ambiguity and paradox within this idea leads to a great deal of variation in terms of how cities carry out their attempts to become sustainable. However, a sustainable city should be able to feed itself with minimal reliance on the surrounding countryside, and power itself with renewable sources of energy.

Today the goal is to generally promote the idea of achieving sustainable regions, not only sustainable cities, by taking into account all aspects related to this issue such as: technical, economic, social and environmental aspects as they relate to adequate living conditions and housing space, efficient resource use, transportation, governance and culture. This means that there is a real need for interdisciplinary work among economists, engineers and social scientists. Developing a general methodology to be applied in practice for real situations by considering regional differences would represent a major advancement in this field and aid progress from the vision to the reality.

To effectively apply present developments in the field of sustainable urban development, it would be useful for Romanian cities to become partners in international networks of sustainable cities, to learn from the experiences of other cities in other countries and to cooperate on emerging trends in sustainable urban development. The objective is to find appropriate ways to implement strategies for sustainable urban development in Romania and to establish a general profile for a Romanian sustainable city.

References


BUND/Misereor (eds.) (1996): Zukunftsfähiges Deutschland. Basel (in German)