

Rural development – the rural areas sustainability indicators

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Abstract—Development of rural areas is often put in connection with rural tourism. Tourism, however, cannot be regarded only from the economic view-point, but it should be examined from the viability of destination as well. Rural tourism requires high-quality countryside. Development of tourism infrastructure, however, “urbanizes” the countryside and as a consequence the typical rural landscape features in many cases disappear. Yet, new uncontaminated areas are demanded.

The objective of the paper is to suggest a set of indicators of sustainable rural area as a planning-tool for local development with usage of rural tourism in order to improve the quality of decision-making process. The paper is based on the performance of strategic qualitative research, interviews, personal monitoring, and analysis of available literature. In order to reflect also non-homogenous features of rural space and thus also different preconditions for further development, eight main types of rural spaces have been used. Based on these methods 45 indicators are presented. The indicators are selected to find out potentially problematic areas in six key dimensions of rural development – economic (proposed 9 indicators), social (7 indicators), environmental (10 indicators), cultural (7 indicators), political (7 indicators) and technological (5 indicators). The set of indicators was, however, reduced to 22 indicators due to complexity of data mining in the Czech Republic. Presented indicators may become a basis for further development at local and regional levels, as well as for determination of carrying capacity of the rural development potential.

Keywords—Rural areas, rural tourism, sustainable development, sustainability indicators.

I. INTRODUCTION

THE significance of agriculture as a driving force of rural areas development in Western Europe and then also in Central Europe in last decades gradually declines [1]. That results in instability and unclear prospects mainly for local employment. Development of rural areas is often linked to rural tourism [2]. Most of the approaches to the development of rural areas, with or without tourism, are often based on optimistic approaches. These highlight mainly the following:

- local economic development – results in capital inflow,
- rising employment opportunities – results in decrease of unemployment.

Weaver [3] reminds that tourism cannot be regarded only from the economic point of view, but should also be examined from the viability of the destination. Rural tourism requires

high-quality countryside. Gradual “urbanization” of countryside, however, seemed inevitable in the past as a result of tourism infrastructure development. In many cases the typical rural landscape features’ vanished. Yet, new “uncontaminated” areas are nowadays more and more preferred by investors.

As many publications state (e.g. [4] - [6]), rural tourism can actually be beneficial to the underdeveloped areas, including rural regions. It thus shows that problem of rural development is not simple. It is actually very complicated because rural areas play various roles that arise from its core characteristics: agricultural countryside, cultural heritage, green infrastructure:

- countryside is “a food supplier” (there is a connection with concepts of general food security),
- countryside is “a nature protector” (a problem of sustainable landscape in relation to industrial agriculture).

By combining of sustainability factors and different concepts of tourism, positive synergic effects in the form of sustainable tourism shall arise. However, it is necessary to be aware of all the factors and parameters of sustainability for efficient sustainable tourism management. Buselich [7], for example, suggests a systematic list of approaches to sustainability assessment: Assessing the Sustainability of Societal Initiatives and Proposing Agendas for Change (ASSIPAC), Gibson’s proposed model, Sustainability Assessment Model (SAM), Sustainability Questions Model (DOTIS), Structured Analysis Model (IUCN).

In the planning and strategic process of local economic development it is necessary that, besides sustainability parameters, the following issues are also solved:

- new sociologic findings, related to the structure of developed community, such as demographic characteristics of a population,
- economic development in relation to undesired impacts of transformation processes (e.g. agriculture),
- rural areas from the critical infrastructure point of view (i.e. infrastructure having deep impact on lifestyle – energy, water and food supply, transportation etc.),
- a balance between benefits of the development and costs for the protection of social and natural environment.

All this lays out significant requirements on a planning methodology [8]. That should be based on the analysis of a destination’s carrying capacity under the influence of its own development. It is therefore necessary to find limits of the

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development, i.e. to identify areas, where the rural character is endangered due to the development.

Increased quality requirements are also laid by the European Commission. The Commission's defined integrated quality management as a tourism management approach focused on the on-going process of customer satisfaction and economic, environmental and life-quality improvement of the local community [9].

Rural development is not a random-based process. The development is not only a task for institutions of public administration, but also for agricultural businesses. Planning of the continuity of agricultural businesses (these are often family-based businesses and have very specific features, such as simple organization structure, minimum product diversification, lack of long-term planning) must be therefore considered.

Rural development is often characterized as "integrated", "multifunctional", or "sustainable". This concept, however, is rather unclear, because similar to any other environment, the rural development also bears some degree of uncertainty. That is, of course, not easy to define. Risk management must therefore play inevitable role in regional development planning [e.g. 10].

II. LITERATURE REVIEW

A. Rural Development Planning and Monitoring of Tourism

The relationship between tourism and local environment has always been complex. Tourism on one side carries along huge economic "benefits" [11], on the other side, however, significantly contributes to environmental degradation, fragmentation of rural areas and is a source of many negative socio-cultural effects [12]. Many times in the past tourism that turned out-of-control had damaged or even completely destroyed natural and socio-economic environment of many tourist destinations [e.g. 13].

Environment has important value for tourism and therefore needs to be protected. This fact lays specific requirements not only for future event planning, but also for continuous monitoring and evaluation of the locality status from the environment quality point of view (information management, indicator setting, monitoring management – physical inspection, methods of measurement and so on.) [14] - [16].

Planning of rural region development in close link to tourism should answer one basic question: How to effectively manage tourism development so that it is in line with natural resource limits and their recovery, and still is beneficial to tourists, local community and the environment? This question has two issues. One is sustainability (to have processes under control, know development limits), and the second is responsibility (to know real impact of undertaken events and processes). There is thus a prerequisite: only sustainable tourism with its own strategy and methodology may enhance cultural and natural heritage, increase living standards of local community and overall quality of stay for visitors [17].

Finding acceptable limits of local development, i.e. sustainable rate of tourism potential, becomes therefore one of the protective activities [18]. In this respect, it is necessary to monitor the impact of all tourism-based activities, acceptable levels for the relevant rural area, including those that are still acceptable for the local community. As a result, there should be a monitoring system implemented, playing inevitable role for effective destination management [19]. Such monitoring system may, or even rather must, provide feedback on the development activities in the rural area and effectively manage its further development. Corresponding indicators, such as environmental indicators, sustainability indicators, may become a very helpful tool in this monitoring system [20]. Sustainability indicators then act as a springboard for further setting of acceptable capacities of the area for tourism development and management [21] - [23].

B. Dimensions of Sustainable Tourism Indicators

The process of sustainable tourism indicators setting is not easy. It is simply because there are many definitions of sustainable tourism [24], [25]. Indicators must yet respect the multidimensional feature of sustainable tourism. Current approaches are based on economic, social and environmental dimension of tourism (e.g. [26]).

Nevertheless, according to some sources, e.g. [6], [27], sustainable development in tourism has more dimensions. The mentioned authors say that sustainable tourism indicators shall include not only economic, social and environmental dimensions but also other dimensions, such as institutional (political), cultural and technological. Choi and Sirakaya [27] describe individual tourism sustainability dimensions in details:

1. Economic sustainability focuses on the growth optimization, based on destination's limits and economic output of the community [e.g. 28].

2. Socio-cultural sustainability means respect towards social identity and social capital, local culture and other values, which all together builds-up social coexistence [e.g. 29].

3. Environmental sustainability is the inevitability to protect the environment for future generations [e.g. 30].

4. Political sustainability - since sustainable development is in fact a political concept [e.g. 31], meeting sustainable tourism goals and methods is closely linked to the existing political system. Sustainable development is therefore about involving local inhabitants to the decision making process [32].

5. Technological sustainability relates to technological development in information and communication systems, being the innovative force to new kinds of tourism [33]. By applying environmentally friendly technologies, these may help to minimize natural, socio and cultural impacts of tourism to the destination area. Information technologies (such as e-commerce, distance-education, the Internet, e-mail) may bring many advantages to the host community, because information is shared through communication network and the Internet increases accessibility of information to the public [34], [35].

Technological sustainability also represents technology innovation in transport and mobility. In this respect, new environmentally friendly and socially acceptable technologies are preferably used. These may be “soft mobility systems” (e.g. bicycles, high-speed trains, electric or hybrid cars and buses) [36]. Equally important is also eco-labeling [37].

The above mentioned sustainability dimensions are applicable at all levels: international, national, regional and local [38]. Individual dimensions are interconnected, relate to each other [39] and act as a base for sustainable tourism indicators.

It is therefore clear that sustainable tourism indicators, as well as sustainability monitoring systems, must be viewed separately from conventional mass-tourism approaches [40], because the later are focused mainly on quantitative economic indicators of growth and overall progress. Sustainability approaches, if properly applied, shall represent the right way towards prosperity of future generations. That means that qualitative aspects should be respected to improve social, natural and human systems [e.g. 41]. If negative impacts of tourism are not properly controlled, „initial tourism development can become a political and marketing gimmick that opens the door to unwelcome mass tourism“ [27, p. 1277].

C. Setting of Sustainable Tourism Indicators for Rural Areas

Sustainable tourism indicators for rural areas have been set upon the definition of sustainable tourism, i.e. “tourism, which in the long-term does not have negative impact on natural, cultural and social environment” [20, p. 272]). Sustainable tourism products and services then are in line with local environment, community and culture, so that they do not become negatively affected by tourism itself. It is also necessary to define rural tourism as “the kind of tourism that is longer than one day and it includes various recreational activities in the country (such as outdoor walking, bicycle riding, horse riding, watching and taking care of animals, wine and food tasting, ...)” [42, p. 309].

Sustainable development of a region is another important terminology for indicator set-up. It is a “management of tourism sources and activities that lead to meeting of requirements of current and future economic, social and leisure activities of visitors as well as residents while preserving cultural integrity, biodiversity, processes and relations in ecosystems...” [42, p. 302].

Synergy effect is also important feature of sustainable development. In reality the synergy effect results in much wider impact than individual actions would have had alone. It is represented by carefully planned activities and cooperation of a number of subjects in a given destination with the aim of increasing attractiveness of the area for visitors and for the local community [43].

The following sustainable development rules have also been included [44]:

1. useful life – in terms of economic, environmental and socio-cultural source preservation,

2. future – next generations should have equal or even higher profit from our action undertaken today,

3. justice – this means the “fair play” rule in diversification of economic, social, cultural and environmental costs as well as profits.

Sustainable rural area indicators reflect also conventional features of rural tourism, such as responsible behavior to environment, recreational holidays in rural areas (out of touristic and recreational centers), individual approach to visitors, symbiosis with agriculture (i.e. in agriculture this means having very original services and access to fresh and ecological products). Another feature - decentralized accommodation enables sensitively spread-out visitors in the area, and thus spreading the potential “mass tourism” negative impacts to wider areas. [6], [45]

III. OBJECTIVE AND METHODS

The objective of the paper is to suggest a set of indicators of sustainable rural area to become a rural tourism based local development planning-tool to improve quality of the decision-making process. The paper is based on the performance of strategic qualitative research, interviews, personal monitoring, as well as analysis of available literature.

Individual indicators were set upon a throughout analysis of rural areas and sustainable development literature. The literature included conference presentations and articles published in prestigious journals such as *Agricultural Economics*, *Annals of Tourism Research*, *Environmental Management*, *Journal of Sustainable Tourism*, *Journal of Travel Research*, *Journal of Tourism Studies*, *Regional Studies*, *Sociologia Ruralis*, *Tourism Geographies*, *Tourism Management*. Sustainable rural indicators were composed using the paper of Choi and Sirakaya [27], in which the authors presented 125 sustainability indicators for management of so called “community tourism”. These indicators, divided into 6 topic-based groups, became a “springboard” for indicators presented in this paper. Further information from the set of 10 sustainability indicators prepared by UNWTO [46] was also considered.

As already noted, direct personal monitoring was also used during the set-up procedure. Subjects to monitoring were eight randomly selected municipalities according to their potential for development, each of which represented one specific type of rural space in the Czech Republic (for more details see Perlín et al. [47]: Rural space typology in the Czech Republic). In order to reflect non-homogenous features of rural space and thus also different preconditions for further development, the following eight types of rural space have been monitored:

1. Developing countryside.
2. Non-developing neighbouring countryside.
3. Moravian outskirts.
4. Established Moravian countryside.
5. Problematic recreational countryside.
6. Well known recreational center.
7. Troubled industrial countryside.

8. Nonprofiled countryside.

The monitoring was performed in May 2012 and its objective was evaluation of proposed indicators for the particular rural area and their potential use in practice. The author selected municipalities with population of up to 3 thousand inhabitants, according to criteria set in the Czech law number 128/2000 Sb.

Of great importance were also results of direct interviews with experts on rural tourism and development (experts from these institutions: Rural tourism association, ECEAT, MAS Krkonoše, SMO Krkonoše, KRNAP, Ministry of Local Development CR, Ecology Institute Veronica). Further information were gathered at seminars held during 2010 by the Rural tourism association, as well as conferences "Sustainable rural development and tourism" supported by the European Agriculture Fund for Rural Development. Political indicators were based upon the experience gathered at a conference held in 2008 in Písek, where tourism organizations and tourism management models of individual Czech areas were presented.

All the gathered results were then carefully analyzed, and then (with the mind that sustainability has multiple dimensions [27]) a set of rural area sustainability indicators has been created.

As a first step, 45 indicators were selected. These were then decreased to 22. It was due to the complexity of data gathering, or it would be too expensive; some information are not monitored even by the Czech Statistical Institute, or other institutions concerned [48]. The proposed set of indicators can be used as a basis for further application for decision of carrying capacity at local or regional levels.

IV. RESULTS AND DISCUSSION

A. The Sustainable Rural Area Indicators in Relation to Tourism

As noted in the chapter above, based on a thorough review of the relevant literature, interview and direct monitoring, the following 45 indicators can be presented. The indicators are selected to find out potentially problematic areas in six key dimensions of rural development – economic (proposed 9 indicators), social (7 indicators), environmental (10 indicators), cultural (7 indicators), political (7 indicators) and technological (5 indicators).

Economic indicators presented in Table 1 include, besides basic economic indicators such as employment rate in tourism, income from tourism and contribution of tourism to local economies, also ways of tourism financing measured by the rate of tourism-related costs covered by local budgets. Since tourism requires investments into infrastructure and cultural resources, fundraising is an integral part of local development. "The lack of funding is a chronic problem in tourism development, particularly in rural community destinations..." [27, p. 1284]. Inevitable part of economic dimension is a waste management and kind of business subject ownership measured by the rate of external to local businesses. Price levels and

availability of consumer goods is just another aspect of economic sustainability.

Table 1 Economic indicators

Indicator	Finding methodology	Data collection
1. Employment rate in tourism	Share of overall economic activity associated with tourism	Statistical data
2. Activity of alternative employment	Alternative income in agriculture, income from agro tourism, eco-agro tourism (number of agro farms, eco agro farms)	Statistical data
3. Contribution of tourism to local economies	Revenues to local budgets (property taxes, local taxes)	Statistical data
4. Funding of tourism from own sources	Share of direct and indirect expenditures on tourism development from local budgets	Statistical data
5. Funding of tourism from external sources	Share of direct and indirect expenditures on tourism development from external budgets	Statistical data
6. Waste management	Proportion of recycled waste, capacity and utilization of sanitary facilities	Records of removals (number of loading), ratio of people/public sanitation
7. Business ownership	Rate of external to local businesses - owners	Statistical data
8. Price levels	Compare local prices with average price levels	Visual inspection
9. Availability of goods	Number of retailers	Statistical data

Resource: Authors' own compilation, using [27] and [46]

Social indicators as presented in Table 2, besides general satisfaction of tourists, include also happiness and sense of belonging of local inhabitants. Level of these indicators corresponds with the stress and negative social impacts to inhabitants. All this relates to issues such as local overpopulation, transport availability and efficiency, noise, odors, price levels, access to or availability of basic goods, etc. Another important factor is satisfaction with the quality of life, measured as the availability of facilities (such as shops, healthcare, accommodation, education level, culture, fitness and wellness, crime level, transport, employment opportunities), but includes also interpersonal relations in the community, or rather overall climate in the community. Satisfaction of people also relates to perception of personal security in the area. The feeling for personal security may be impacted by negative personal interactions, which then supports socially pathologic features such as prostitution, crime,

alcoholism, drug usage, gambling, vandalism, and other negative features [49]. All these may result in negative relations of local people to tourists – expressed as tourists' irritation rate – euphoria, lack of motivation or even antagonism.

Table 2 Social indicators

Indicator	Finding methodology	Data collection
10. Satisfaction of tourists	Degree of satisfaction of tourists	Regular questionnaire inquiry
11. Satisfaction of local inhabitants	Degree of satisfaction of local inhabitants	Regular monitoring of satisfaction with development of tourism
12. Stress	Load of socket points and extremely used and visited sites	Monitoring of the number of tourists, number of tickets sold
13. Social impacts	Ratio of the number of tourists and local inhabitants	Monitoring of the number of tourists
14. Quality of life	Degree of satisfaction with the quality of life in destination	Regular questionnaire inquiry
15. Safety of locality	Occurrence of socially pathological phenomena	Police records of violations
16. Tourist irritation	Relationship of tourists and local inhabitants	Regular questionnaire inquiry

Resource: Authors' own compilation, using [27] and [46]

The quality of the environment in rural areas may be monitored through **environmental indicators**, see Table 3. The IUCN index may indicate degree of protection, but general attractiveness of the area may be another indication. The attractiveness is measured by quantitative measuring such attributes that make the environment attractive, such as air quality and level of pollution, amount of erosion, frequency of environmental accidents related to tourism, number of contaminated sites, etc. Area development is also positively impacted by eco-labeling of tourism, which represents ecological quality standardization process of a particular site or a wider destination area.

This closely relates to the development of ecologically oriented projects for residents (such as renewable energy related projects), or for tourists (i.e. ecology-related projects such as nature trails, bicycle routes, hipo-trails, cultural events). As presented by Choi and Sirakaya, "education and training programs for visitors and other stakeholders are also a crucial tool for delivering accurate interpretations and information about a region/destination". The main goal of such education is, according to the authors, to increase awareness of all related subjects in the environment of the destination and to positively change their behavior and attitude. All visitors shall therefore be acknowledged with the community culture and its environment through self-educated learning materials and programs. [27, p. 1284]

Other environmental indicators may be undesired human activities expressed by the percentage of affected area to the total area. Such undesired activity may be those having negative impact on fauna and flora (tree cutting, 4-wheel riding, poaching, collection of endangered and protected species, trespassing), but it is also the destruction of nature caused by irresponsible visitors (graffiti, non-permitted activities in protected areas, erosion caused by abnormal use). All these may have extremely negative impact on the ecosystem and thus result in increasing number of endangered biological species [20].

Table 3 Environmental indicators

Indicator	Finding methodology	Data collection
17. Area protection	Protection category according to the index IUCN	Records of management area for the categorization of protection, maps
18. Destination attractiveness	Quantitative measuring of attractive attributes for tourism (air quality, rate of erosion, frequency of environmental accidents)	Official records
19. Eco-labeling	Ecological quality standardization process (regional brands, eco brands)	Official records
20. Ecologically oriented projects for residents	Number of renewable energy-related projects	Official records, questionnaire inquiry
21. Ecologically oriented projects for tourists	Number of events held (seminars, excursion, training, consulting), ecological tourism products	Official records, questionnaire inquiry
22. Relationship of local people to ecology	Knowledge of environmental issues, number of environmental projects	Questionnaire inquiry
23. Tourism activities	% of territory used by sustainable tourism	Official records
24. Undesired human activities on area	% of affected area to total area (tree cutting, poaching)	Official records of incidents
25. Destruction of nature caused by irresponsible tourists	Number of damaged areas due to "undesirable tourist activities", % eroded surface (graffiti, wear-out)	Visual inspection and photography, official records of incidents
26. Critical ecosystems	Number of rare/endangered biological species	Time series of numbers of threatened species

Resource: Authors' own compilation, using [27] and [46]

Cultural indicators are presented in Table 4. These indicators reflect protection of cultural and historical heritage. Such cultural dimension shall be monitored in three areas (sub-indicators): folklore tradition renewal (by increased interest from visitors), folklore protection and forming new folklore. It is mainly sustainability of rural folklore, support of human handicraft, folklore-protecting or supporting products and services (such as heritage paths). Local specialties certainly have their own importance [50]. Cultural capital and its undesired potential degradation shall also be monitored.

Table 4 Cultural indicators

Indicator	Finding methodology	Data collection
27. Cultural heritage 1	Renewal of tradition, folklore, heritage products	Number of events organized, number of projects realized
28. Cultural heritage 2	Preservation of tradition, folklore, heritage products	Number of events organized, number of projects realized
29. Cultural heritage 3	Creation of tradition, folklore, heritage products	Number of events organized, number of projects realized
30. Traditional gastronomy	Offer of local cuisine (specialties)	Monitoring of catering facilities
31. Degradation of cultural capital	Costs of remediation	Data of administrators monuments, festivals organizers
32. Funds for maintenance of cultural monuments (own resources)	Share of expenditure on maintenance of cultural monuments from local budgets	Official records
33. Funds for maintenance of cultural monuments (foreign resources)	Share of expenditure on maintenance of cultural monuments from regional budgets, state or EU budgets	Official records

Resource: Authors' own compilation, using [27] and [46]

Political indicators (see Table 5) show the inevitable importance of strategic planning [51] of tourism development and relating infrastructure, including the existence of relevant feedback. Feedback acts as an important monitoring tool to evaluate the impact of human activities on the environment. One of the best indicators of public administration efficiency and region development may be various forms of intercommunity partnerships (and thus cooperation of the rural areas involved). Furthermore, very important indicator is also a number of realized projects and their efficiency in everyday life, or awards gathered at regional, national or international levels (e.g. "Village of the year" award - see: <http://www.vesniceroku.cz/>, "EDEN European Destinations of Excellence" /<http://www.eden-czechtourism.cz/>).

Table 5 Political indicators

Indicator	Finding methodology	Data collection
34. Regional policy	Regional tourism support at regional level	Official records
35. Planning process	Strategic plan of the municipality, which includes tourism development	Planning document for regional and local tourism
36. Unregulated growth of tourism infrastructure	% of territory with the construction of "satellites", number of inappropriate buildings	Documentation of spatial development, planning authority
37. Monitoring of development	Procedures for environmental impact assessment (EIA) or the development of formal control and intensity of land use	Documentation of spatial development planning authority (especially land use plan)
38. Involvement in partnership	Membership in a particular form of cooperation	Official records
39. Level of partnership	Involvement in joint projects	Number of realized projects
40. Community awards	Community awards for sustainable tourism development, contribution to environmental protection, energy savings	Number of awards

Resource: Authors' own compilation, using [27] and [46]

Technological indicators presented in Table 6 include ways of regional promotion using appropriate promotional tools (e.g. printed materials, Internet such as <http://www.prazdninynavenkove.cz/>). Technological impact can also be viewed in the kind of transport used, or rather a negative environmental impact of such transport (e.g. eco-buses, railway system, water transport system, bicycle paths). Furthermore, access to the destinations for handicapped/disabled people as a way of social integration is currently also a very popular indicator. It may be achieved by investing in removal of barriers (fully accessible buildings, transport utilities).

Table 6 Technological indicators

Indicator	Finding methodology	Data collection
41. IT development	Internet loading and other IT elements	Official records, visual inspection, questionnaire inquiry
42. Locality promotion	Using promotion tools	Monitoring of visitors, visual inspection
43. Soft mobility systems	Share of alternative transport in total traffic in destination	Official records

44. Public transport	Frequency of public transport in seasonal and off season	IDOS
45. Destination accessibility to handicapped people	Accessibility for handicap people – the number of disabled access	Official records, visual inspection

Resource: Authors' own compilation, using [27] and [46]

B. Sustainability indicators for the Czech countryside

Monitoring of indicators being used and results they provide in a given period can become an efficient tool for a decision making process to ensure sustainable development and thus mitigate negative impact of tourism. The proposed indicators of rural area sustainability must be carefully worked with, must be revised depending on local conditions (geographic levels, destination types, etc. [20]).

This is true also for the Czech Republic, or rather for the Czech countryside. Latest experience shows that the proposed set of indicators cannot be effectively applied and evaluated under conditions seen in the Czech Republic. The main reason is the absence of relevant information, or too high costs for the monitoring.

It was therefore necessary to reduce the number of indicators so that they reflect existing conditions in CR, only such indicators can be used further in practice [48].

In the following tables there are 22 indicators divided into 6 groups (according to key dimensions of rural sustainable development), that can be applied for a Czech countryside. The economic dimension is represented by 5 indicators (see Table 7), social dimension by 3 indicators (see Table 8), and finally environmental by 3 indicators (see Table 9), cultural by 3 indicators (see Table 10), political by 5 indicators (see Table 11), and finally technological dimension by 3 indicators (see Table 12).

Table 7 Economic indicators for the Czech countryside

Indicator	Finding methodology	Data collection
1. Accommodation capacity	Number of privacy accommodation	Statistical data
2. Funding of rural tourism	Financial resources from the European funds	Statistical data
3. Business ownership	Rate of external to local businesses - owners	Statistical data
4. Price levels	Compare local prices with average price levels in the Czech Republic	Visual inspection
5. Availability of goods	Number of retailers	Statistical data

Resource: Authors' own compilation, using [27] and [46]

Table 8 Social indicators for the Czech countryside

Indicator	Finding methodology	Data collection
6. Quality of life	Degree of satisfaction with the quality of life in destination	Regular questionnaire inquiry

7. Safety of locality	Occurrence of socially pathological phenomena	Police records of violations
8. Tourist irritation	Relationship of tourists and local inhabitants	Regular questionnaire inquiry

Resource: Authors' own compilation, using [27] and [46]

Table 9 Environmental indicators for the Czech countryside

Indicator	Finding methodology	Data collection
9. Area protection	Protection category of the region	Records of management area for the categorization of protection, maps
10. Eco-labeling	Ecological quality standardization process (regional brands, eco brands)	Official records
11. Ecologically oriented projects for residents	Number of ecological projects (e.g. renewable energy-related projects)	Official records, questionnaire inquiry

Resource: Authors' own compilation, using [27] and [46]

Table 10 Cultural indicators for the Czech countryside

Indicator	Finding methodology	Data collection
12. Sustainability of the cultural heritage	Renewal, preservation and creation of tradition, folklore, crafts, heritage products	Number of events organized, number of projects realized
13. Traditional gastronomy	Offer of local cuisine (specialties)	Monitoring of catering facilities
14. Funds for maintenance of cultural monuments	Share of expenditure on maintenance of cultural monuments from local budgets, regional budgets, state or EU budgets	Official records

Resource: Authors' own compilation, using [27] and [46]

Table 11 Political indicators for the Czech countryside

Indicator	Finding methodology	Data collection
15. Planning process	Strategic plan of the community, which includes tourism development	Planning document for regional and local tourism
16. Unregulated growth of tourism infrastructure	number of inappropriate buildings and tourism infrastructure	Documentation of spatial development, planning authority (especially land use plan)
17. Involvement in partnership	Membership in a particular form of cooperation	Official records
18. Level of partnership	Involvement of the community in joint	Number of realized projects

	projects	
19. Community awards	Community awards for sustainable tourism development, contribution to environmental protection, energy savings	Number of awards

Resource: Authors' own compilation, using [27] and [46]

Table 12 Technological indicators for the Czech countryside

Indicator	Finding methodology	Data collection
20. Locality promotion	Using promotion tools	Monitoring of visitors, visual inspection
21. Public transport	Frequency of public transport in seasonal and off season	IDOS
22. Destination accessibility to handicapped people	Accessibility for handicap people – the number of disabled access	Official records, visual inspection

Resource: Authors' own compilation, using [27] and [46]

V. CONCLUSION

Global trends in tourism are being described as “accountable” or “environmentally friendly” tourism. Responsibility of people to the environment, local relations and cultural habits in the destination should be the basic rule for all visitors. Only that can guarantee minimum of devastating impacts of mass tourism to the nature and community. All the proposed measures and actions shall therefore be taken in order to protect nature and countryside. Tourism should not lead to extensive and uncontrolled tourism actions with only quantitative outputs, but rather vice versa – development of all qualitative aspects. In order to improve the life quality of residents, increase tourists' satisfaction, and reach the optimal level of rural development, it is necessary to design and apply an effective and efficient monitoring system of tourism impacts, specifically those negative ones.

The presented set of indicators of rural sustainability should not be regarded as definite. It is rather designated to be further developed at local and/or regional level. Subsequent determination of limits to development potential of rural areas may become an inseparable part of the systematic development process. Similar to what we can see in some developed countries, only with these tools professional management and effective sustainable development of Czech rural areas may be reached. Sustainability is no more just about economic, social and environmental issues, but also about cultural, political and technological ones. Sustainable tourism should therefore be not only economically viable and environmentally friendly, but also socially and culturally abundant, politically correct and technologically developed enough for both visitors and the host community.

ACKNOWLEDGMENT

The presented paper has been supported by the project of specific research of PdF UHK No. 2111/2012 „The possibilities of the cooperation in the field of the community tourism“.

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