HOW DOES STRATEGIC PLANNING DEAL WITH SPATIAL LANDSCAPE PROBLEMS?

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Abstract

The purpose of this study was to examine the relevance of spatial landscape problems in national strategic planning. In our work, we distinguish six spatial problems: Landscape fragmentation, Landscape sealing, Landscape abandonment, Brownfields, Marginalisation of agricultural land and rural areas, Non-recultivated landscapes. Although all these problems were mentioned in studied documents, most of them did not deal with these problems sufficiently. The results of this study could be useful to planners and politics when improving national strategic plans that deal with landscape and establishing such landscape policy that would form a framework for other sector strategies and tactical plans.

1. Introduction

Sustainable development is a present European trend going along many political documents. Sustainable development covers not only environmentally sound economic development which preserves present resources for use by future generations, but also includes a balanced spatial development, what means reconciling the social and economic claims for spatial development with an area's ecological and cultural functions (ESDP). From this point of view, the landscape has a very important role. It is a background for ecological, environmental and social processes as well as for economic activities.

The Czech Republic ratified the European Landscape Convention (ELC) in 2003 and pledged itself to integrate the problem of landscapes into its regional and national planning policies and in its cultural, environmental, agricultural, social, and economic policies, as well as in other policies with possible direct or indirect impact on landscapes (ELC). ELC defines landscape as area perceived by people, the character of which is the result of the action and interaction of natural and/or human factors. It is area composed by mosaic of natural ecosystems, and ecosystems influenced by people (Millennium Ecosystem Assessment). This ecosystem approach considers people as an integral part of landscape, but on the other hand, according to Antrop (2006) landscape is mostly considered as a common value of the whole society.

Landscape can be endangered in terms of quality of ecosystems, and space where the ecosystems are realized (Scheme 1). Landscape quality can be threatened by degradation of its components, functions, threat of landscape services and degradation of landscape diversity. The problems of spatial landscape degradation can be fragmentation, landscape sealing, and changes of landscape character, landscape abandonment, and non-recultivated areas. All the problems are result of activity of many factors (drivers) (Scheme 1) that can be divided into two main categories: primary and secondary divers. Primary drivers influence landscape directly and secondary drivers influence landscape indirectly and operate more diffusely, by altering one or more direct drivers (http://www.greenfacts.org/ecosystems/millennium-assessment-2/4-factors-changes.htm). Important direct drivers are climate change and land use in the Czech Republic. Secondary drivers are demographic factors, economic factors,

technology, political factors and cultural factors. Landscape changes, caused by primary and secondary factors, can be seen in temporal and spatial scales. An impact of these changes can be long-term or short-term, but also local or global. Combination of all these factors creates different landscapes that vary in qualities and thus influence the quality of life of its inhabitants, either urban or rural

It is necessary to protect valuable parts of the landscape to preserve it for future generations. For the remaining portions, it will be necessary to give them new spatial order, new identity, and define new borders of landscape integrity with regard to present state, aesthetic values, and ecological possibilities (Fanta 2001). For this to happen, there must be a national framework of policies and priorities, based on a sound understanding of the environment, and of human interactions with it (Phillips 1999).

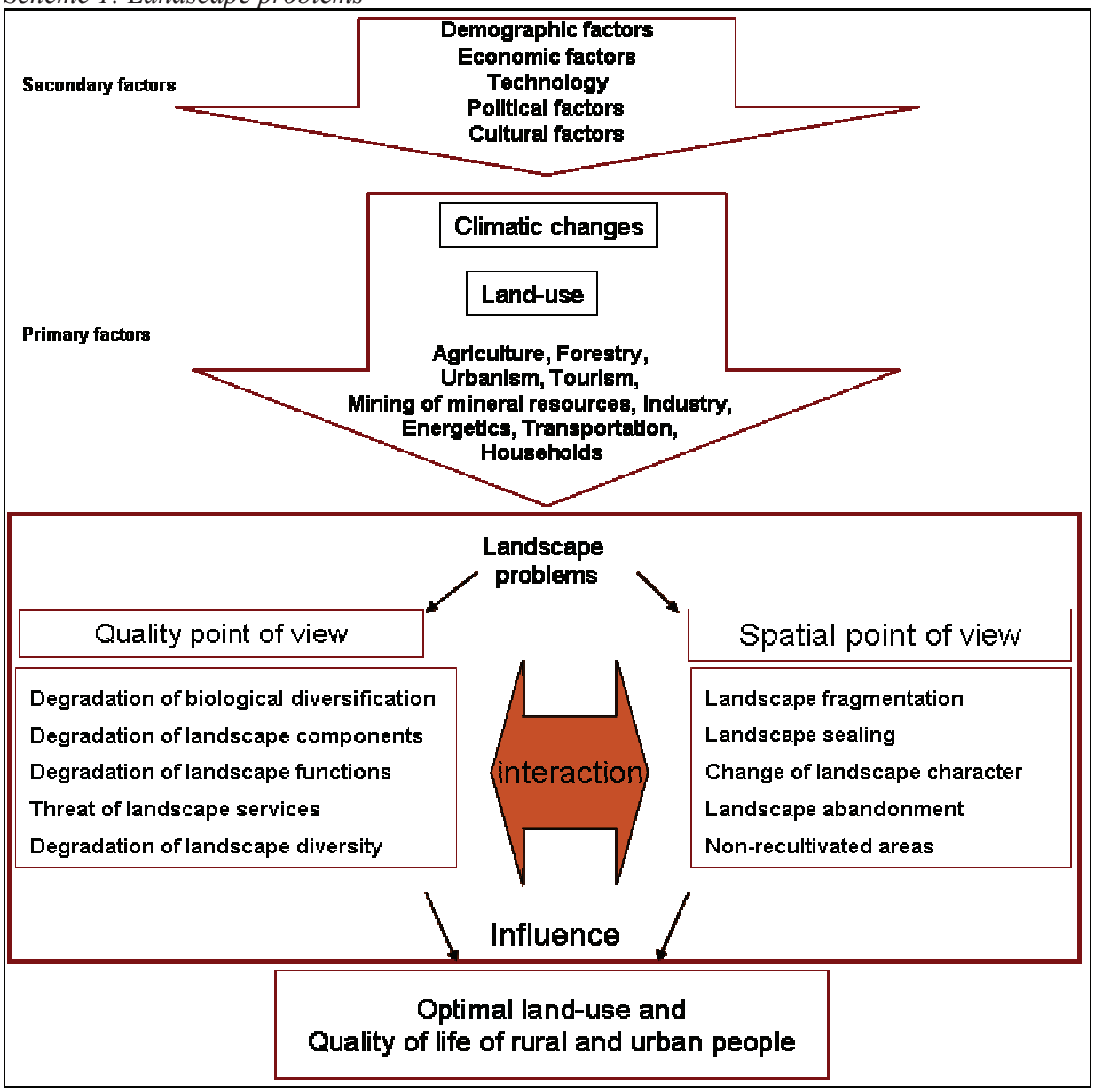
Systematical spatial planning can be used as a tool for landscape protection or management. **Spatial planning** refers to the methods used by the public sector to influence the distribution of people and activities in spaces of various scales (http://en.wikipedia.org/wiki/Spatial_planning). Any systematic control process can be hierarchically structured into three levels. Spatial planning includes all levels of land use planning including urban planning, regional planning and national spatial plans (http://en.wikipedia.org/wiki/Spatial_planning). The aim of such planning is to simplify complex planning problems, in this case spatial problems that have many different objectives, covering different scales (Boyland 2003). This means to break the problems into strategic, tactical and operational levels.

Strategic level is long-term, large scale planning and has broad aims (Kesseler 2002). Tactical level is planning for middle-scale and time horizons. It implements the strategic goals and objectives and it schedules how and when objectives will be met (Boyland 2003, Reada, Lenderking 2004). Broad scale of tools and measurements for organization, planning, monitoring, control, research, etc. belong to tactical planning (Boucnikova et al. 2006). Operational level is on the lowest level and it is short-term planning. It puts the strategic and tactical goals into practice.

Hierarchical spatial planning is missing in the Czech Republic (Boucnikova et al. 2006, Damborsky 2007). From the existing national documents, the Regional Development Plan and Spatial Development Plan are the nearest to spatial planning (Damborsky 2007). The Regional Development Plan is the strategic document and Spatial Development Plan is the tactical document that gives framework to consensual development and assessing of the area of the Czech Republic.

The aim of this study was to clarify views on landscape spatial problems in national strategic plans. In this paper, we have analysed strategic national plans dealing with landscape. We set up the most important spatial problems concerning Czech landscapes and defined the importance of these problems for decision making. We suppose that the national strategies attend to the spatial problems and thus provide a framework for tactical and operational planning.

Scheme 1: Landscape problems

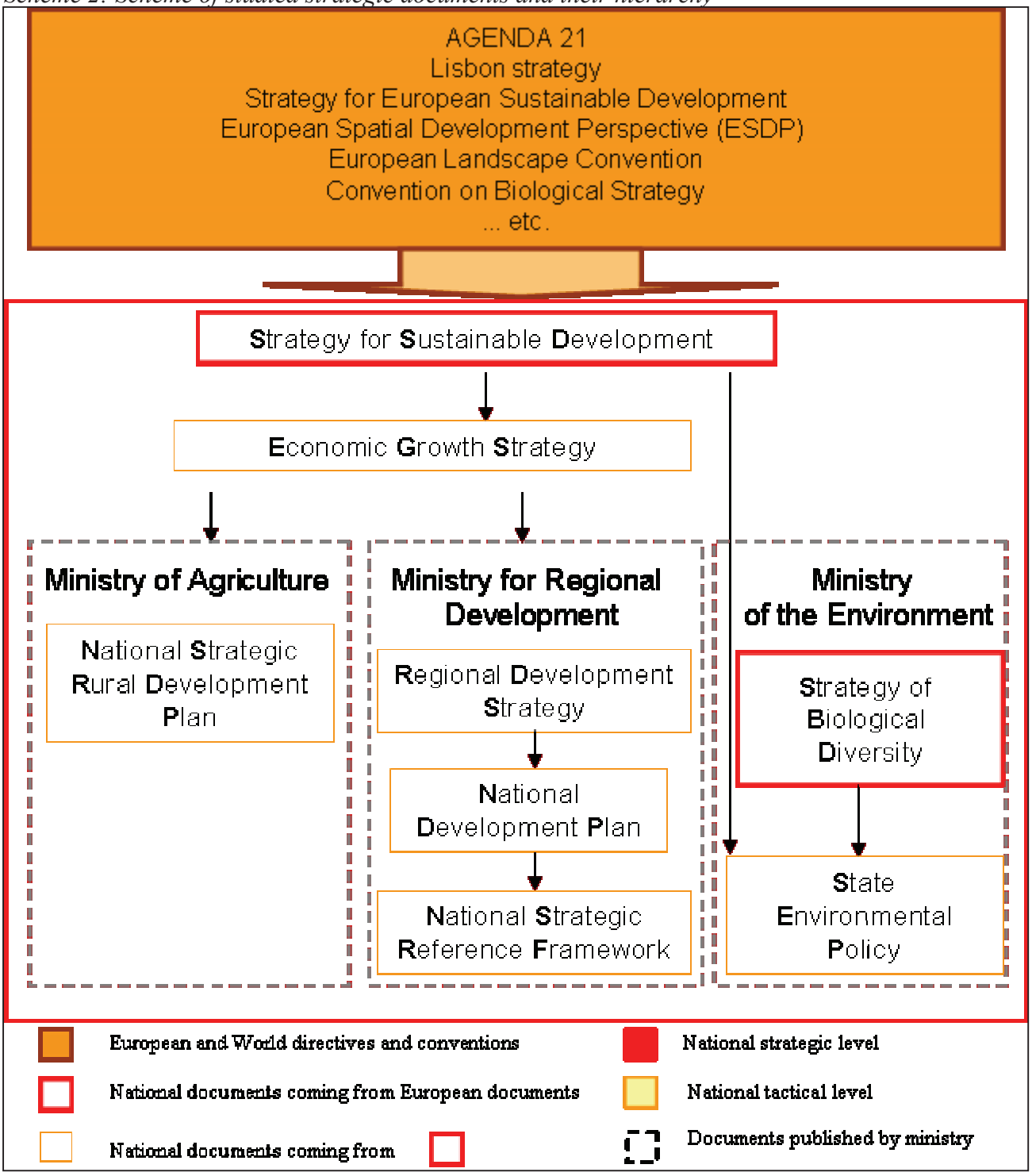


2. Methodology

2.1. Analysis of strategic documents

To analyze national planning documents, first we had to carry out a survey of existing strategic documents dealing with landscape and we had to establish their hierarchy (Scheme 2). The eight documents studied were published by Ministry of Agriculture (MA), Ministry of Environment (ME) and Ministry for Regional Development (MRD). Most of the strategies were designed for the period 2007–2013. Only State Environmental Policy (SEP) was designed for the period 2004–2013 and Economic Growth Strategy (EGS) for the period 2005–2013. We chose the Spatial Development Plan as an example of tactical planning because it is nearest to national spatial plan that is missing in the Czech Republic.

Scheme 2: Scheme of studied strategic documents and their hierarchy



Note: Bold capitals signify an abbreviation of the name of each document.

To analyze these eight documents according to spatial landscape problems, we defined five spatial problems (chapter 2.2). The choice of these problems was based on our own expertise after having studied a variety of scientific and political documents.

Each document was analyzed and the importance attached to the spatial problems was assessed. Finally, the documents were divided into four main categories according to their relevance to the problems and each category was scored.

☺☺ – First category deals with the problem, supports different ways of tackling it and suggests possible solutions to the problem. This category was given a score of 3.
☺ – Second category discusses the problem and only supports tackling the problem. This category was given a score of 2.
☹ – Third category discusses the problem only generally and neither tackles the problem nor gives possible solutions. This category was given a score of 1.
☹☹ – Fourth category does not deal with the problem at all. This category was given a score of 0.

Giving scores allowed us to compare the documents. A document which tackled all the problems in category ☺☺ reached 100% in evaluation. On the contrary, a document that did not tackle any problem and was always in category ☹☹, got 0% in evaluation.

Similarly, we were able to assess the importance attached to spatial problems. If all documents suggested possible solutions to the problem in category ☺☺, the problem reached 100%.

To ensure objectivity when dividing documents into categories, we exactly copied the texts where the documents mentioned the problems and then three people judged the documents. First, we judged them individually and then together.

2.2. Definition of problems for purposes of this study

2.2.1. Landscape fragmentation

Landscape fragmentation is a process of breaking-up continuous landscape into smaller and smaller patches that are gradually losing their function as living spaces for existence of viable populations. This results in degrading of habitats, changing of landscape processes, increasing isolation and creating migration barriers.

2.2.2. Landscape sealing

The pressure on appropriation of agricultural land is still growing, especially in the centres of economic boom. This results in appropriation of agricultural land in favour of chaotic commercial development along highways and on the outskirts of settlements or the development of suburban towns in close distance to larger cities with no regard to long-term landscape development, landscape functions and facilities.

2.2.3. Change of landscape character

Landscape character represents a substantial value of preserved natural and cultural heritage. It is outlined by specific features and attributes of landscape. The change in typical landscape features and attributes leads to cultural-aesthetical and visual landscape pollution, that is, the change or degradation of landscape character. This may result either in destruction of typical landscapes or may bring their uniformity.

2.3. Marginalization of agricultural land and rural areas

In some areas of the Czech Republic, agriculture has gradually become unsustainable. There has been a drop in number of job opportunities in agriculture, while marginalisation of agricultural land and rural areas has occurred. Both abandonment of rural areas by inhabitants and increasing area of non-cultivated agricultural land participate in acceleration of soil erosion in particular areas, invasion of non-indigenous plant species, overgrowth with shrubs and woods and other adverse effects.

2.4. Brownfields

Brownfields are just another negative feature of landscape abandonment. Lots and premises in urban brownfields are areas which had lost their original purpose and represent a substantial part of the built-up area in many of our cities. Not only do they have negative economic effects, but they also have an adverse effect on their wider surroundings (http://www.brownfields.cz/e107/ news.php).

2.4.1. Non-recultivated landscapes

A non-recultivated landscape means a landscape that was transformed by man with the purpose of its exploitation. Owing to exploitation of mineral resources, infrastructure development, industrial and agricultural production there was a huge devastation of many, small to large-scale areas of original landscape. Examples are old mines, depleted mines, settling basins, rubble slopes, landfills, polluted streams with no original vegetation, barrens, military areas, etc.

3. Results

The aim of our study was not to evaluate the rightness of proposed solutions of the spatial landscape problems, but we wanted to find out the importance of the problems for national strategic plans and one tactical plan that would deal with landscape as a pillar of sustainable development.

3.1. Treatment of problems

3.1.1. Landscape fragmentation

Landscape fragmentation is alluded to as issue in all studied documents. Traffic routes were considered to be the main cause of landscape fragmentation.

Category ☺☺: dealing with the problem in detail (SEP, SBD)

The objects of above documents agreed in priority of preventing landscape fragmentation, the need of gradual facilitation of existing thoroughfares with system of outlets for wild animals as well as with creation of passages and corridors when building a new thoroughfare. SBD deals in detail with removal/bypassing of artificial migration barriers in streams by constructing fish ladders.

Category ☺: mentioning the problem (SSD, RDS, EGS)

In SSD, the arrangements for preventing landscape fragmentation are mentioned in terms of general aim to implement new methods of landscape capacity and vulnerability assessment and protection of landscape character values, especially with regard to reducing landscape fragmentation and ensuring the possibility of migration through landscape for wild animals. RDS emphasizes the importance of preventing an integral landscape from fragmentation but does not deal with it in more detail. EGS proposes to minimalize the influence of throughways and traffic as factors being responsible for increased fragmentation.

3.1.2. Landscape sealing

Spontaneous development in landscape that was not yet built-up is considered to be an adverse effect in half of the studied documents. They emphasize especially the necessity of cutting down the number of new land appropriations and increasing the effectiveness of use of already built-up areas.

Category ☺☺: dealing with the problem in detail (SEP, RDS, SBD, EGS)

SEP suggests increasing the effectiveness of taxation for land appropriation with regard to its biodiversity as an economic device for wide-area protection of land, e.g.

adjustment of charges for reclassification of agricultural land from Agricultural Land Fund (ZPF). SPR encourages national strategic planning, focused on restriction of spontaneous landscape development in urban and suburban areas in particular. SBD supports strategic development document processing at all levels, and furthermore, the acceleration in realization of complex land improvement. EGS recommends solving the problem by escalating taxation and differentiating taxes according to the type of investment activity; it also recommends creating a relation between the appropriation of land and regeneration of the area.

Category ☺: mentioning the problem (SSD)

Among the aims of SSD, there is also an introduction of more efficient steps for restricting land appropriation, which includes safeguarding the financial and organizational system implementation of these arrangements. SSD does not deal with the problem mentioned in more detail.

3.1.3. Landscape character

In the documents studied, the issue of changes in landscape character was mentioned rather marginally.

Category ☺☺: dealing with the problem in detail (SBD, SEP)

Both documents put emphasis on support and protection of landscape character and its individual elements (solitary trees, green strips along roads, wetlands and small water reservoirs...). SBD emphasizes the necessity of reduction of disturbances in landscape character of mountains by construction of vertical buildings.

Category ☺: mentioning the problem (SSD, EGS)

These documents mention arrangements for ensuring support and protection of landscape character and its elements. According to EGS, the solution for protection of rural character of landscape can be found in agro-environmental arrangements.

3.1.4. Brownfields

Brownfields are mentioned in most of the studied documents. They agreed that it is necessary for revitalizing of brownfields to have priority over development in un-built areas.

Category ☺☺: dealing with the problem in detail (SSD, NSRF, RDS, NDP, EGS, SDP)

According to SSD, the possible solution is implementing the system of devices and methods that would enable priority use of brownfields for construction development over similar development on greenfields; NSRF consider the revitalization of city centers to be a part of brownfields´ issue. According to EGS, by optimalizing the Regeneration of industrial zones support Programme and by adding increased revenue from appropriation of Agricultural Land Fund (ALF) to investment prospects of villages/towns, more intensive support for revitalization of brownfields can be achieved.

Category ☺: mentioning the problem (SEP, SBD)

Brownfields are mentioned in these documents as well as the urgency of effective use of built-up areas and reinforcement of devices enabling restoration of old industrial zones. They do not deal with the issue of brownfields in more detail.

3.1.5. Marginalisation of agricultural land and rural areas

The documents studied deal with the question of Marginalisation of agricultural land and rural areas only marginally. It is presented similarly in the tactical document of Rural development Programme of the CR.

Category ☺: mentioning the problem (SBD, NSRF, NSRDP, RDS, NDP, EGS)

In studied documents, the solution to the problem of marginalisation of rural areas consists mainly of making the way of living of rural population more attractive by supporting

specialized produces and by supporting the non-production functions of agriculture. The impacts on landscape and environment are not, with the exception of SBD, mentioned. SBD emphasize the urgency of supporting such devices of sustainable development in rural areas that would have positive environmental impact.

3.1.6. Non-recultivated landscapes

Category ☺☺: dealing with the problem in detail (SEP, SBD)

Within the scope of non-recultivated landscape, these documents deal especially with recultivation and revitalization in areas disturbed by mining, with special attention to reducing the area of landscape damaged by mining of mineral resources and burdened with mining waste. SBD emphasizes the importance of setting out an ecosystem approach towards the monitoring of spontaneous processes in non-recultivated areas, and further on a long-term research and monitoring of these areas with the aim of defining the best ways of re-incorporating these areas back into landscape.

3.2. Evaluation of Problems

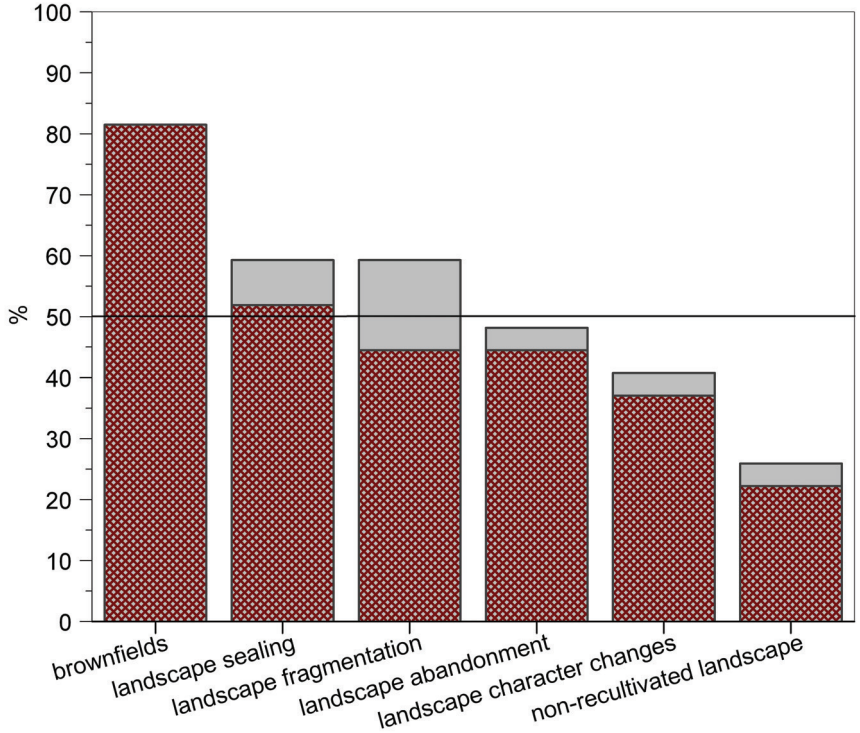
Strategic documents consider all defined spatial landscape problems in their visions and goals, but also support solutions to improve the present state of landscape. Nevertheless, only three of the problems are considered by the documents from more than 50%. Most attention is dedicated to the problem of brownfields. Least attention is addressed to the problem of landscape character changes and non-recultivated areas.

It is evident that on one hand, it is easy to identify some problems and mention them in strategic goals but on the other hand, it is difficult to set up the possible ways of tackling certain problems. Landscape fragmentation, landscape sealing, and landscape abandonment are the examples of problems that are easily identified but difficult to solve. Solid color in graph 1 shows number of scores the problems could reach in all categories (see chapter 2.1). The pattern shows the number of scores the problems could reach in first two categories. The difference is percentage of problem that is not tackled by the strategic documents.

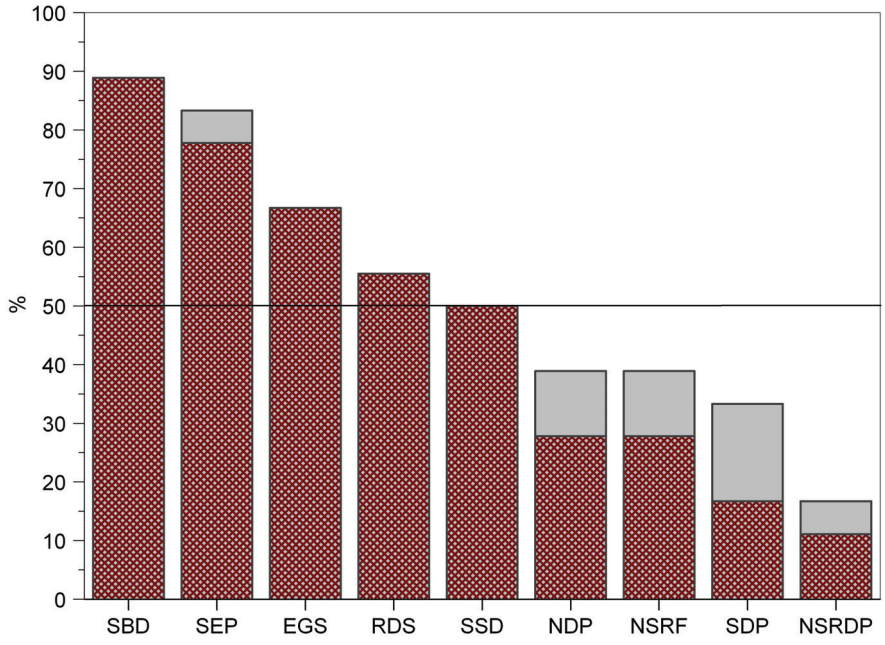
3.3. Evaluation of Documents

With regard to the analysis of the documents, we came to a conclusion that most of the strategic plans do not deal sufficiently with the issue of landscape as a framework for all ecological, environmental and social processes, and economic activities (graph 2). Only in two cases are more than 80% of the studied documents related to spatial problems (graph 2). They are the Strategy of Biological Diversity (SBD) and the State Environmental Policy (SEP) drawn up by Ministry of Environment. Only half of the documents deal with the problems more than 50%, support different ways of tackling the problems and suggest possible solutions. In the rest of the documents, these problems are only mentioned. Supporting and solving the problem is not covered sufficiently. This pattern is evident in SEP, NDP, SDP, NSRF and NSRDP. The described differences are shown in graph 2. The solid color shows the total score from all four categories. The pattern shows the score from the first ☺☺ and second ☺ category. The differences are problems that are mentioned, but not solved.

Graph 1: Importance of landscape spatial problems



Graph 2: Studied documents



Strategy of Sustainable Development (SSD) is on the highest hierarchical level between the strategic documents (scheme 2). It is based on equal splitting among economical, social and environmental pillars. All other documents should link their aims to SSD and adapt the goals of SSD into themselves, or develop the goals further. Graph 2 shows that SBD, SEP, EGS and RDS further develops the aims set up by SSD and supports different ways of tackling the problems. On the other hand four of the studied documents are not linked to the SSD or they do that inadequately. Even the Spatial Development Plan (SDP), as a tactical document and tool for land use planning, does not tackle the spatial problems sufficiently

(graph 2). Only 33% of the document is related to these problems. And only 17% out of those 33% are related to tackling the problem. Only the problem of brownfields is supported to be solved in defined regions. The rest of the problems are just mentioned very broadly, on the level of strategic planning.

4. Discussion

The European Landscape Convention aims to promote the protection, management and planning of European landscapes and to organize European co-operation on landscape issues. It is the first international treaty to be exclusively concerned with the protection, management and enhancement of European landscapes. The Convention applies to the Parties' entire territory and covers natural, rural, urban and sub-urban areas. It deals with ordinary or degraded landscapes as well as those that can be considered outstanding. The Guiding Principles for sustainable spatial development of the European continent take especially into account the issue of landscape and consider that "spatial development policy can contribute to protecting, managing and enhancing landscapes by adopting appropriate measures, in particular by organizing better interactions between various sector policies with regard to their territorial impacts."

To date, landscape has not received as much attention from environmental policy makers as has nature conservation, pollution control and abatement, and land use (Phillips 1999). This study has proved that this is still the problem. Current policies do not cover landscape spatial problems sufficiently. The SBD and SEP are the most comprehensive in tackling the spatial landscape problems but the rest of the documents are poor.

As a tactical document, the SDP should be more specific in defining measurements for spatial landscape problems. It is a document that should contribute to protection, management and landscape improvement by adopting specific spatial measurements. But this document neglects solving of the majority of spatial problems. In this form, the document cannot be sufficiently implemented by land-use planning and by various sector policies that have direct or indirect impacts on land use.

Damborsky (2007) indicated that a missing spatial plan can be compensated by integrating two documents: Regional Development Strategy (RDS) and Spatial Development Plan. Based on our research, we came to the conclusion that this is impossible. Present RDS and SDP do not tackle landscape problems as it would be necessary. And it is evident, that there is not any adequate relation between these two documents and the rest of national strategic documents. The result of this is the insufficient landscape planning and management in many areas of the Czech Republic.

Generally, the issue of landscape space is mentioned in the studied documents. But most of the policies cover only some of the spatial landscape problems. As the comparison of strategic and tactical documents shows, the link between strategic and tactical spatial planning is very poor or even missing.

One of the possible solutions could be establishment of national Landscape Policy that would give a strategic framework for dealing with landscapes, and it should be integrated in all sector policies. It should also be a foundation for creation of a national spatial plan.

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