

Powerful and large regional authorities are needed to preserve green open space for urban agglomerations

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Abstract

Identification and assessment of strategies for the conservation and multifunctional development of green open space in the urban fringe of European urban regions is a challenge to both the academic and the real life world. Within the EU funded research project PLUREL – Peri-urban land use relationships – ‘Strategies and sustainability assessment tools for urban rural linkages’, we developed a methodology for international comparison of regional strategies that considers the policy context at supra-regional level. This methodology helped to explain the reported impacts of strategies. For this we further elaborated the theoretical concept of policy arrangements and policy dimensions by Van Tatenhove et al. (2000) and Arts et al. (2006). Strategies and policy contexts referred to are from Montpellier Agglomeration, a formal coalition of now 31 municipalities, Leipzig-Halle region, a functional urban region (FUR) with governance coalitions around green open space preservation strategies, and Hangzhou in China, a very large city with hierarchical formal government. Results showed how the means of influence from different government levels can complement and reinforce each other and raise the effectiveness of the strategies. A combination of hierarchical government with a horizontal coalition between local authorities covering the full FUR can be very effective for managing the land use developments in the urban fringe, even when private business, CSOs or other NGOs are not included in the coalition. Supra-regional authorities do not have to possess the land resources, but setting the Rules of the Game is a powerful means of influence to coerce local municipalities to preserve green open space in the urban fringe.

Key words

governance, green open space, urban fringe, urban region, policy evaluation, policy regime, spatial concept, multifunctional development, international comparison

1. Introduction

Urban growth has increased pressure on green open space globally and especially in the urban fringe. For the EU, it has been predicted that peri-urban areas will grow four times faster than the urban cores for the coming decades (Nilsson et al., 2013). Peri-urbanisation causes, among other things, the loss and degradation of valuable natural areas and farmland alike and it leads to an increase of traffic due to low density development patterns (SCATTER 2004). On the other hand, carefully planned and managed green areas in the urban fringe can link the city with the countryside to provide multiple benefits such as opportunities for recreation, supply of local food, clean air and fresh water, and spaces for management of stormwater and biological wastes from urban areas. Therefore, urban containment by adopting a compact city strategy needs to be broadened into regional perspectives to steer peri-urbanisation in a sustainable manner so that benefits can be reaped while negative impacts are minimised.

Main policy challenges in the urban fringe which are an impediment to the development of sustainable land use systems are in particular the lack of coordination between adjacent local authorities, interference between different national and EU-level sectoral and regional policies, and implementation deficits of sector-based strategies. (Nilsson et al, 2013).

While there is an increasing body of research on the causes of urban sprawl and peri-urbanisation (e.g. Champion, 1999; Caruso, 2001; SCATTER 2004; EEA 2006; Couch et al., 2007; Bruegman, 2008), little is known on suitable strategies for more sustainable development of land use systems in the peri-urban, and specifically the conservation and multifunctional development of green open space. To reduce this gap was one of the main aims of the research project PLUREL funded by the EU (Piorr et al., 2011; Nilsson et al., 2013). In the project, overall six European and one Chinese case study regions were chosen for comparative analysis.

In Europe, different policy, legal and spatial planning families can be identified (Newman & Thornley, 1996; CEC 1997; CULTPLAN 2007; Knieling and Othengrafen, 2009; Tosics, 2013). These contextual differences are considered as complications for comparing and drawing policy lessons between regions. In this paper, we compare the governance in three urban regions from France, Germany and China. These governance cases present the two ideal types of multi-governance according to Hooghe and Marks (2003): general purpose jurisdictions with non-intersecting borders and where each next sub-level is nested within the previous level (Hangzhou); governance addressed at particular tasks or problems, not comprehensive (Leipzig-Halle region); and a mix of these two ideal types (Montpellier Agglomeration) where hierarchical government is combined with horizontal coalitions between local authorities. Thus we discuss the different scales and levels to which Termeer et al. (2010) refer as complicating the study of governance: the institutional, jurisdictional and spatial scales.

2. Comparison between strategies under different policy regimes

As central concept we used the 'strategy', a designed course of action that an actor makes to achieve his goals, employing certain means of influence. The concept assumes a unity of decision making and actions, which can be a single actor, but also a group of actors organized in a regional authority, sharing objectives and means of action, governed by a decision making body. The selected strategies were developed by regional actors to preserve green open space in the urban fringe. Since green open space often forms the border area between different local authorities, the regional authorities were chosen as central unit of decision-making. The definition of a strategy fitted more comprehensive policies but also policies for

actions concerned with one specific theme, which made it apt for the comparison of the different types of governance.

To describe the means of influence employed in the regional strategies within the supra-regional policy context, we adopted the Policy Arrangements Approach (PAA). The PAA was initially developed to depict structural political changes. Van Tatenhove et al. (2000) and Arts et al. (2006) defined it as the temporary stabilization of the content and organisation of a policy domain. They described and analysed the design of the environmental policy domain with the aid of four dimensions: rules of the games; resources; actors and their coalitions; and discourse. The first three represent the organization of environmental policy, with organizations as social systems comprising sets of agents that are nested in structures of rules and resources (Giddens 1984). The second aspect of the policy arrangement concept, substance, operates through so-called 'policy discourse' (see also Dryzek, 1997; Hajer, 1997 in Van Tatenhove et al., 2000). These four different dimensions allowed us to describe both the policy context and the means of influence employed in the strategies. We assumed that the supra-regional policy context together with the means of influence used in the strategy, influences the land use decisions of actors at the subordinate levels. In line with the definitions of Van Tatenhove and Arts we theoretically consider the supra-regional context as temporary stable, against the background of which regional strategies perform, adding up their influence.

While the PAA provided a theoretical framework it still needed to be operationalized for comparative assessment of the strategies in the selected case studies. Inspired by Van Gossum's evaluation of governance capacity and his use of a 4-point Likert scale (Van Gossum et al., 2011) we explored ways to quantify – even though in relative terms – the influence that a strategy exerts as a result of the means it employs. From the study of the about 20 regional strategies the main constituents or elements were identified. We categorized these constituents under each of the policy dimensions. When all types of constituents were used by a regional strategy we attributed the maximum number of points to the strategy. If the strategy did forsake on a constituent we looked whether the supra-regional policy context did make up for it. Thus, the supra-regional policy context completed the picture into that of the full policy arrangement in support of the objective(s) of the strategies.

Figure 2 visualizes the scoring system for the regional strategies. With each extra constituent the length of the arrow for a specific policy dimension increases, i.e. each point that has been scored adds a next segment to the arrow. The figure shows how much a dimension adds up to the power or influence of the strategy over land use actors at the sub-ordinate levels. In the following we specify these constituents of each of the four main policy dimensions.

Rules of the game

These define the ways actors should behave, and consist in legislation, regulations, legitimate norms, how issues might be raised, policies formulated or decisions made. In general, actors constantly draw upon rules that provide them with guidelines to act properly and legitimately. These can also be informal rules, especially cultural norms for what is accepted or appropriate behaviour. To give further practical significance to this dimension we examined whether a strategy was embedded in legislation (1 point), in a binding land use - or zoning plan (1 point) and culturally embedded (see under 'Policy discourses' how this criterion was applied) (1 point).

Resources

The allocation of power over land (1 point) and the mobilization of financial resources (1 point) are central to explain how agents maintain and transform their environment. The type of landownership and the availability of land resources for expanding urban settlements co-determine land development. Knowledge is the third source of influence (1 point), providing actors with the insight how to best achieve their objectives. When the case studies reported that the knowledge resource was deliberately strengthened by the strategy, we considered this an extra source of influence of the strategy.

Policy coalitions

A policy arrangement can also be characterized by certain groups of actors who share resources or interpretation of a policy and policy goals and who mobilize to reach those goals. Some actors strategically form alliances with other influential partners in order to complement their own means of influence with those of the other. In agreement with the two ideal types of governance by Hooghe and Marks (2003) we distinguished three types of coalitions: of regional governments with higher or lower level governments (vertical governance, between nested levels, ideal type I) (1 point); between neighbouring governments (horizontal governance) (1 point); with the public, NGOs or private partners for thematic actions (multi-actor governance) (ideal type II) (1 point).

Policy discourses

A policy discourse refers to 'a specific ensemble of ideas, concepts, and categorisations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities' (Hajer, 1995: 44 in Arts and Van Tatenhove, 2005, 6). This 'naming and framing' of issues forms the basis for the design of policies. The concept 'discourse' was earlier elaborated upon by Foucault (1971). He describes 'discourse' as a spirit of the age. When such dominant societal discourses provided tailwind to the policy discourse, we considered this as cultural embedding of the strategy under the dimension 'Rules of the game'.

In our study we used the concept of discourse only to briefly characterise the communication of arguments and objectives of a strategy as a way to obtain consent or support from the public or other parties (1 point). When in addition a spatial concept was used to visualize an issue we gave this dimension an extra point. Spatial visions can work as a means of influence, as already suggested by Auclair (2003, p. 63) and as indirectly acknowledged by Vervoort (2011) when warning against the influence of oversimplified visions of reality entailed in spatial representations.

Impact assessment

Table 1 shows the conceptual relation between a strategy and its effectiveness. The impacts of the different strategies were assessed by both practitioners and researchers in each case study region, based on a set of criteria (Aalbers and Van Dijk, 2008 PDF). Since they contain inherent uncertainties in time and space no final conclusions on the outcomes can be made. Instead, indicative findings based upon observations from the case study research will be presented which may then be related to the characteristics of each strategy.

Rules	Embedding of a strategy in legislation (L)	Laid down in binding land use -/local - or zoning plan (Z)	Cultural embedding (C)
Resources	Financial resources (F)	Land resources (L)	Special attention to raising the level of knowledge and expertise of the human resources (K)
Coalition	Vertically with governments at higher or lower level (V)	Horizontally with neighbouring governments (H)	With multiple types of actors, e.g. members of the public, private parties (MA)
Discourse	In words actively used by the actor to raise awareness and support for the strategy from other parties (W)		In visualized form, actively used by the actor to raise awareness and support for the strategy among other parties (V)

Table 1
Constituent means of influence of the different dimensions that make the strategies powerful

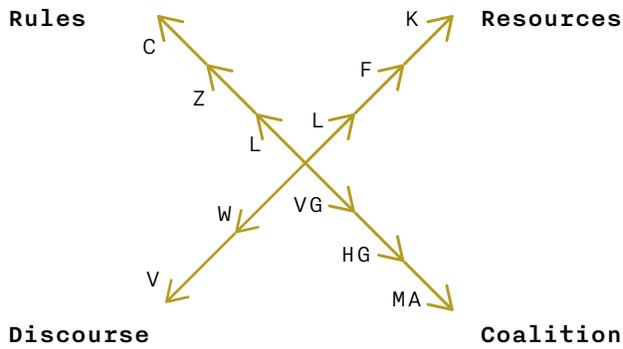


Figure 1
 Visual representation, the arrows depicting the relative strength that the strategy obtains from each constituent policy dimension or type of means of influence. With each extra constituent the related arrow increases with an extra segment. Capitals refer to table 1.

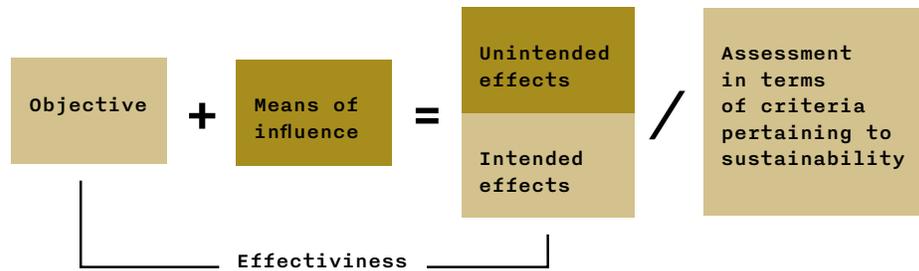


Figure 2
 A strategy, effects, effectiveness and assessment

Material:

Six case study regions were chosen, reflecting different geographic settings, urban regional types and dynamics of growth and shrinkage. In addition, one Chinese case study was included to explore peri-urbanisation in a very different policy context.

Based on identification of the most pressing issues for conservation and sustainable development of open spaces in the peri-urban in workshops, five different types of strategies were examined in the case studies (Aalbers and Eckerberg, 2013). These were strategies for:

- Comprehensive land use planning at the regional level
- Strengthening agriculture in the urban fringe
- Protecting biodiversity areas at risk
- Reducing housing and business building pressure
- Integrating tourism and recreation in development.

The data were collected by desk study of policy documents from regional and higher level, of plans, maps and statistics. We did field visits, semi-structured interviews and panel discussions. The strategies were described by regional research teams and reviewed by actors from within the regions and state level. Researchers and practitioners also formulated the impact assessment criteria and assessed the strategies, distinguishing between processes and outcomes. For this paper we selected three case studies and overall four strategies.

3. The three regions and their regional strategies

The following analysis is based on Buyck et al. 2008 (PDF), 2009 (PDF (2010)), Bauer 2009, Sinn et al. 2008 (PDF), Jianjun et al. 2008 (PDF) and grounded in a joint analytical framework and a joint assessment framework (Aalbers and Van Dijk 2008a, b).

Montpellier Agglomeration, France and the Scheme for Territorial Cohesion



Figure 3

Montpellier is the capital of Languedoc-Roussillon in the south of France. Since the 1980s it developed from a quiet town, mainly based on the wine industry, into a strong economic centre based on high tech industries and services. Since then it experienced strong population growth. In 2005, the Montpellier urban region counted 450,000 inhabitants. This growth led to widespread urban sprawl and erosion of the regional landscapes. Concerned policy-makers adopted in 2006 the 'Scheme for territorial cohesion'. The photograph shows recent housing development alongside the lagoon. (Springer Verlag)

Policy-makers in Montpellier had become increasingly concerned with the urban sprawl and the erosion of the regional landscapes. In 2006 they adopted the 'Scheme for Territorial Cohesion'. This scheme changed the way spatial development was conceived. The scheme was accompanied with the delegation of significant parts of planning powers from the municipal level to that of the newly formed Association of Montpellier Agglomeration. Today this Association consists of 31 municipalities.

The Scheme for Territorial Cohesion and rating of this strategy and its policy environment (9/10)

National law obliged municipalities to associate with other municipalities, and consequently the Association of Montpellier Agglomeration was formed. It coordinates planning procedures related to economic development, spatial planning and transport through the Scheme. All local plans and decisions on municipal housing and urban mobility, site developments and housing standards need to comply with the Scheme. Important instruments of the Scheme are the setting of minimum housing densities for new urban extensions, a spatial framework for natural and agricultural areas where development is strongly restricted

and setting of clear boundaries for urban development at the urban fringe. In addition, different types of land pre-emption rights strengthen public control over development. A score of 2 out of 3 was assigned to the Scheme for the policy dimension Rules of the Game as it is clearly embedded into legislation and it is a binding plan for the municipalities. No information was available on its cultural embedding.

Montpellier Agglomeration obtains resources for development and execution of the Scheme from local taxes on land, buildings and economic activities, and national and European funding. The Association also advises and provides competent staff to the municipalities in order to develop local plans. Means and skills are dedicated to communicate the Scheme and make it accepted and shared by the citizens of Montpellier Agglomeration. As the Scheme is well resourced in terms of finances, knowledge and human resources, and can control land resources through its cooperation with the Department, it scored 3 out of 3 for the policy dimension of resources.

The Scheme is developed by the Association of Montpellier Agglomeration, a horizontal coalition of now 31 municipalities. Also vertically the Association forms a coalition, i.e. with the Département where both national state officers (e.g. from the Ministry of Agriculture) and the local governments are represented in the Conseil Général to protect farmland in peri-urban areas and to promote environmental issues. An opposing policy coalition includes developers and landowners, with other state authorities supportive of economic development. Farmers, though key stakeholders in the peri-urban areas of Montpellier, are not organized nor involved in these coalitions despite being the biggest landowners. Neither are the NGOs and CSOs. The public is consulted through public enquiry and formally represented through the elected politicians in the Association's Council and through the Association's Economic and Social Council. Thus the implementation of the Scheme takes place only in coalition with governments at higher and lower level and with neighbouring governments. The Scheme scored 2 out of 3 for the dimension of coalitions.

In the Scheme, discourses of territorial cohesion and sustainable development are predominating. In particular, landscape quality is promoted as a vector for sustainable development, a new idea in French thinking on the subject. It served as an integrative concept allowing actors to converge on the idea of preservation, linking between the urban and peri-urban territory. Simultaneously, demographic growth is appreciated as source for economic growth. The 'shared city' – hinting at social relationships – and the 'thrifty city' – preserving resources, identity and heritage – are other concepts that complement these discourses. Use of collective transportation is considered as a lever of urban development. It is concluded, that the Scheme promoted and actively used discourses both in word and in the form of a spatial i.e. landscape vision in order to raise awareness and create support for the strategy among other parties. A value of 2 out of 2 was assigned to the Scheme for the dimension of discourses.

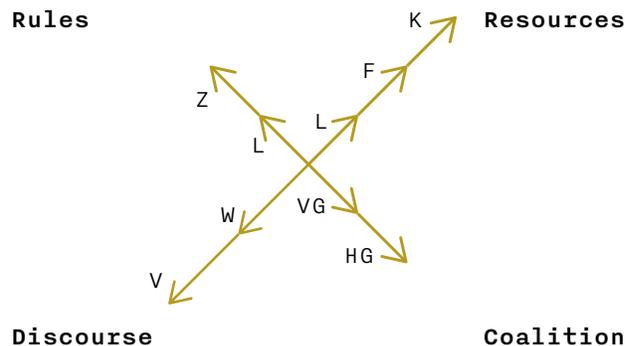


Figure 4
Policy dimensions of the Scheme of Territorial Cohesion

Impact of the Scheme for Territorial Cohesion in terms of management of green open space

Case study practitioners and researchers concluded that the Scheme performs very well. The shared learning process of developing and executing the Scheme has led to a considerable mind opening and joint vision among the local authorities and even among citizens. Local politicians both in speech and actions adhere to the Scheme and it stimulated the Agglomeration to spread development in a more sustainable manner. In combination with the landscape discourse the position of agriculture in the urban fringe is strengthened and increase of land prices is limited. The strategy restricts free riding behaviour of local authorities. However, it is problematic that the FUR (the urban core and its surrounding commuting rings) is not entirely contained in the scheme and that urban development leapfrogs over the jurisdictional boundaries of the Association.

3.1 Leipzig-Halle region, Germany and the strategies of The Green Corridors and Parthe Floodplain protection



Figure 5
(photo by D. Haase)



Figure 6
Leipzig-Halle is a polycentric region of approximately 1 million inhabitants and 4,390 km². The City of Leipzig (2010: 511,000 inhabitants) is an urban centre challenged by shrinkage due to outmigration and decline in the urban fringe. Although the population has declined over the last decades, urban land has increased. Therefore, Leipzig's surroundings, which belong to the most productive agricultural areas in Germany, are under pressure. The photograph 2 shows the recent urbanization and photograph 3 shows the perforated city centre where a brownfield has been replaced with pocket park and playing ground. (photo by S. Pauleit)

The Green Corridors strategy and its rating (7/10)

The Green Corridors strategy aims to link urban and peri-urban open spaces for ecological and recreational functions. These areas should be kept free of development and disruptive land uses (RPA Western Saxony 2008). The corridors are included in the Regional Plan, which provides the framework for further plans at lower levels such as the municipal land use plans. The plan is adopted by the Regional Association, which consists of a coalition of mayors, district administrators and other authorities. Its elected planning board prepares the plans for the general assembly of the Association. We attributed 2 out of 3 points for the Rules of the game: for the embedding in legislation and in a binding land use plan. No data were available on cultural embedding.

The corridors restrict urban development. This may lead to conflicts with municipalities, as – without compensation – the Green Corridors can constrain local economic development. Regional development funding is only available indirectly through informal instruments such as the Green Ring around Leipzig-Halle where the development of walking and cycling paths and education is funded. The strategy obtained no points on the Resources dimension.

Plan making involves stakeholder participation of local authorities, organisations for inter-municipal cooperation and nature NGOs. Public involvement occurs at the occasion of the presentation of the draft plan twice, before it becomes statutory within the Regional Plan of Western Saxony. The strategy obtained 3 points for Coalitions.

The strategy builds on the discourse of the floodplain forests that are highly valued by the public. This contributes to branding of the Green Corridors and awareness raising. The Green Corridors concept is easily understandable and convincing. For its Discourses, both in words and in the form of a spatial vision the Green Corridors scored 2 points.

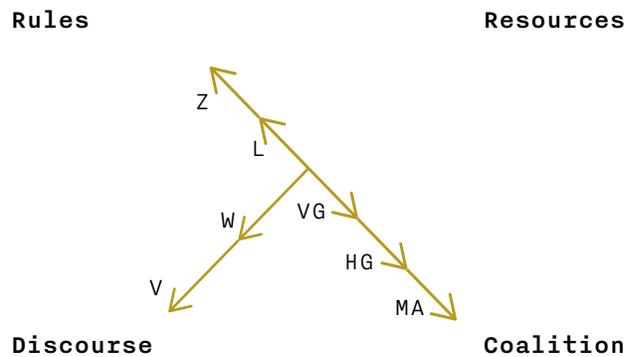


Figure 7
Policy dimensions of the Strategy of The Green Corridors according to the Regional Plan for Western Saxony.

Impact of the strategy of the Green Corridors

Investors seem to be capable of developing pressure against the Green Corridors. For example, building permits have been granted in the Northern Leipzig Green Corridor. Nevertheless the strategy contributes to preserving valuable landscape identity and natural habitats and agricultural land uses. However, the distribution of costs and benefits of the strategy is unbalanced between the core city and its neighbouring municipalities: while everyone profits from attractive surroundings, the development options of peri-urban communities are constrained. In particular in the context of population shrinkage, municipalities emphasise investments in urban development and compete for residents and business with other municipalities, thus menacing the preservation of the Green Corridors, a strategy that does not come with resources of its own.

Strategy for Inter-municipal Cooperation Parthe Floodplain protection and rating (8/10)

This second strategy on green open space in the Leipzig-Halle region is developed by an inter-municipal coalition between the municipalities of Leipzig, Taucha and Borsdorf in the peri-urban area north and north-east of Leipzig that was formed in 1992 to preserve the Parthe Floodplain and its riparian forests. The agreements of the Parthe floodplain coalition are binding for these municipalities by contract. The strategy is implemented into their preparatory land use plans. For Rules of the game: the strategy scored only 1 point, which was for its embedding in a binding land use plan. On cultural embedding no data were available.

Measures taken by the Parthe floodplain coalition are funded by the municipalities and the State on a project basis. Financial resources are also obtained from the Green Ring budget of the city of Leipzig, thus linking the planning and implementation of these two important approaches to the development of green space networks in the region. Land is made available by pooling compensation areas. The coalition shares professional personnel in landscape planning. The strategy obtained 3 points for Resources. Landowners like farmers are involved in the coalition as well. By the involvement of these landowners the strategy indirectly arranges for influence on the land resources. Cooperation also occurs with the tourist association, local inns, NGOs in the field of nature conservation, and neighbouring municipalities. Coalitions: The strategy obtained 2 out of 3 points: 1 for horizontal and 1 for multi-actor governance.

'Parthe Floodplain protection' and 'Green in between' are the main discourses. These are combined with activities such as art exhibitions along the river to link parks and green spaces. For instance, there is a permanent exhibition on the floodplain's flora and fauna, guided excursions for schools, guided walks e.g. for bird watching, as well as recommendations for individual excursions. There is a clear spatial entity: the Parthe floodplain, which is synchronised with the Green Ring Strategy of Leipzig. The strategy's aims are tangible, like constructing cycling paths. Participating local authorities are constantly reminded of the importance of natural and landscape values for quality of life and as a soft location factor for investors. A value of 2 was attributed to Discourses, they are there in words and in the form of a spatial vision

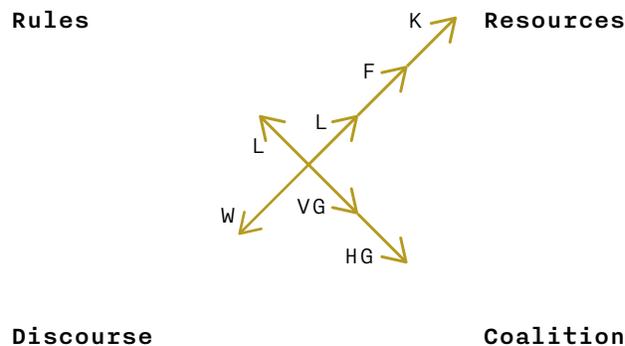


Figure 8
Policy dimensions of the Strategy for inter-municipal cooperation in Parthe Floodplain protection

Impact of Parthe floodplain cooperation

The recreational and nature conservation value of the area are enhanced by the projects implemented through the Parthe floodplain cooperation. However, there are no means of enforcement and decisions are based on consensus. Generally, commercial development in the floodplains is not prevented and the Parthe floodplain cooperation restricts itself to measures concerned with landscape while overall land use decisions are left at the discretion of the individual local authorities. Despite this limitation, the strategy is considered successful by local interviewees for the time being, while its sustainability in the long term is not secured and depends on the effectiveness of the strategy in the eyes of the participants. Agreements on division of costs between the local authorities are important for its legitimacy.

3.2 Region of Hangzhou City, China and Xixi wetland strategy



Figure 9

Hangzhou region is one of China's three economic powerhouses. The densely populated region of 16,596 km² is undergoing extremely rapid and large-scale urban development. Between 2001-2005 the population grew with an average 5 % per year in the city proper of Hangzhou. Its current population of 4.4 million inhabitants is expected to peak in 2030 when it will have reached 6.7 million inhabitants. Growth concentrates in the urban cores and the surrounding peri-urban areas. The photograph shows the recent urbanization and Xixi on the foreground. (photo by S. Pauleit)

Hangzhou is the political, economic and cultural centre of Zhejiang province, and the second largest city after Shanghai in this region. Urban planning in Hangzhou City is still considered mainly from an economic perspective whereby its main task is to provide the corresponding spatial allocation for independently developed economic plans (Spiekermann et al., 2013).

Local governments are under pressure to sell land, especially in peri-urban areas, as a major revenue that stays locally to make investments into infrastructure (Ding and Song, 2009). Inefficient use of land and land speculation further fuel urban land expansion leading to the loss of most valuable farmland and nature areas. One of the strategies employed by the City of Hangzhou in this context of extreme population growth is to protect and restore green open spaces in Xixi, a wetland area in the West Lake district of Hangzhou city. Historically, the area was renowned for its scenery and natural wetlands. However, most of the wetlands were destroyed due to strong and uncoordinated urbanisation processes in the 1990s. In an attempt to reverse the process, China's first national wetland park was established in 2005 with a total surface area of 10 km².

Rating of Xixi wetland strategy and its wider policy environment

The Hangzhou region represents the ideal type I governance in terms of Hooghe and Marks' (2003) classification of governance, where the lower level government institutions are nested within those of higher level. The lower-level governments should obey higher ones. In practice, higher-level governments always impact and intervene in local businesses. The strategy of Hangzhou city for Xixi area combines landscape and ecosystem restoration, tourism and recreation with development of up-market housing areas. West Lake district administration, hierarchically a level right below Hangzhou municipality administration, applies to Xixi area. Detailed regulatory planning was conducted by Hangzhou municipality. The New Town of Jiangcun in Xixi is developed according to a comprehensive town development plan including the development of supporting infrastructures (Spiekermann et al., 2013). For Rules of the Game

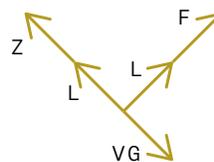
we attributed 2 points for respectively embedding in legislation and in a binding land use plan. On cultural embedding no data were available. As was the case in Xixi, the state can requisition collective-owned land for public purposes and compensate farmers in China. Land is then leased to private investors and land use rights can be sold on the land market.

In total, 2,500 rural households involving 13,000 farmers were removed from the protected area and resettled into new residential areas nearby (Spiekermann et al., 2013). The expropriated farmers were reimbursed with new homes and compensation ground but they cannot continue to be farmers. Compensation rates were reported to be high in Hangzhou by Chinese standards, since land prices are also high. However, the rates were far below the value of the land when sold for commercial development (Spiekermann et al., 2013) 2 out of 3 points are given for Resources. On knowledge and expertise no data were available. There is a strong competition between the city and adjacent towns, as well as between districts and villages at the next lower levels of the planning hierarchy to attract investments. They compete rather than forming alliances. Coalitions with other than governmental actors involved in the Xixi-Wetland strategy could not be observed. The Municipality and Real Estate Developers cooperate and there is cooperation with tourist business, universities, research institutes and invited experts. But these are not forms of coalitions in the political sense to acquire influence over developments. A value of only one point out of 3 was given for Coalitions, for vertical governance.

In Hangzhou region the challenge is to reconcile three competing discourses on 'land-use efficiency', 'social harmony' and the 'ecological city' expressed in the planning documents. However, these themes in terms of substantive orientation are not used as political discourses to invite partners to support the discourse and add up to the political influence of a coalition. At the level of Xixi-wetland strategy: the strategy has adopted a win-win principle of commercial development during the protection process as well as environment protection during the development process. It uses the identity of the historical landscape in vicinity of residential areas to improve the image of the area and its attractiveness to potential up-market residents. Various events are used to reinforce the park's image as a scenic area and to educate the public about wetland protection. The strategy is also meant to ease tourist pressure in other parts of Hangzhou, namely the famous West Lake area. The political meaning of a discourse does however not apply to the Chinese cases. The government does not engage in governance approaches with discourses to create coalitions for joint strategies. The government alone decides. (Discourses: Score 0/2).

Rules

Resources



Discourse

Coalition

Figure 10
Policy dimensions of the Xixi-Wetland strategy.

Impact of Xixi-Wetland strategy

In the past the important wetland ecosystem was reduced from 60 km² to small and degraded remnants. This process came to a halt and has been partly reversed. Xixi area now represents the highest quality of life

area in China attractive to up-market residents, bringing development opportunities and benefits to local people. The branding of recreation and tourism has created opportunities for private business and positioned New Jiangcun Town as tourism service base and as service base for Zhejiang University. The urbanization of farmland has not only led to a loss of eco-environment quality but also to social losses. Farmers, though reimbursed for the expropriation of their land, have no competitive skills at the labour market. They are only to a limited extent employed in garden development and management. They are the vulnerable group in this process.

4. Explaining performances of the strategies

The main aim of this study was to compare the performance of strategies for preservation and sustainable development of green open spaces in peri-urban areas between countries under different policy regimes. The concept of policy arrangements was adopted for this purpose and further operationalized by developing a simple scoring system.

The approach allowed to identify differences between the three regions and the four strategies analysed. The highest overall score was achieved by the Scheme of the Montpellier Agglomeration (8 out of a total of 10 points). Only for multi-actor governance and cultural embedding the strategy did not score. Simultaneously the Scheme was considered very successful by the case study researchers (Jarrige et al., 2013). The complementarity between regional and supra-regional governments in terms of means of influence over local municipalities, which are all in support of the objectives of the Scheme, can explain the success of the strategy in steering urban development towards preferred locations. The Association of the Agglomeration has become the most powerful government body, even more powerful than Montpellier city. It is a sign of this strength that the Association now consists of directly elected politicians. Involvement of the public and business was limited to public enquiry and representation in the Social and Economic Council, on the other hand. However, this did not seem to hamper the success of the Scheme.

Compared to the Parthe Floodplain coalition and the Green Corridor strategy, the stronger impact of the Scheme can be explained by its strong vertical governmental adding up of legal, land and financial policy dimensions aimed at preserving green open space. Both the Scheme of Montpellier and the strategies in the Leipzig-Halle region promote the landscape discourse, putting green open space central as a resource for both urban and rural development.

The reference by the regional planning association for the Green Corridors to the discourse of the Strategy for the Floodplains of Parthe river helps to gain support for the Green Corridors from the public. The case study researchers named this 'synergy', which we can interpret as complementarity between strategies in a same region, or making use of the means of influence of another strategy.

The absence of farmers in the Parthe Floodplain coalition may, like in the Montpellier Agglomeration case, be an explanatory factor for the negative developments for the farming sector in the region. We expect that a wider coalition, involving other types of actors than the governmental ones only, can contribute to better care of the interests of these actor groups.

The Green Corridors strategy obtained a score of 7 out of 10, being weak on financial and land resources. On knowledge and human resources no data were available. Funds can be obtained indirectly via regional development funding, but this financial support of Green Corridors is not sufficient to release the pressure from industrial/commercial investors, in particular under the conditions of a shrinking population. On the other hand, the Scheme comes with the financial resources and this might explain a great deal of the difference in success between the two.

The Parthe floodplain cooperation strategy is also not equipped with lasting financial resources and competences, for land use planning are still in the hand of the individual municipalities. However, the strategy creates synergies in terms of sharing qualified personnel and providing services in the field of landscape conservation and management, project management and application for funding, involving non-governmental organizations and business. The floodplains are valued by the general public, which can be explained by the constant reminding of its nature values, the discourse that accompanies the strategy. However, resilience of the strategy and protection of the Parthe Floodplain are not ensured due to the absence of embedding of the strategy in legislation. The consensus base and contractual agreements do not seem sufficient. Moreover, the Parthe floodplain did not form a coalition with higher-level government and lacks integration. In comparison, the Scheme of Montpellier Agglomeration is embedded in a multilevel hierarchical government, which seems to make it more influential and to coerce spatial integration between sectors

European partners in the PLUREL project were amazed by the radical approach taken for wetland restoration in Xixi enabled by the top-down planning of Hangzhou government. The displacement of the urban core of Hangzhou city to the other side of the river is another striking example of the power of Hangzhou government (Spiekermann et al., 2013). These outcomes are impressive. The protection and restoration of the wetland area will provide long-term benefits to the strongly growing city region. The successful (ab) use of the rules deprived farmers from their traditional livelihood, but provided Hangzhou City with the necessary land to promote polycentric development. Financial resources were invested, paying relatively high compensation rates to farmers, to reduce negative consequences for them. Yet, European partners wondered whether another model for development should have been adopted to integrate part of the farmers in the wetland park with ecological farming, instead of creating a museum like landscape. Certainly, the win-win discourse contributed to the integration of environmental and economic development standards but it was not politically used to increase influence by allying with other groups.

For Hangzhou, the circular economy provides for financial sources whereas Parthe Floodplain is weak in this respect. It might contribute to resilience of the Xixi strategy, compared to uncertainty of success of the Parthe Floodplain strategy for the long term.

5. Conclusions

European research on governance of environmental problems faces a scientific challenge when practitioners from different member states of the EU ask for comparison between case studies from different regions. Various attempts have been made to distinguish between planning families, landscapes and/or cultures for this purpose. Yet, also approaches are required for analysis of strategies that are employed in the various political and cultural contexts. We propose that the adoption and further elaboration of the policy arrangements approach (Van Tatenhove et al., 2000, Arts et al., 2006) can contribute to social learning in the field of land use policies for preserving green open spaces in the peri-urban. We used the concept to both describe the wider policy environment and the regional strategies and explain their influence at the level of municipalities.

The approach used in this research allows identifying the actors, rules, resources and discourses to influence land use decisions at different levels (e.g. regions, state). This all makes the concept suitable for comparative research of strategies for spatial planning between countries with different policy regimes where these means of influence are often differently spread between government levels.

The distinction of different constituents per dimension and their rating allowed to express differences in strengths of each policy dimension between the strategies. Of course, the scores had mainly illustrative meaning. However, they facilitated comparison between and understanding of the different and often complex approaches to governance adopted in the case studies. In particular, they allowed to explain the performance of regional strategies and how this was influenced by the horizontal or vertical adding up of policy dimensions.

The PLUREL case study research was designed to find out which modes of governance and communication between the relevant parties across different levels of decision-making are effective to develop sustainable land use systems in the peri-urban. The Montpellier case showed that the horizontal and vertical coalition/cooperation between governments and adoption of a Scheme for Territorial Cohesion, following a tight web of rules and regulations has effectively limited sprawl and steered urban development, even though coalitions between governments and CSOs, NGOs or business were absent. These groups are just informed by competent communication officers. Also in the Leipzig case the Green Corridors were in fact imposed by the Saxon state. Again this linkage between government levels, where the higher level or wider policy environment is very meaningful in steering land use developments at the regional and sub-ordinate level.

The results stress the importance of a governmental way of planning in which the Rules of the Game are finely tuned towards control of land use developments and with coalitions between governments that tap the jurisdictional powers of the different governmental levels. They do not have to possess the land resources. National law and policies should coerce such coalitions at the level of the FUR and enable these coalitions to acquire the necessary financial resources. Moreover, we recommend a comprehensive plan at the level of the FUR for managing the land use development of the urban fringe and its green areas as binding guidance to lower level zoning plans. It can coerce integration between sectors as seen in the Montpellier case in relation to green open space: it enables spatial and substantive linkages between housing, infrastructure, sources of economic growth and creates win-win situations in relation to green open space. Importantly, awareness among the public is raised.

In terms of substance of the strategies and wider context different discourses were developed and purposely combined to gain influence, inform the public or raise awareness. In particular in the Montpellier case the discourse on landscape as a central vector for sustainable development proved to provide common ground for parties with otherwise conflicting interests. While discourses thus need to be considered as an important dimension of strategies for protecting and developing multifunctional landscapes in peri-urban regions, the case studies also show that resources and means of enforcement are required, to effectively protect green areas.

Based on the above studies we are tempted to say that the misfit between environmental problems and governance scale concerning urban growth and the preservation of ecosystems is rather a result of inadequate policy in real life – such as the Agglomeration of Montpellier not covering the FUR – and not a result of failing knowledge. With the increase of daily commuting distances, the FUR increases and with it the size of the area for which regional cooperation between local municipalities is needed. Therefore, new municipalities should join the regional authority. This demands a flexibility that cannot easily be achieved, considering the vested interests of established authorities.

We showed how the concept of policy dimensions can be further related to actions that are well known to practitioners: legislation, establishing procedures, investing budget, attracting personnel with specific skills, using visualisations of plans and attractive writings to promote policies. The approach is rather practical and easy, provided that the necessary data are collected. This makes the concept of policy dimensions meaningful to bridge a communicative gap between theory and practice, a gap that is mentioned by Kok and Veldkamp in 2010. The policy dimensions pay attention to the institutional, jurisdictional and spatial scales at the different levels, as shown in the case studies, and provide insight in the complexity of governance, for which Termeer et al. (2010) suggest new knowledge is required. We suggest further experimentation with a rating approach to explain impacts, to compare and to ultimately suggest policy improvements in practice.

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