Green Governance in Metropolitan Regions

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Abstract

Metropolitan regions have different governance policies, strategies and tools for preserving and developing green spaces. The aim of this study is to analyse and compare the 'green governance system' of 5 metropolitan regions and draw the consequences for Budapest. We have chosen metropolitan regions with similar administration: Montreal, Vienna, London, Munich and Budapest. London and Vienna have a strong greenbelt regulation which was also the original aim in the introduction of the Spatial Plan of Budapest Agglomeration. In Montreal the districts are planned at human scale under the concept of 'Eco-neighborhoods'. In the frames of a comparison analysis we explore the most important conflicts and highlight the most successful strategies in controlling urban sprawl and green infrastructure development of metropolitan regions and draw the consequences for Budapest. We also analyse the level in participative democracy.

Keywords: urban sprawl, governance, green infrastructure, participative democracy

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I. Introduction

Budapest has just elaborated its Green Infrastructure Plan and the Land Use Framework Plan of Budapest Agglomeration Zone is under revision. It is high time and really worth analysing and comparing the 'green governance system' of other metropolitan regions to draw the consequences for Budapest. Through this study, we analyse how green infrastructures

are planned on a territorial scale and at a human scale. We analysed the social influences on green policies of metropolitan areas which played or still play a role in the urban landscape. We analyse the differences between top-down approaches and bottom-up approaches through the case study of 5 metropolitan areas: Budapest, London, Montreal, Munich and Vienna. We compare the cities' green actions on their respective urban fabrics, and the different levels of power in each administration. On the metropolitan level we analyse the landscape and natural heritage which should be valued in the green policies and shape the green infrastructures. The Greenbelt has become a special tool for controlling urban sprawl. What are the motivations behind green space protection and development? How do local green initiatives also contribute to retaining urban sprawl? Why does it matter to mobilize the citizens in green planning strategies? How does the governance system affect the efficiency of green infrastructure planning and implementation? In the frames of a comparison analysis we explore the most important conflicts and highlight the most successful strategies in controlling urban sprawl and green infrastructure development of metropolitan regions and draw the consequences for Budapest.

II. Methodology

This is a cross-case analysis with analytical generalization. It is a descriptive and exploratory study. The metropoles were chosen according to their common administrative divisions, their extraordinary measures in green space planning and green infrastructure planning, the contrasts between their governance systems and the influence on the green and open space planning. The data was collected from city planning strategy, regional plans, observations, maps and reports. Their strategy plans are analysed through their different levels of governance, in different scales and in their respective urban fabric. The main analyses were the challenges of the metropoles, the motivations behind their concepts in planning, the cultural and natural heritage in context and the level of participation of citizens in the planning process.

The theoretical framework for generalizing the results of the case study involved in green policies and governance. We suggest that the different levels of governance need strong interaction to assure efficiency in green infrastructure planning and implementation. Also, protection and development of green spaces are mostly guided by social will and purposes.

III. Case Studies

III.1. Budapest – The competition between green infrastructure planning and grey infrastructure development

Budapest is located at 47°29'54'' N, 19°02'27'' E. It covers an area of 525.16 km^2 and counts a population of 1.7 million inhabitants with a density of 3301 persons/km^2. The metropolitan area counts 2.4 million inhabitants (2011). Budapest was created in 1872 by uniting three towns (Óbuda, Buda and Pest). It is crossed by the Danube River, separating the city into 2 geographical ensembles. Budapest has finalised its first Green Infrastructure plan in 2017 with 3 main objectives: protection of green infrastructures, development of green infrastructure and green space management *(Figure 1)*. The analyses reveal a need in enhancing recreational space in the city and accessibility to green open spaces. The environmental issues are also developed, showing a need in reducing heat stress, therefore, the grey infrastructures. This plan was created by researchers at Faculty of Landscape Architecture and Urbanism, Budapest, Szent István University. This plan shows the will of Budapest to follow the Green Infrastructure Framework of the EU and affirm its position among other Eastern and Central European countries for a sustainable and good quality for living in the city. However, this isn't part of any city urban plan or framework (BFVT 2017). Other plans for the city have been published: Budapest 2030 Long-Term Urban Development Concept; Integrated Urban Development Strategy, called Budapest; The Thematic Development Programs (TDP); Smart Budapest. However, they mainly focus on the city level whereas this plan also intends to create a green network at an agglomeration scale. These projects appear to be facing challenges in implementation due to difficulties in cooperating between all levels of planning and decision-makers. The two-tiered system of the administration in the capital according to the principle of decentralisation is based on the 1990 Act on Local Governments and 1991 Act on the Administration of Budapest. The objective was to give the districts and settlements more power and autonomy with their budget. But this leads to difficult cooperation in decision making and global planning (Beliczay E. 2009). The duties concerning more than one district belong to the Budapest Municipality *(Table 1)*. The main decision-making body

of the capital is the Budapest Council. The general assembly is formulating the local legislation while the municipal mayor's office is the applier. The urban and natural heritages are continuously at risk and the development of the city seems to be focused on grey infrastructures. The public funds mainly go to infrastructures, public transport and roads, but little is served for parks. Budapest is divided into 23 municipality districts. The district boundaries cut the city into complex mosaics of green and open spaces which they aren't fully in title to plan and manage as they are responsible for the basic health education and social networks, for the local roads (without public transport lines), services and infrastructure. Most of the green and open spaces belong to the districts but the Városliget Park and Népliget Park belong to the city. The City Park is under a governmental project development to turn into a Museum District (Liget Project). Protests have aroused since the Liget Project as it is the main recreational green space in the city. It appears that this is the main green space to value in the city and the core of a heritage. Protecting green spaces is a challenge in Budapest since its dynamic growth began in 1872. Also, Budapest is also under pressure of urban sprawl. For the first time in 1971 43 settlements were classified as belonging to the agglomeration zone. Today 80 settlements belong to the agglomeration zone. Hungary's settlement structure is very monocentric in the Budapest Agglomeration more than 40 percent of the GDP and 25 percent of population is concentrated here. Since 1990 almost 300 thousand people moved out from the capital and settled in the suburban zone, really strong suburbanization process took place here. But these trends have changed. Today 2.5 million people live in the agglomeration. In 2005 an Act on Spatial Planning in the Agglomeration of Budapest was adopted to control and manage suburban growth. With the act the settlements lost their exclusive planning rights with regard to their territory including re-zoning. The problem is, that before adapting the act the settlements re-zoned vast amounts of green and agricultural land into urban uses (these territories can accommodate about 40 years of intensive growth). The act does not have special greenbelt regulation. The plan is maximizing urban growth (2 percent of the total urban area) (Beliczay E. 2009).

Conclusions: The lack of cooperation and decision in spaces to protect and develop leads to some overlap in the plan documents and

slows the process in implementation. The planning orientation is strongly top-down. There is no metropolitan governance. This leads to more needs in cooperation between the levels of governance and planning.

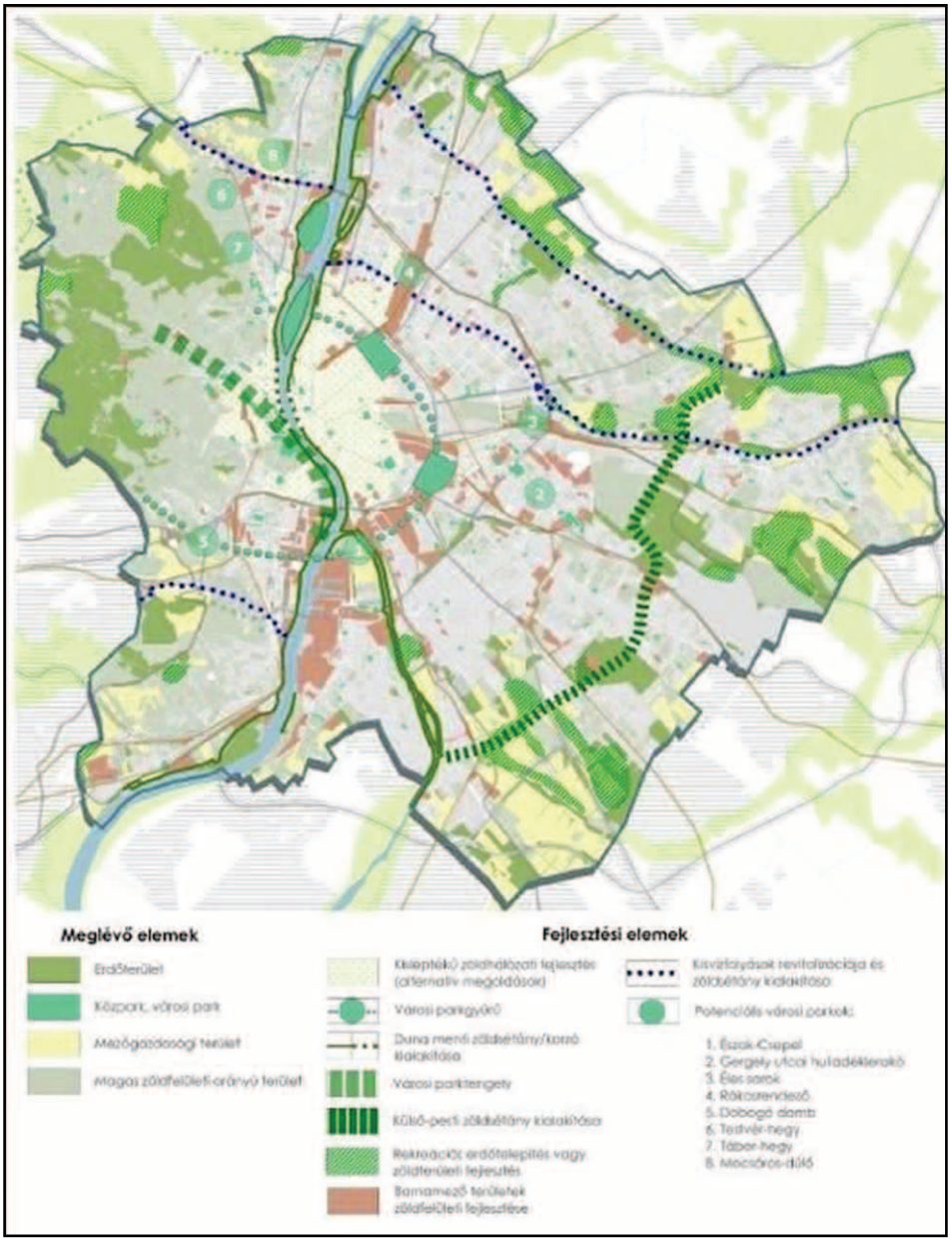

Figure 1: Green Infrastructure Plan of Budapest
Source: BFVT 2017

	Budapest	Vienna	Munich	London	Montreal
city	23 municipality districts	23 districts	25 city districts	London	19 districts
agglo-meration	80 settlements			32 boroughs	15 municipalities on the island
metro-pole					82 settlements Montreal City Agglomeration
policy	decentralised	centralised	centralised	centralised	decentralised
system	top-down	top-down	top-down	top-down	bottom-up
level of governance for environment	⊕ Budapest Municipality ⊕ Budapest Council	⊕ city administration	⊕ city-region level ⊕ city level ⊕ districts	⊕ Great London Authority (GLA) ⊕ London borough councils	⊕ CMM metropole ⊕ Agglomeration of Montreal ⊕ City of Montreal ⊕ districts ⊕ citizens

Table 1: Comparisons for green governance in Budapest, Vienna, Munich, London and Montreal
Source: compilation of the authors based on the data from each city's urban plans

III.2. Vienna – 100 years of safeguarding green spaces for recreation

Vienna is at 48°12'30'' N, 16°22'23'' E. It covers an area of 414.89 km^2 with a population of 1.8 million inhabitants (2016) and a density of 4436 persons/km^2. Austria is a federal state, there are Bundesländer, one of them is City Vienna. There are 23 districts, but they are weak in green space management, they are responsible for streets and cemeteries. The green city management is at the city's administration in a department together with utilities *(Table 1)*. They are responsible for the STEP 2025 (Stadtentwicklungsplan Wien 2025) strategy for green open spaces. The main concept in this plan is the strong green network plan. Involving the citizens is one of the aims in the STEP2025 strategy plan, evoked as a way to improve sustainability in the city. It is conducted in the form of

representative democracy. Citizens can participate in decision making with Local Urban Renewal Office, administrated in districts. It was established in 1974 as a local service for residents and house-owners. What makes Vienna unique in green space planning and management is the fact that the government has protected the green spaces in and around the city of Vienna for a century. And this was done despite the changes in regimes. Also, these spaces have been open to the public for recreation since the Austro–Hungarian Monarchy. In 1905 the City Council agreed upon Vienna's Wood and Meadow Belt *'to permanently safeguard the health conditions in our city and to maintain the beauty of its natural frame'*. The green and open spaces have not been protected to provide recreational space for people and value the identity of the City. The parks and the green belt are safeguarded by law and structure the urban plan. The main challenge today is the densification of its inner city and the population growth. In the last ten years the population grew by 10 percent, i.e. from 1.57 million (2002) to 1.73 million people (2012), mainly through migration. Vienna will have two million inhabitants in 2029 according to the forecasts – this many people last lived in the city before the World War I broke out (Stadt Wien 2014; homepage[46] of STATS Austria; homepage[47] of Vienna Government).

In the STEP2025 green network plan is set a typology of 12 open space types. There are 6 linear open space types which will be connected with axes and segments. There are 4 network functions which the segments and open spaces need to fulfil in the network: 'Function for everyday life and recreation, Function for the structuring of the urban fabric, Function for ecosystem services, Function for nature conservation'. The plan reveals concepts of the 'city of short distances' as a 'concept of urban development is supported by these green infrastructural axes which give room and potential to non-motorised movement in the city' and 'Infrastructure of everyday life' (Stadt Wien 2014). The purpose of the green network isn't the connection in itself but rather the equal accessibility to green space, with a regulation for a maximum mesh size of 500 m. It is also a tool to enhance smooth mobility and better connections for walking and cycling. The network connects green and open spaces in

46 https://www.statistik.at/web_en/statistics/index.html – 2018. 05. 25.

47 https://www.wien.gv.at/ – 2018. 04. 26.

the city with those outside of the city. It also connects green spaces and open spaces to the other urban functions.

Through the Local Urban Renewal Office attention is growing towards neighbourhood management and more comprehension of the people's needs. The citizens participate in the decision-making about new projects for green spaces in their district.

Conclusions: This model is strongly top-down and builds a strong network with a global vision. The impressive part of it is the way it manages to link the global regional scale to the small neighbourhood scale. The green network seems to be divided into functions according to the values of Vienna and the green infrastructure definition of the EU. Can ecosystem service truly be planned as a unique function? The participation of the citizens seems to be stricted to punctual projects such as parks and playgrounds.

III.3. Munich – The challenge of a compact green city

Munich is at 48°09'00'' N, 11°34'30'' E. It covers an area of 310.43 km^2 with a population of 1.5 million inhabitants (2017) and a density of 4988 persons/km^2. The metropolitan area counts 2.4 million inhabitants (2017). Munich remained a relatively small town until the 19th century. While the city already had 500 thousand inhabitants in the 1930s, it was only after the World War II when the settlement developed from an average-sized city into a major metropolis of 1.3 million inhabitants. Few large green spaces were created during this period. Therefore, the densely built inner city and surrounding neighbourhoods are very deficient in greenspace until today. Munich is split into 25 administrative city districts called 'Stadtbezirke' *(Table 1)*. The Stadtbezirke are run by a 'Bezirksausschuss' or 'BA'. Their job is to support and carry out any city activities at a district level. On the city level, *Munich Perspectives* are the city's urban development strategy. The strategy is entitled Compact, Urban, Green, thus recognising the need to balance the preservation and development of green structure with urban development. Landscape plans (Landschaftsplan) and green structure plans (Grünordnungsplan) define the goals for landscape and nature conservation on the level of the whole city and the neighbourhood, respectively. Plan

Treff was created in 1995 to keep the citizens informed of the latest plans, projects and developments. The head of Department of Urban Planning and Building Regulation, also regularly invites people from a range of backgrounds and professions and with differing opinions to a talk series to discuss current challenges (City of Munich 2017). The German system of landscape planning has been criticised particularly because of a lack in implementation and failure to prevent the further degradation of natural assets. Landscape plans were also criticised as being top-down approaches not well involving the stakeholders such as farmers. *As a rule of thumb, one third of the overall planning area is designated as public green space, one third will become residential areas and the other third are commercial and industrial land.* By means of the social land use tax, the city claims up to ⅓ of the planning gain from the developer for infrastructures, including the construction of greenspace. However, the funds raised through this instrument do not secure the long-term management of the greenspaces. On the territorial level (capital of Bavaria) the regional plan includes a landscape program. Most of the open spaces around the city are designated as green belt areas. However, greenbelts are mostly an instrument to control development whereas modern farming and a variety of other economic activities are not restricted in these green belts. From surveys, this has led to high fragmentation in wildlife habitats and loss of many species. Since 1892, over 180 plant species were lost, mainly due to urban development and agricultural intensification. At the same time, there is an increasing demand for a high quality landscape for recreation for the people living in the north of Munich. Over 90 percent of recreational trips of the people living in the Munich Agglomeration are directed towards the south whereas the Northern Munich Plain is mostly considered as comparatively unattractive. The citizens have initiated many community gardens in the city to increase the number of green spaces and recreational spaces in the city. This has grown into a network of actors through Urbane Gärten München.

Conclusions: The protection of green spaces is a challenge in compact city development. Greenbelts can be a solution to retain urban sprawl. However, they are not enough to protect wildlife habitats; therefore they need to be

managed. Regarding to the lack of recreational space and fragmented wildlife habitats, many of the habitats identified in the habitat survey could be protected as well as public green space.

III.4. London – Open spaces as a 'getaway' from urban density

London is located at 51°30'26'' N, 0°07'39'' W. It covers an area of 1572 km^2 with a population of 8.7 million inhabitants (2015) and a density of 5518 persons/km^2. The metropolitan area counts 12.3 million inhabitants. The Great London Authority (GLA) is a unique form of strategic citywide government for London that started its functions on 3rd July 2000 *(Table 1)*. The mayor has an executive role, making decisions on behalf of the GLA and the Assembly. The GLA's main areas of responsibility apart from the preparation of statutory strategies are transport, spatial planning development and economic and environmental departments alongside making budgets for the metropolitan policies. The GLA planned the All London Green Grid (ALGG) strategic plan. The boroughs monitor the green network and prepare the strategy for development of the green infrastructure. The local level has the right for planning but there is usually a strong control, monitoring from the higher scale.

One of the most important value in London is the network of green areas in the city and the green belt. Already in the 19th century there were initiatives to preserve the green in and around the city. Ebenezer Howard's Garden City vision inspired The London Society's proposed Development Plan for London (1919), which called for green spaces in what were then the outer suburbs. In 1935, the London County Council (LCC) took the first steps towards implementing this vision with a formal proposal to create London's Green Belt 'to provide a reserve supply of public open spaces and of recreational areas and to establish a Green Belt or girdle of open space' around the densely packed capital city (homepage[48] of London Green Belt Council). The largest greenbelt is around London. The vast majority of the Metropolitan Green Belt (94 percent) is outside London, extending more than 40 miles from the City (Natural England 2010).

The ALGG plans to develop the network of regional parks through the Greater London

48 https://londongreenbeltcouncil.org.uk/ – 2018. 05. 26.

National Park City initiative. Metropolitan parks are generally well provided, but there are some areas of deficiency, particularly along the north bank of the Thames in the east, in Edmonton and the Upper Lee Valley to the north and on the western edge of London. According to the Environment Committee report in 2017, half of the capital is green space but half of London's households live too far away from the nearest green space, the maximum distance required being 400 m in the London Plan. The majority of London's public green spaces are owned and funded by local authorities. But there are over 50 ownership types of green space in London, with the majority of open space ownership unknown. This brings to difficulty in managing the green spaces and creating the Local Green Infrastructure Concept. This report reveals the strong attachment of people to their parks through strong volunteering and support from the public such as charity organisms. It also reveals a strong feeling of ownership by the people to these spaces and the responsibility towards the maintenance them. The parks are under severe financial crisis since the central government reduced the funding. This leads the local authorities to find new sources of income and a new maintenance strategy for self-managing their parks. One of the measure is to improve community participation based on volunteering. The problem is that volunteers can't all make long-term commitments, so the system seems precarious. The All London Green Grid (ALGG) strategic plan highlights the importance of cooperation. The Mayor (GLA) is working in partnership with all relevant bodies, including across London's boundaries, as with the Green Arc Partnerships and the Lee Valley Regional Park Authority. The ALGG also provides a framework that can connect with the Mayor's other initiatives and strategies. These include the London's Great Outdoors programme and the London Cycle Network. In addition the Mayor has published a number of strategies that have a direct relationship to the ALGG including the Climate Change Adaptation Strategy, the Cultural Strategy and the Volunteering Strategy.

Conclusions: One of the major challenges is to categorise the areas where green space is lacking and needs improving. The public–private partnership is one of the key elements in the management of public open spaces and green spaces.

III.5. Montreal – When gardening becomes the plan

Montreal is at 45°30' N and 73°30' W. It is a 375 year old city founded by the French in 1642 on an island in the middle of the Saint-Laurent River in Quebec, on the west side of Canada. It is 365.65 km^2 with a density of 4662 persons/km^2. The central city has 1.9 million inhabitants (Montréal en Statistiques, 2017) but the Metropolis area is populated with 4.1 million (2017, homepage of StatCan). The Greater Montreal environment is a territory that covers a total area of 4360 km^2, more than half of which is protected agricultural land (58 percent) since the Government of Quebec passed a law to block the agricultural lands and prohibit construction on delimited lands in 1978 *(Loi sur la protection du territoire agricole which is now la Loi sur la protection du territoire et des activités agricoles)*. This was motivated by the fact that only 2 percent of the territory of Quebec Province is of good quality for growing food (CPTAQ 2018) and these were under pressure from urban sprawl and a lack in planning. In 1977, the Ministry of Municipal Affairs reported that the urban growth of the region of Montreal between 1964 and 1975 lead to the loss of more than 20 thousand hectares of lands with high potential for agriculture (CPTAQ 2018). The permanent agricultural zone designated by the Quebec Government covers 1046 ha (Ville de Montréal 2012). Today the main challenges of the Metropole *(Figure 2)* are to reduce the use in cars and the distances to public infrastructures, work places, green spaces and the river. Transports are the first factor of GES emissions. There is a big distance between work places in Montreal and these are mainly situated on the island (Thomas-Maret, I. et al. 2011). In the city, the challenge is to enhance the density of housing and avoid departures to the suburbs. The CMM *(Table 1)* has published its Strategy Plan (PMAD 2013) in 2012 after public concertation. All actors participate in concertation and debates to build a strategy plan and make decisions to cooperate. This includes planners, landscape architects, public and private agencies, stakeholders, para-municipal bodies responsible for different purposes and financed by the city, such as biodiversity of protection of parks and citizens. The main goals are to improve smooth mobility comfort and to

connect the green spaces through a Green and Blue Network inspired by the French concept *(Figure 5)*. This network will connect the settlements with the central city of Montreal through long hiking and cycling trails.

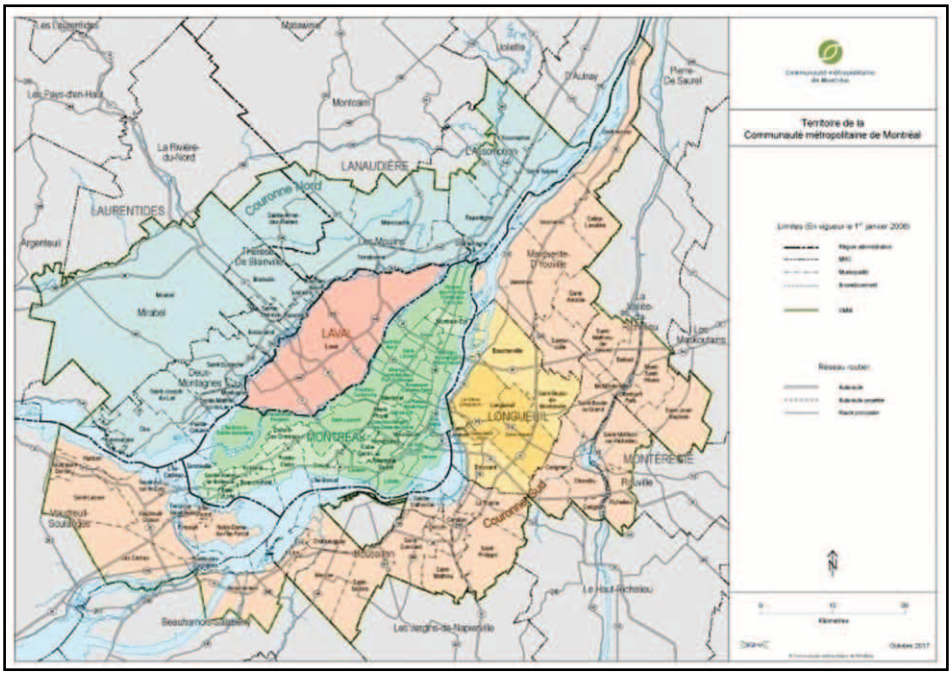

Figure 2: The Metropole of Montreal (CMM) and administrative divisions
Green: Island, agglomeration of Montreal with Montreal City. Light pink: south crown of Montreal. Blue: north crown. Orange: Longueuil, main suburb of Montreal and commuting area
Source: PMAD, Montreal

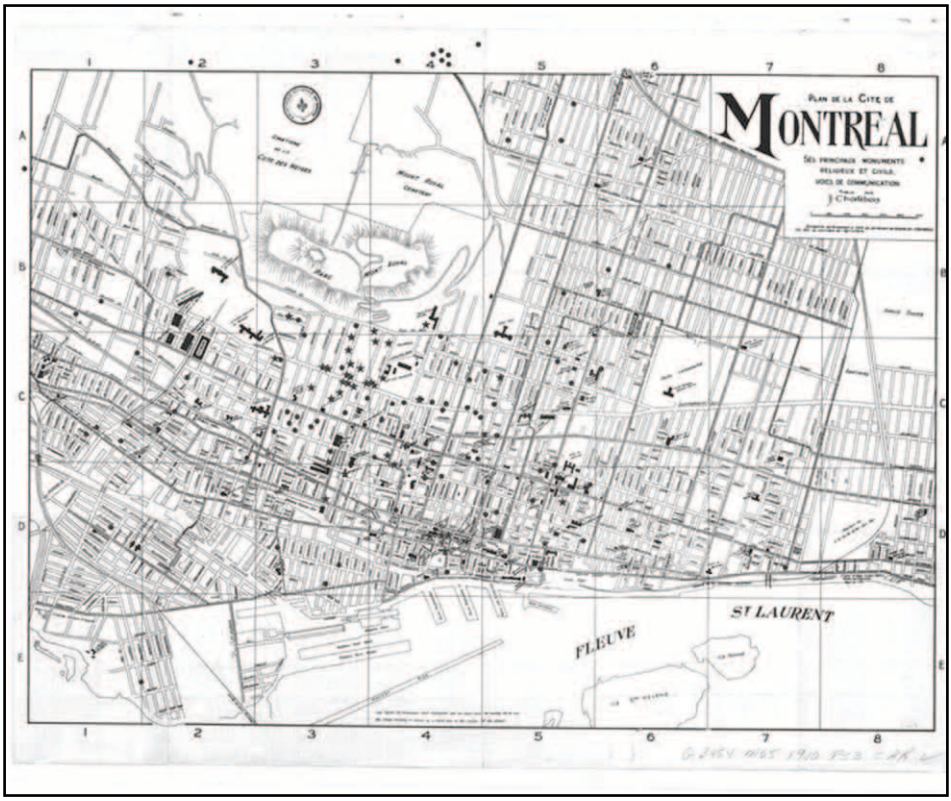

Figure 3: The urban fabric of Montreal, 1910.
Source: unknown author. Bibliothèque nationale du Québec; BNQ. Plan détaillé de la cité de Montréal: ses principaux monuments religieux et civils

Montreal is outstanding from other North American cities as it was planned under French Royalty from 1642 until 1763 *(Figure 3)*. Its urban fabric is inherited from the division of agricultural lands into plots separated by paths which form the housing plots and urban grid of the city. The British bourgeois planned the city until the mid-19th century turning the paths into laneways separating the duplex, triplex and quadruplex housings (Beaudet, G. 2017). Montreal is one of the only cities in North America to have laneways. After the UN Summit of Rio de Janeiro on Sustainable Development, the City of Montreal insured a local planning program called *eco-neighbourhoods* in 1995, in the frames of a Local Agenda (Reyburn, S. 2006). This has empowered the districts and citizens to initiate and plan green actions in their neighbourhoods. The two main initiatives driven

by the citizens are intensive urban horticulture and green laneways (REQ 2018). Since 2002, the eco-neighbourhoods are financed by their districts. Today, there are 16 eco-neighbourhood programs in Montreal. Whilst these were mainly created to raise social awareness on the environment it occurs that the main objectives driven by the citizens have become social. The responsible persons of the program are employed by the district and are offered a place to gather and run their projects with volunteers. Urban horticulture was motivated for ensuring food security and more social equality between the districts as in 2006, 36 percent of children lived under the poverty line (Boudreau, J.-A. et al. 2006). The intensive gardening spread to whole urban fabric in less than 10 years. It isn't surprising that gardening became the tool for planning green spaces in the city as Montreal has a long history of agriculture and community gardening. Urban horticulture has brought job opportunities, internships and strong knowledge exchange through educational programs. Community gardens, schools and even universities organise workshops, activities and international programs to teach horticulture and planning food systems in the cities and their peripheries. From participating in the School of Urban Agriculture Week in Montreal's university UQAM in 2013, it appears that the planning concept of Small is Beautiful is the motivation of these initiatives. In 2013, it was reported that 42 percent of the inhabitants in Montreal practice urban agriculture, which means 800 thousand people. It is also important to mention that this gardening isn't just expanding in unfavourable districts but also upmarket neighbourhoods in the core of the City through a green network between the laneways. These green laneways and gardens have become urban green trails which can be followed on maps. In time, the metropolitan map of green and blue network shows that there will be a connection between the locally planned green network *(Figure 4)* and the metropolitan plan *(Figure 5)*. From reports was mentioned that *'From this initiative, 10 % of 500 km of the city's laneways are considered to be green. These show presence of biodiversity, free art, safety measures for children and a possible way to avoid exod of families to the suburbs'*. (Guelper, N. 2017) Also, greening the laneways was a way to revive these paths and change the bad reputation and image they had (Beaudet, G. 2017). Along these can be found gardens, art, recreational activities

can be found. Green Laneways help in reducing departures to the suburbs as they provide the same benefits: a green space in front of homes with safety for children to play in. It isn't just a plan for green spaces in the city but also a social program. It is part of the Urban Plan, the Sustainable Development Plan and carried out through other major programs of the City.

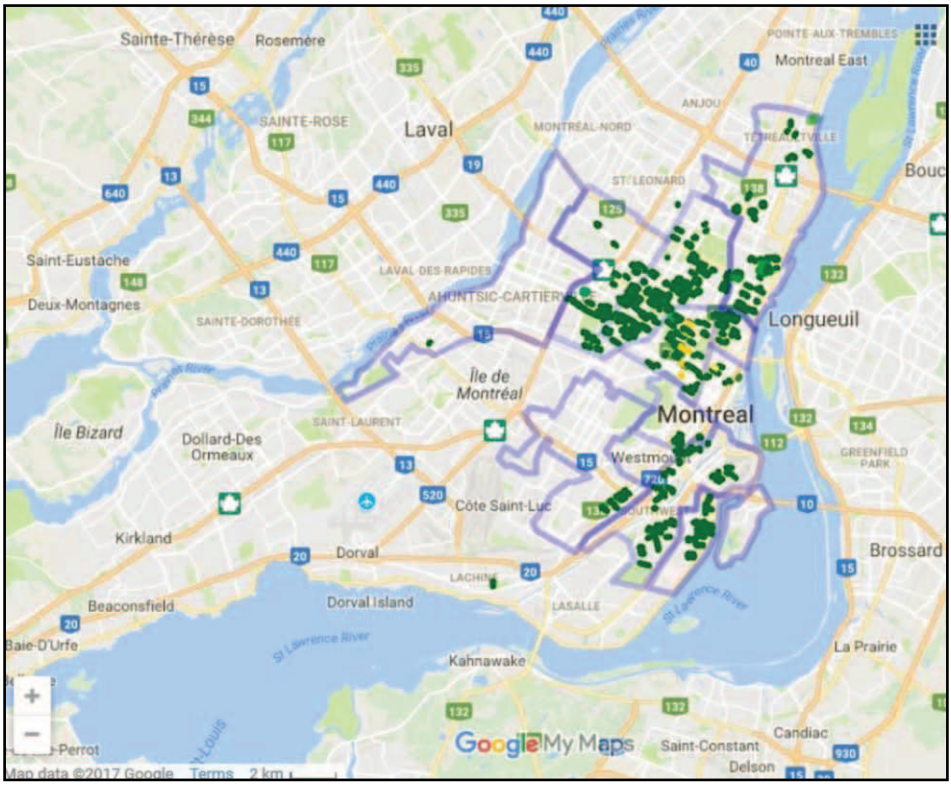

Figure 4: The green laneways of Montreal
Source: Regroupement des eco-quartiers 2018

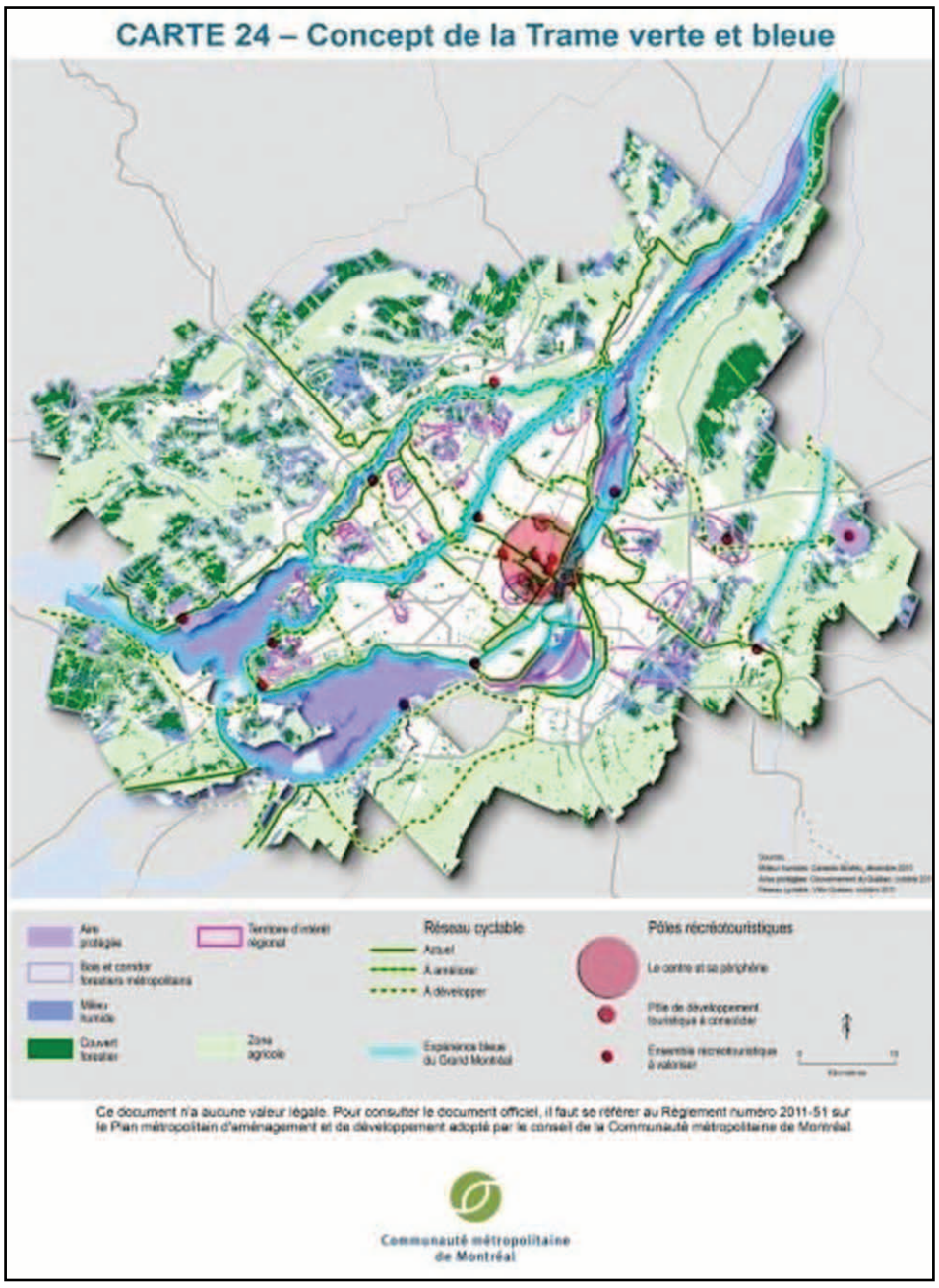

Figure 5: The green and blue network plan of Montreal
Source: PMAD 2013

Conclusions: The green laneways improve community bonding and small green infrastructures. By studying the bottom-up green initiatives of the city, it shows that the citizens of Montreal have been innovative in their programs and used this urban heritage for creating green community spaces. By improving quality of life in the neighbourhoods and comfort in walking and cycling these green initiatives contribute to enhancing smooth mobility in the city and green dense neighbourhoods.

IV. Discussion – Cross Case Conclusions

The cross case study reveals the needs in metropolitan governance and strong cooperation between planners, actors and citizens to build an efficient green strategy *(Table 2–3)*. One question arouses from these case studies: how to match all the functional needs at all levels of planning? The case of Vienna shows that a green network is the best tool for connecting inner spaces with green and open spaces outside of the city. But is a separation of functions in green spaces the efficient way? With more centralized planning it appears to be easier to create a green network. Should the agglomeration councils be responsible for metropolitan planning focus on this network to bring all scales in planning in one green framework? The case of London shows that when implementing a local green infrastructure plan and a green network between parks or other green spaces, the main challenge is to avoid fragmentation of space and management. An accurate monitoring of green spaces is needed to orientate the funding for their management and development. This requires strong cooperation between actors. Volunteers are essential but can't contribute on a long term. With more local institutions for social initiatives the participation could be more sustainable. The case of Budapest clearly shows the lack of regional/metropolitan coordination in order to create and improve the territorial network of open spaces and connection of open spaces of the capital with the network of the agglomeration zone. Furthermore a better utilization of the social initiatives, local participation would be more effective in the sustainable management of the urban environment. The case of Montreal shows how the empowerment of citizens can bring to a good result when a framework guides their actions. The plans mainly use the terms of 'involving' and 'inviting'

the citizens to participate as a way to sustainability, but not to initiate any green actions. Through five case studies we reveal that the protection and development of green spaces can be the result of citizens' initiatives aiming for social well-being. Green infrastructures and greenbelts are planning tools which help in protecting what is considered natural heritage and urban heritage. However, Munich shows that green belts aren't enough to ensure biodiversity and protection of the environment. More regulations are required on the activities in the urban fringe. To create a green belt a typology of green spaces to protect needs to be defined and strong social reasons should be the motivation. The case of Montreal reveals that it is also possible to prevent urban sprawl by mobilising the citizens and giving them power to plan their neighbourhood and housing plot.

city	plan	program
Budapest	Green Infrastructure Plan	Green Infrastructure Plan
Vienna	Open Space Network	STEP2025 – Green and Open Space Theme
Munich	Compact Green City	city plan: Munich Perspectives landscape plans (Landschaftsplan) greenstructure plans (Grünordnungsplan) city-region plan: landscape program
London	Local Green Infrastructure The Greater London City Park	All London Green Grid (ALGG)
Montreal	Metropolitan Green and Blue Network Plan Local Sustainable Development Plan	PMAD, Metropolitan plan PLU, City Urban Plan

Table 2: Comparisons of different green plans in Budapest, Vienna, Munich, London and Montreal
Source: compilation of the authors

When the administration is decentralized, two time-scales appear in the planning process: the regional scale with long term vision and the district (neighbourhood) human scale with a day to day vision. There is a need in a strong network between stakeholders, partners, planners and citizens to embed green infrastructures at a metropolitan scale.

city	participation	plan	program
Budapest	advertised uncommon	Green Infrastructure Plan	none
Vienna	representative democracy	Local Urban Renewal Office	STEP2025 'Involve the citizens'
Munich	communication	PlanTreff	'Inform the citizens'
London	volunteering	Volunteering Strategy	ALGG Plan 'Invite the citizens'
Montreal	participative democracy public consultation	Office for Public Consultation of Montreal	Independant

Table 3: Comparisons of different levels in public participation in the urban plans in Budapest, Vienna, Munich, London and Montreal
Source: compilation of the authors

V. Conclusions

The social values remain the main motivations for protecting and developing green spaces, leading to more need in participative democracy for decision-making. It matters to mobilize the people because it contributes to changes in social behaviour, exchange of knowledge and education, and on the planning level, it reduces needs in funding and helps in enhancing green spaces in compact and dense cities. The participative democracy leads to more solutions in planning and more involvement of citizens. Green initiatives driven by citizens and at a local scale have to be part of a network that crosses the district boundaries. The planning process affects the efficiency of green infrastructure implementation in the sense that decision-makers and planners need to cooperate to avoid overlap of planning documents and set the priorities in spaces to protect or develop. Public concertation appears to be an efficient tool to enhance cooperation.

VI. References

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