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ID 1406 | GREEN INFRASTRUCTURE AS EMERGING OPPORTUNITIES FOR INCLUSIVENESS. COMPLEXITY AND DYNAMICS IN MUNICH NORTHERN REGION

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1 BACKGROUND

Munich (Figure 1) is a growing city and is one of the most competitive metropolitan areas in Germany (Figure 2), characterised by a dense concentration of functions developed through complex and dynamic ecological, social and economic networks acting at city, region and global levels. The increase of landscape consumption due to settlement and traffic is accordingly above average and accounted for 6% between 2004 and 2010. The population of the City of Munich, currently about 1.5 Mio., is expected to grow by approximately 230,000 inhabitants until 2030. With around 7% the expected population growth between 2010 and 2030 is nowhere else as high in Germany; the actual number of population for the whole region is around 5,5 Mio.

Figure 1 – Englisher Garten, Munich (Stefanie Grüber, 2013)

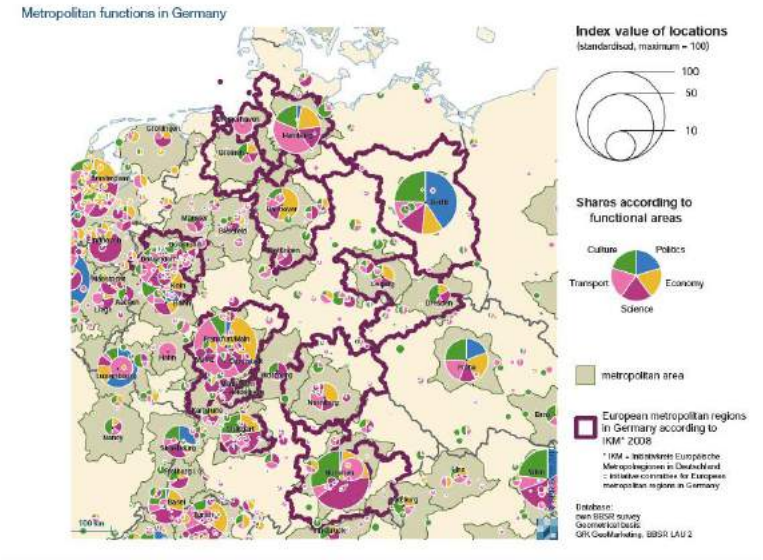

Figure 2 – Metropolitan functions in Germany (BBSR, 2010)

Within the city, the population density is one of the highest in Germany, with 47 residents per hectare. 39% of the residents are foreigners or Germans with a migration background. Population growth and urban development are increasing putting pressure on the urban green spaces. On the other hand, those trends reclaim the development of connected green blue infrastructure for recreation and other social benefits. Moreover, on-going social and environmental changes, such as the diversity of cultures and lifestyles, and the growing requirements for a healthy and resilient city already influence the space development of Munich at various levels, posing several intertwined challenges to the different stakeholders.

2 LANDSCAPES IN FLUX

Munich is situated in the Alpine foreland of Bavaria, in southern Germany. The subsurface is composed of Neocene and Quaternary formations made up of loose alluvial, fine- to coarse-grained sediments. Today's landscape is known as the Munich gravel plain, which comprises sander terraces formed during the Pleistocene glacial periods, as well as the modern floodplain of the Isar river (Bauer et al., 2006).

Extensive grassy heathlands and deciduous oak woodlands have formed over time, but today intensive agricultural lands and other human settlements have largely replaced them. The Isar river (Figure 3) - whose floodplain represents the most important green corridor of Munich - comes to the surface only in the northern part of the city, where extensive marshlands can be found. Former west-east railway networks also represent valuable urban ecological linear systems for ecological connectivity. Natural protected areas - protected by law - urban parks and public open spaces are directly managed either by the municipality or the Bavarian state (Oppermann and Pauleit, 2005; Pauleit, 2005). Around 11% of the region belongs to the Natura 2000, the largest coordinated network of protected areas in the world, listed under both The Birds (Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds) and the Habitats (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) directives. A green belt, comprising almost 335 km2, surrounding the city of Munich is of great importance for biodiversity, ground water recharge, and recreation, as well as for climate mitigation functions.

Figure 3 – The Isar river (www.muenchen.de)

3 THE GREEN INFRASTRUCTURE APPROACH

Through the adoption of four planning and design principles – multifunctionality, connectivity, green-in-grey integration and social inclusion – Urban Green Infrastructure (UGI) can help to maintain and enhance quality of life in urban areas. Multifunctionality is concerned with the provision of several ecological, socio-cultural, and economic benefits, intertwining different functions of urban green space. Connectivity includes both ecological and social connectivity. Integration recognizes the potential of a more holistic approach by linking green and grey infrastructures, while socially inclusive planning is concerned with equity and environmental justice in planning and design processes. Thus, the green infrastructure approach is based on several main principles to promote social cohesion, biodiversity, climate change mitigation and adaptation, physical and mental health and well-being, and green economy (Andreucci, 2017; Hansen et al., 2016).

Urban Green Infrastructure implementation processes are open to all and incorporate the knowledge and needs of diverse parties, with special emphasis on including affected and vulnerable social groups and disadvantaged people. Consequently, Urban Green Infrastructure is seeking to balance the interests of different stakeholders in order to reach a higher level of accessibility to green space services and benefits.

Complementary to the functional issues of the UGI, there are also aspects to take in consideration, which comprises the urban and architectural quality of the surroundings of the green open spaces and the aesthetics of both.

The aesthetical and three-dimensional qualities of dwellings und open space systems are especially important in the periurban situations, because they are often anonymous, sometimes even degraded, places lacking clear characteristics. The public space represents in those contexts the “medium” able to structure and define the citizens’ mental map, facilitating orientation and identification within the daily and ordinary living spaces.

4 PERSPECTIVE MUNICH - “COMPACT – URBAN – GREEN”

The Perspective Munich “Compact – Urban – Green” urban development concept was established by the city council in 1998 and since then continuously updated. A main principle “City in Balance” has also been launched in 2015, with four strategic guidelines and ten action areas of urban development. “Foresight and cooperative management”, “Open atmosphere and attractive appearance”, “High quality and characteristic urban spaces”, “Caring and committed urban society” - the strategic guidelines - are cross section-oriented, tailoring relevant action plans to future challenges. Thematic guidelines contain specialized objectives on almost all the important urban development issues, such as welfare, mobility, education, health, business, cityscape, and ecology. Together with the strategic guidelines, objectives provide input and define future urban development goals. Strategies are implemented and turned into programmes,

actions and projects, where both risks and opportunities - focussed on individual city districts – are carefully evaluated across disciplines. Projects, actions and programmes are finally articulated following the guidelines (Perspective Munich, 2015).

4.1 MUNICH NORTHERN REGIONS

The regions between the rivers Isar and Amper, differently from southern Munich, which enjoys environmental quality and a recognized role in recreation and touristic activities, deserves specific attention needing to be conceptually re-thought. The on-going hybridizations of functions is generating a vivid debate about ecological and environmental concerns, as well as social bottom-up initiatives towards inclusiveness. The move of the Munich airport from München-Riem to its new location - 35 km north of the city centre - and its forthcoming enlargement represent, in particular, major threats for those fragile and valuable lands, having boosted anthropic growth towards the periurban north-east.

Specifically, in view of its potential for large settlements, Munich northeast becomes a strategic location, mid- to long-term, as an emerging new housing and commercial location. Coupling new building and transport infrastructure construction with landscape protection and with local demand for recreational opportunities represent a crucial concern.

With this respect, Green Infrastructure should be considered the most suitable approach in order to foster new connections among existing fragmented natural and semi-natural areas, and to provide opportunities for inclusive urban and peri-urban landscapes.

Prerequisite for any sustainable urban development is certainly the upgrading of the mobility infrastructure. Inter-connecting the old and new neighbourhoods requires improving both the road network and the public transportation - building the S8 tunnel, extending the U4, and/or the tram – and with this respect the risk of soil sealing is to be taken carefully into account (Perspective Munich, 2015).

In other northern areas, between Kunstareal and Olympiapark, the planned restructuring of the areas around the Olympic park and the Dachauer Straße offers an unusual opportunity to re-organise a large city district. This plan includes the development of the so-called “creative quarter”, a new city neighbourhood in which a new concept of living and working creatively will be implemented. Other programs envisage the reorganisation and the up-grading of the existing neighbourhoods’ openspace and green areas around the Olympic park, as well as the further development of sportive, recreational and cultural opportunities, all extremely appreciated by the population and visitors alike (Perspective Munich, 2015).

Between Milbertshofen and Freimann, the re-qualification and re-use of the former barracks and commercial areas - Bayernkaserne and Funkkaserne - into new city districts are also emerging in Munich’s north. With the extension of the Research and Innovation Centre (FIZ) by BMW, Munich technological pole will be further strengthened. This will require innovative mobility and social policies, effective beyond district limits. Apart from specific education facilities, like the BildungsLokal in Hasenbergl, new education and sport services - giving encouragement for requalification and offering attractive opportunities for recreation - would also need to be implemented. Sports are of great importance for integration, as well. Further topics already included in the programming activities are securing the existing and developing new commercial areas, while preserving the landscape, especially the heathlands, in cooperation with the neighbouring municipalities (Perspective Munich, 2015). Effective and innovative governance, consequently, represents a major challenge.

The action area of Allach-Untermenzing, also in the north of Munich, is defined by close interrelation among the issues of housing and commercial areas development, on one side, and the instances of landscape and nature protection, on the other. By re-functioning commercial into housing areas, potential areas for large settlements are emerging. The demographic growth and the change in population mix is already urging new urban open spaces. Major requests include the up-grading of social, technical and traffic infrastructural networks and the requalification of the existing natural elements and systems of the area, their importance with regard to the urban climate mitigation and adaptation, and their functions as important recreation areas. A relevant concern is also the socially critical merging of new and existing settlements and communities. A vital impulse for Allach could also possibly come from the planned new district centre at the Oertelplatz (Perspective Munich, 2015)

5 OPEN SPACE DEVELOPMENT STRATEGY MUNICH 2030

The metropolitan region of Munich offers in general a high quality of life. Besides the urban setting with its cultural values, this is also because of its natural and semi-natural landscapes, offering a variety of recreational destinations (Figure 4). Together with riverine landscapes (Isar, Amper and other rivers), urban parks, castles and other existing green spaces, Munich green belt structures the green network layer of the Open Space Development Strategy Munich 2030 - Freiraum München 2030 (Figure 5).

The focus of the urban landscape and green planning - levering on both formal and informal instruments - is above all the quality of life in the dense city of Munich. This translates into well-equipped spaces for leisure and recreation, attractive city landscapes, conscious uses of the natural resources, as well as protective measures to preserve urban biodiversity (Freiraum München 2030, 2015).

The green belt of the outskirts of Munich, in particular, fulfils an important balancing function for the city climate and serves the citizens and visitors of Munich as an important recreation area. These functions are to be maintained and strengthened. Then comes securing the agricultural usefulness (Figure 6) and linking of the green areas (greenways) in cooperation with the neighbouring municipalities. A further challenge exists in improving the styling of the city districts on the outskirts, particularly in the revaluation of urban construction quality and public areas (Perspective Munich, 2015).

The strategy Open Space Development Strategy Munich 2030 presents, in particular, three guiding themes: (i) Open space and "slow down": escaping hecticness and cautious staging of specific characteristics are key issues; (ii) Open space and “densification”: re-densification of urban structures implies also revitalization and renewal of open space qualities, (multi-dimensional spaces); (iii) Open space and “transformation”: systematic connections of city and nature, water management, urban cooling, landscape recycling, food landscapes and incremental value generation, through the implementation of aesthetic and spatial strategies.

The "park miles" are core elements of the future Munich open space development. Green corridors, that connect existing parks with the open landscape; especially at the city fringe, the park miles have great importance. They reduce also visitor pressure from natural protected areas. Among others, this strategy involves the following measures: connecting people and the environment; activating actions, programs and initiatives; stimulating participation at all level; and cooperating, especially in governance, in order to realize full potential.

Figure 4 – Overlooking Munich landscape (Fritz Auweck, 2016)

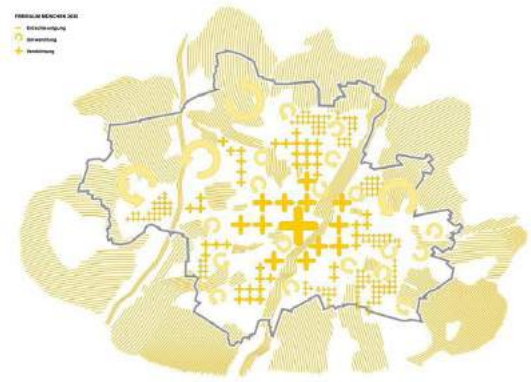

Figure 5 – Freiraum München 2030 (City of Munich, 2015

Figure 6 – Northern periurban Munich (Maria Beatrice Andreucci, 2017)

6 CONCLUDING REMARKS

In Munich dense areas, several issues and sometimes conflicting interests need to be thought in one place together: biodiversity and climate change adaptation, agriculture and recreation, transport and quality, design quality and do-it-yourself. Multiple and overlapping uses as well as temporary one at a time reclaim new strategies and tactics of cooperation amongst different stakeholders.

Munich development in coming years will show a special dynamics in the selected area by way of larger restructuring (commercial to living space) and densification (living and commercial space) activities, accompanied by substantial potentials for improving the quality of urban development. Next to energy-efficient urban redevelopment in existent buildings and new construction this includes the extension of the greenway system and the renewal of existing parks, which will contribute to better interlinking of existing and new settlement structures. There are furthermore potentials for improving the living quality on heavy traffic streets, such as Mittlerer Ring, particularly through nature-based solutions with regard to noise protection. A further goal is the maintenance and promotion of social stability in the districts through the need-based development of the social infrastructure (e.g., day care centres and schools) as well as measures for integration and education. Therefore, as stated by the Department of Urban Planning and Building Regulation of the City of Munich (2015) “the development of interdisciplinary goals and a common planning understanding for those areas as well as the accompanying integrated view and approach are of great importance” for sustainable and inclusive Munich long-term development.

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ID 1428 | ARTICULATING NATURE, CULTURE AND URBANIZATION: AN EXPERIENCE OF METROPOLITAN PLANNING IN BELO HORIZONTE

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ABSTRACT: The Trama Verde e Azul, blue and green network, or simply TVA, is one of the main territorial structuring dimensions of regional/metropolitan planning adopted for the Belo Horizonte Metropolitan Region - RMBH, Southeast Brazil. Developed as a result of a bottom up participatory planning process and inspired by international as well as local green infrastructure and river restoration programs, the TVA proposal seeks to articulate nature, culture and urbanization, through the combination of a series conservation units, open spaces, community facilities and other environmental and cultural assets, all connected by a water system of rivers, streams and lakes, and focusing on planning strategies for land use control, organic and family agriculture, ecologic tourism and ecosystem service delivery programs, among others. This paper discusses the extent to which these metropolitan planning strategies may lead to social and environment transformation towards justice, focusing on TVA implementation,