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Planning and Implementation of **Green Infrastructure** in Austrian Cities

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Foreword

The IPCC's Fifth Assessment Report (AR5, 2014) calls for adaptation and mitigation strategies to combat climate risk in cities. Green infrastructure planning makes and will continue to make a useful and necessary contribution to the sustainable and resilient development of cities and regions. Urban growth, alongside increasing density in urban areas, has put urban green infrastructure under pressure and has led to its loss. Climate change is intensifying the so-called urban heat island effect and has negative impacts on cities, their residents and their quality of life and health. Green infrastructure is an urban amenity that supports a good quality for varying everyday realities of people of different gender, age, social and cultural backgrounds in the urban and rural context. The fair distribution of private and public green and open spaces is a key factor for spatial and social justice for all residents in cities.

Landscape planners, in research and in practice, have the knowledge and the competence to think about solutions for greening cities. On the one hand, numerous studies have shown that urban green (and blue) infrastructure can make a decisive contribution towards reducing the heat load. On other hand, formal and informal landscape and urban planning tools are necessary to implement green infrastructure elements in cities. Transdisciplinary processes and approaches engaging academic researchers in engineering and social sciences, as well as government and corporate planners are important in the formulation of problem-based research questions and in seeking solutions for climate-friendly and resilient cities.



Prof. Dr.
Gerda Schneider
Landscape Planner

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Urban green infrastructure of Vienna with the **Danube Island** (Donauinsel), **Prater** and urban vineyards on the slopes of **Kahlenberg** (Tóth, 2019)



Foreword

Throughout history, landscape architects have made efforts to connect nature with built-up areas to create more beautiful, pleasant, liveable and healthier environments for people. The quantity and quality of green spaces reflects quite reliably the culture of a nation or community and their relationship to landscape and nature. Today, when effects of climate change are present and perceivable in our everyday lives, it is highly justified to put *green infrastructure* on an imaginary pedestal and have it among our priority issues. It is no more an exclusive domain of landscape architects and planners. Quite the opposite, a partnership with gray infrastructure specialists, economists, social and health scientists as well as the public is very important. There is a strong need for coordinated landscape policies and enhancement of natural processes in urban environments through functioning and well-maintained green systems and networks in urban and rural landscapes. We have the necessary knowledge of open space planning and design, new planting technologies, species suitable for changed urban environmental conditions, etc. The only asset we do not have is the time. Time to wait for developing and implementing effective nature-based solutions within functioning green infrastructures that can provide a wide range of ecosystem services and benefits for the human society and biodiversity. Our ancestors passed on the baton to us in the form of valuable urban green spaces and historical gardens. Our duty is to preserve this heritage and to pass on to future generations functioning green systems, innovative nature-based solutions and healthy urban environments.



Prof. Dr.
Ľubica Feriancová
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Home Institution

Urban green infrastructure of Banská
Bystrica in Central Slovakia
***Park below the Museum of Slovak
National Uprising*** (Tóth, 2015)



Introduction

Systematic planning of urban green spaces and their complex networks dates back to the 19th century. It was initiated by *industrialisation* and a decrease in the quality of life in urban areas. This was an important moment in modern human history when society moved from *second* to *third nature*.

Following the decision of Emperor Franz Josef I from 1857 to demolish the city walls of Vienna and to create a boulevard gave the rise to the famous *Wiener Ringstraße* (1858 - 1865). The creation of *Ringstraße* enabled besides the construction of important public buildings also the establishment of new public open green spaces, such as the city park (*Wiener Stadtpark*) or the city hall park (*Rathauspark*), as well as planting of many new street trees on the Ring itself.

Pioneer projects of urban green infrastructure planning include Olmsted's famous linear system of parks in Boston, linked by parkways and waterways, known as *Emerald Necklace* (1880s-90s), Howard's *Garden Cities of Tomorrow* (1898/1902), and the Viennese *Forest and Meadow Belt (Wald- und Wiesengürtel)* from 1905 that aimed to establish a permanent greenbelt on the urban periphery to secure health conditions and preserve the 'beautiful landscape frame' of Vienna.

In recent years strategies like *Green Infrastructure*, *Ecosystem Services* and *Nature-Based Solutions* have set this long-term paradigm into a contemporary international context and discourse (e.g. Benedict & McMahon, 2006; Austin, 2014). Our aim was to find out how the five largest Austrian cities currently approach their urban green infrastructure planning.



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Authors' photo taken by Sebastian Philipp in Rudolf-Bednar-Park during the Future Cities, Future Women Initiative event in Vienna

The Viennese **Ringstraße** in 1872
(public domain)



Aim of the research

The aim of the Action Austria–Slovakia Postdocs Research Scholarship was to study diverse approaches to planning and implementation of green infrastructure in Austria by the example of the five largest Austrian cities / federal state capitals (City of Vienna / Vienna; City of Graz / Styria; City of Linz / Upper Austria; City of Salzburg / Salzburg; and City of Innsbruck / Tyrol).

The main research question was “*How is Green Infrastructure integrated into spatial (urban) planning of Austrian cities?*”

The goal was to gain an overview and a better understanding of existing spatial planning concepts (formal and informal), to identify best practices, and to learn from experiences of local planning specialists with a focus on landscape, green and open spaces who work for the municipal administration of the selected cities.

Starting point

Green infrastructure is globally considered to be one of the most efficient strategic planning tools that helps creating sustainable and resilient urban landscapes. It is an effective climate-change mitigation measure that provides a wide range of ecosystem services, as well as social, environmental and economic benefits (e.g. Tóth et al., 2015; Mell, 2016). By planning green infrastructure at the municipality or even regional level, a more conceptual approach to creating healthy and sustainable living environments for urban citizens can be achieved. A well-planned green infrastructure strategy helps targeting nature-based solutions in a much more effective way. It helps identifying where there is good or sufficient green space provision for the public and where there is a lack of public open spaces (e.g. Tóth & Timpe, 2017).



The community garden **Allmende Leech** is a small green oasis at the oldest church of Graz (Tóth, 2018)



The **urban riverfront of Salzburg** in Salzburg is used for recreation (Tóth, 2018)

The 151,130 m²-large **Türkenschanzpark** built from 1885 to 1888 as a public park in English Landscape-Garden Style is the second-largest park of the Viennese district Währing (Tóth, 2019)



Methodology

The research methodology consisted of two main parts:

1) collecting, reviewing, analysing and comparing existing formal and informal planning documents, concepts and strategies in selected Austrian cities – Vienna, Graz, Linz, Salzburg and Innsbruck, while looking for common approaches, as well as different attitudes towards green infrastructure planning and implementation; and 2) conducting qualitative narrative interviews with planning specialists focusing on green infrastructure planning in the selected cities.

Within the review of plans and concepts, it has been studied in what form and to what extent green networks and open green spaces are tackled and whether there are additional informal thematic documents and tools that help cities planning and implementing the network of their green spaces (see the list of concepts and documents on page 19). The selection of the five largest cities and federal capital followed the ambition to identify different planning approaches applied in different administrative (different federal states with different spatial planning laws and regulations) and geographical (different landscape settings with different natural capital and environmental problems) conditions.

Qualitative narrative interviews stand for a very efficient tool that enables getting authentic information, experiences and everyday practices that are being applied in major Austrian cities. This method was very good for gaining direct and relatively uninfluenced information from key actors and it was also a very good way to bridge the gap between science and practice (e.g. Deming & Swaffield, 2011; Van den Brink et al. 2017; Tóth et al. 2019).



The **Hofgarten** in Innsbruck established already in the 15th century is the main green lung of the historical city centre (Tóth, 2019)



The nature protection area **Traun-Donau-Auen** (floodplains of the rivers Traun and Danube) represents an important part of the urban green-blue infrastructure of Linz (Tóth, 2010)

The 31,000 m²-large **Rudolf-Bednar-Park** designed by Hager Landschaftsarchitektur Zürich was built from 2007 to 2008 is a popular residential park in the Viennese district Leopoldstadt (Tóth, 2014)



Austrian cities as case studies

The five largest Austrian cities – Vienna, Graz, Linz, Salzburg, and Innsbruck were selected as case studies or research samples for studying different planning tools and approaches to implementation of urban green infrastructure.



Vienna (*Wien*) is the capital, the largest city and one of the nine federal states of Austria. It is situated on the River Danube, in northeast Austria.

Area: 414.8 km²
Average elevation: 347 m a.s.l.
Population (1.1.2018): 1,888,776
Density 4,554 / km²



Graz is the capital of Styria (*Steiermark*) and the second largest city of Austria. It is situated on the River Mur, in southeast Austria.

Area: 127.57 km²
Average elevation: 353 m a.s.l.
Population (1.1.2018): 289,440
Density 2,269 / km²



Linz is the capital of Upper Austria (*Oberösterreich*) and the third largest city of Austria. It is situated on the River Danube, in northern Austria.

Area: 95.99 km²
Average elevation: 266 m a.s.l.
Population (1.1.2018): 204,846
Density 2,134 / km²



Salzburg is the capital of the State of Salzburg (*Land Salzburg*) and the fourth largest city of Austria. It is situated on the River Salzach, in northwest Austria.

Area: 65.65 km²
Average elevation: 424 m a.s.l.
Population (1.1.2018): 153,377
Density 2,336 / km²



Innsbruck is the capital of Tyrol (*Tirol*) and the fifth largest city of Austria. It is situated on the River Inn, in western Austria.

Area: 104.91 km²
Average elevation: 574 m a.s.l.
Population (1.1.2018): 132,493
Density 1,263 / km²



Green and Open Space System of Vienna

Interview with Dr. Isabel Wieshofer
Head of the Department of Landscape and Open Space
Referatsleiterin für Landschaft und öffentlicher Raum
Municipal Department 18 – Urban Development
and Planning / The Vienna City Hall, May 31 2019

Green space planning and development in Vienna has an over-century-long tradition, reaching back to 1905 when the **Forest and Meadow Belt** (Wald- und Wiesengürtel) was adopted by the City Council to “*permanently safeguard the health conditions in the city and to maintain the beauty of its natural frame*”.

The **1,000 Hectare Programme** from 1994/95 defined superordinate green spaces (green belts, green wedges, green links) and wide areas on the urban outskirts potentially available for construction projects were exempted from the defined areas for urban development in order to close the green belt around Vienna.

The Thematic Concept **Green and Open Spaces: Sharing the Outdoors** (Fachkonzept Grün- und Freiraum: Gemeinsam draussen) from 2015 is part of the Urban Development Plan (Stadtentwicklungsplan) of Vienna (STEP) till 2025. The concept builds upon Vienna’s Open Space Network (Freiraumnetz), which aims to improve open space connectivity and accessibility for the public. It was designed for the maintenance and development of high-quality green and open spaces in Vienna.



The **Danube Island** (Donauinsel) established in the 1970s and 80s is an over 20 km long and up to 250 m wide recreational area of the city of Vienna (Tóth, 2015)



Urban Environmental Strategies of Vienna

Interview with Dipl.-Ing. Jürgen Preiss
Sachbearbeiter, Bereich Räumliche Entwicklung
Municipal Department 22 – Environmental Protection
MA 22 Umweltschutz, July 5 2019

Vienna has had an effective environmental policy for many years. Environmental goals are well represented in plans and programmes of the city, e.g. in the **Climate Protection Programme I** (1999-2009) and II (2010-2020) (Klimaschutzprogramm der Stadt Wien) and the **Urban Heat Island Strategy** (Urban Heat Islands Strategieplan Wien) from 2018. The working document **Environment in Vienna: Vision, Guidelines and Objectives** (Wiener Umwelt: Vision, Leitlinien, Ziele) from 2008 elaborates on urban environment in the context of health, biodiversity, climate protection, sustainable use of natural resources, waste management, and spatial planning.

The city of Vienna financially supports **greening of facades, roofs and inner courtyards**. The current budget (500,000 EUR) enabled a rise of funding from 2,200 to 5,000 EUR per project. The department participates in an interdisciplinary applied project **Green and Resilient City** which is developing a set of tools for control, optimisation and evaluation of a green and climate-sensitive city (district) planning, including the **Green and Open Space Factor** (Grün- und Freiflächenfaktor), GREENpass and others. A future challenge for Vienna is to do more awareness-raising and education work at the local (district) level, with a good political and medial support.



Inner courtyards are characteristic features of Viennese urban development. They are important green oases with numerous urban trees and green facades. View of a green inner courtyard in the centrally located 4th district - Wieden (Tóth, 2019)



Green Net of Graz

Interview with Dipl.-Ing. Eva-Maria Benedikt
Referat Stadtentwicklung und Flächenwidmung
Stadtplanungsamt der Stadt Graz, July 1 2019

Graz has a well-established green space planning system. The first thematic programme on green space (Sachprogramm Grünraum) became legally binding in 1997. Ten years later, in 2007 this was followed by the strategy **Green Net Graz** (Grünes Netz Graz). Its aim is to connect green and open spaces across the urban landscape of the city. More technical details and specific regulations were elaborated in the form of **Open Space Planning Standards** (Freiraumplanerische Standards).

The current Urban Development Concept (Stadtentwicklungskonzept Graz) from 2013 features the protection of green spaces as one of the 10 main principles that shall lead to a city with higher quality of life. To enhance the urban green infrastructure of the city, the '**Green Space Offensive**' (Grünraumoffensive) has been launched in 2012. This initiative of the city aims at buying land (including brownfields like quarries), to turn it to green spaces that allow water infiltration and contribute to quality of life of the citizens. The city of Graz also supports the use of public transportation and bikes instead of cars, to mitigate the effects of climate change and to improve air quality.

Future aims, and challenges include more trees in streetscapes, better design and use of open spaces, better and faster implementation of green infrastructure projects and the digitalisation of climate studies for a more effective climate change adaptation strategy.



The **River Mur** is the green-blue infrastructure backbone of the city of Graz (Tóth, 2019)



Green Space Plan of Linz

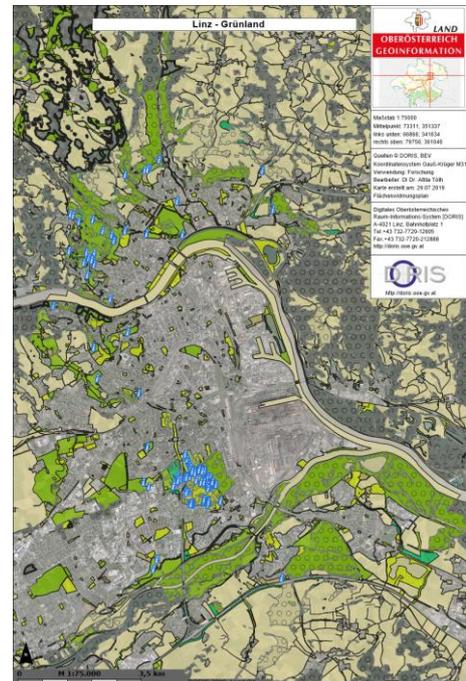
Interview

with Ing. Edmund Maurer and DI Andreas Gäbler
Magistrat der Landeshauptstadt Linz
Planung, Technik und Umwelt / Abteilung Stadtplanung
Neues Rathaus Linz, June 11 2019

The first **Green Space Plan** (Grünflächenplan) of Linz dates back to 1985 when it was first integrated into the **Local Development Concept** (Örtliches Entwicklungskonzept) of the city. Since then it has been used as the main strategic green-space-planning instrument of Linz. The last Green Space Plan was approved in 2001. There is an updated version from 2015, which is still in the process of political discussions.

The aim of the Green Space plan is to preserve and improve the **Greening Degree** (Durchgrünungsgrad) of the city, which can be low, sufficient or good. Based on its value the urban planning department of the city can define **greening measures** (such as rooftop greening) and integrate them as legal requirements in the Development Plan (Bebauungsplan), in order to achieve the goal defined in the Local Development Concept – to achieve an at least 'sufficient' Greening Degree.

Generally, Linz can be considered a 'green city' as more than 50 % of the city area is covered by green spaces. There are approximately 55 hectares of green roofs and the level of greening is good (25 %) or sufficient (50 %) in 75 % of the municipality. Compared to Vienna, a local **Tree Protection Act** is missing, which is a future challenge for the city in order to have a more effective green space protection legislation.



doris.ooe.gv.at

View from the **green terraces** of the New City Hall towards the **Castle Park** above the **River Danube** (Tóth, 2019)



Green Net of Salzburg

Interview with Dipl.-Ing. (FH) Cristina Polito, MURb
and Dipl.-Ing. Claudia Kaiser
Amt für Stadtplanung und Verkehr
Sozialplanung, Freiraum-/ Landschaftsplanung
Stadtentwicklungskonzepte, Flächenwidmungsplanung
– Abänderungen, Bebauungsplanung
Stadt Salzburg, June 17 2019

Salzburg is a green city. Approximately 58 % of the city area is green. This includes among others 35 parks and around 35,000 urban trees. The **Declaration on Green Space Protection** (Grünlanddeklaration / Deklaration "Geschütztes Grünland") was a flagship initiative of the City of Salzburg back in 1985. Ever since, it has provided a strong framework for protecting green spaces and open green landscapes of the city.

A more recent instrument of urban green infrastructure planning in Salzburg is the strategic concept **Green Net** (Das grüne Netz der Landeshauptstadt Salzburg) developed in 1997/98, which became part of the Spatial Development Concept (REK - Räumliches Entwicklungskonzept) in 2007. The REK from 2007 introduced also a new tool - the **Green Space Deduction** (Grünflächenabzug) that requires 15-20 % of larger development areas to be dedicated to public green spaces for recreational use.

Further concepts aiming at preserving and enhancing open landscapes and green spaces around Salzburg are the **Urban Landscapes of Salzburg** (Salzburger Stadtlandschaften) from 2009 and the concept of a **Regional Green Belt** embedded in the Regional Programme from 2013.



The 2.8 km-long **Hellbrunner Allee** from 1615 is the oldest preserved alley in Central Europe and a popular urban greenway for cyclists and pedestrians (Tóth, 2019)



Green Space Concept of Innsbruck

Interview with Ing. Thomas Klingler and
and DI (FH) Mag. (FH) Markus Pinter
MA III Planung, Baurecht und technische
Infrastrukturverwaltung, Amt für Grünanlagen
Referat für Grünanlagen – Planung und Bau
Landeshauptstadt Innsbruck, June 18 2019

The main green infrastructure planning tool of Innsbruck is the **Green Space Concept** (Grünraumkonzept), which is part of the **Local Spatial Planning Concept** (Örtliches Raumordnungskonzept). The city has a special office for Green Spaces that is responsible for planning, establishing, managing and maintaining urban green spaces.

An informal, yet well accepted planning tool is the **Tree-Line-Concept** (Baumreihenkonzept) that includes measures for planting and protecting street trees and alleys. The city has also a well-developed Cycle-Path-Concept (Radwegkonzept) at the regional scale. A well-used element of the urban green infrastructure of Innsbruck is the **Green Belt** (Grünes Band) along the River Inn, which connects parks and open-air sport facilities through pedestrian and cycle paths.

One of the most popular activities of the Department of Green Spaces (Amt für Grünanlagen) with a very good public response has been the establishment of **flower meadows** along roads in the city. This innovation not only enhances urban biodiversity, but at the same time makes streetscapes more attractive and raises awareness and interest of the public.



The **Green Belt** of Innsbruck is a network of green spaces, sports- and playgrounds connected with pedestrian and cyclist trails along the **River Inn** (Tóth, 2019)



Conclusion and outlook

The understanding of green spaces as an important public asset is already well reflected by the act of opening *Prater* and *Augarten* (two major urban green spaces of Vienna) to the public by Emperor Joseph II in 1766. The development of Viennese *Ringstrasse* in the 19th century shows the important role of green spaces in accompanying modern urban development. A first attempt to think about urban green spaces as a city-wide network or system that is to be protected and preserved is the *Viennese Forest and Meadow Belt (Wald- und Wiesengürtel)* from 1905. Green spaces have later been planned as part of spatial, land-use, and development plans under different legal settings. The 1980s brought new planning tools, e.g. the first *Green Space Plan (Grünflächenplan)* of Linz or political instruments such as the *Declaration on Green Space Protection (Grünlanddeklaration)* in Salzburg, both from 1985.

Currently, all five cities integrate landscape and green space planning in their legally-anchored municipal spatial plans that differ in name and form in each federal state - *Urban Development Plan* (Vienna), *Urban Development Concept* (Graz), *Local Development Concept* (Linz), *Spatial Development Concept* (Salzburg) and *Local Spatial Planning Concept* (Innsbruck). Three of the studied cities have also specific informal planning documents with a focus on urban green infrastructure – Vienna (*Green and Open Spaces*), Graz and Salzburg (*Green Net*) (see the list of concepts and documents on page 19). There is a variety of implementation tools such as the *Green and Open Space Supply Standards* (Vienna), *Open Space Planning Standards* (Graz), *Greening Degree* (Linz) or *Green Space Deduction* (Salzburg). There are political instruments for preserving existing (*Salzburg – Grünlanddeklaration*) and to gain new green spaces (*Graz – Grünraumoffensive*). The research built upon existing networks and cooperation and has initiated further cooperation ambitions and plans. The acquired knowledge and findings on green space planning and implementation in Austrian cities will be further utilised in research papers and in the habilitation thesis of the scholarship holder. Good practices identified in Austrian cities will be of great inspiration and guide for Slovak cities that face similar environmental and social challenges and need a more strategic approach to urban green infrastructure planning and implementation.



The 603,160 m²-large **Donaupark** in Vienna was established for the Vienna International Garden Show in 1964 by revitalising a landfill. (Tóth, 2014)



Stadtpark Rapoldi is a popular park in Innsbruck, which is well-accessible for pedestrians and cyclists through the **Grünes Band** (Tóth, 2019)



The 4.6 ha-large **Volksgarten in Graz** was opened in 1875 as the first public park on the right side of the river Mur (Tóth, 2019)

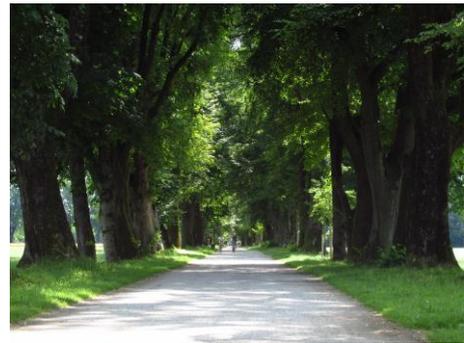
Summary

The aim of the research stay was to reveal different approaches of Austrian cities to green infrastructure planning and implementation. For this, the five largest Austrian cities were selected as case studies – Vienna (Vienna), Graz (Styria), Linz (Upper Austria), Salzburg (Salzburg), and Innsbruck (Tyrol). The methodology consisted of two parts – 1) narrative interviews with municipal planning officers dealing with urban green infrastructure, and 2) collection and analysis of general and thematic planning concepts.

Narrative interviews were conducted with nine specialists in five cities – 1) Vienna – MA 18 Urban Development and Planning – I. Wieshofer (Landscape and Open Space), and MA 22 Environmental Protection – J. Preiss (Spatial Development); 2) Graz – Urban Planning – E.M. Benedikt (Urban Development and Land Use); 3) Linz – Planning, Technology and Environment – E. Maurer and A. Gäbler (Urban Planning); 4) Salzburg – Urban Planning and Transport – C. Polito (Social, Open Space and Landscape Planning) and C. Kaiser (Urban Planning and Transport, Urban Development Concepts, Land Use and Master Planning); 5) Innsbruck – MA III Planning, Construction Law and Technical Infrastructure Management – Green Space – T. Klingler (head of department) and M. Pinter (Green Space Planning and Construction).

The general strategic planning documentation differs in each city in terminology and contents - Urban Development Plan (Vienna), Urban Development Concept (Graz), Local Development Concept (Linz), Spatial Development Concept (Salzburg) and Local Spatial Planning Concept (Innsbruck). There are conceptual documents on urban green infrastructure, such as the Thematic Concept Green and Open Spaces (Vienna) or Green Net concepts (Graz and Salzburg). Implementation instruments include e.g. Green and Open Space Supply Standards, Open Space Network (Vienna), Open Space Planning Standards (Graz), Greening Degree (Linz) or Green Space Deduction (Salzburg). Political instruments include e.g. Green Space Declaration (Salzburg) or Green Space Offensive (Graz).

The research stay at ILAP BOKU provided a great opportunity to gain a good overview and specific insights into green infrastructure planning and implementation in selected Austrian cities.



Protected Landscape Element
(Geschützter Landschaftsteil)
Hellbrunner Allee in Salzburg
(Tóth, 2019)



Urban agricultural landscapes in Salzburg are well-used by citizens for sport and recreation (Tóth, 2019)



A small wayside shrine is surrounded by the **Natural Monument** (*Naturdenkmal*) *Linden im Freisaal*, Salzburg
(Tóth, 2019)

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Selected networking and thematic events and other activities in Austria

March 11-12 Lectures and guided field trips BOKU, City of Vienna, Asian Development Bank *Future Cities, Future Women Initiative: Urban planning and urban development from a gender perspective in the city of Vienna, Masterplan Nordbahnhof, Concept of Green and Open Spaces of Vienna, guided field visits – urban development, housing, park planning and design in Vienna*

March 21 Conference Österreichische Gesellschaft für Landschaftsarchitektur (ÖGLA) ÖGLA Akademie – *Methoden der Landschaftsplanung in der Regionalplanung am Beispiel Grüner Ring Wien-Niederösterreich*

March 26 Project meeting *Biotope City Projekttreffen*

April 4 University course MA22 *Lehrveranstaltung „Ökologische Aspekte beim Planen und Bauen - Tischkritiker*

April 4 BOKU *Mini-symposium on Urban Amenities – interdisciplinary exchange on urban challenges*

April 5, May 9, June 19 BOKU ILA *Preparatory meetings with Dagmar Grimm-Pretner on Global Design Studio 2020 to be held at Agrokomplex Exhibition Grounds in Nitra in April 2020*

April 5 OeAD *Lecture and Walk – Geography & History of Austria and Vienna*

April 27 BLA – Büro für Lustige Angelegenheiten *Führung Vision Westbahnhof „Take a Walk on the West Side“*

April 29 University of Vienna *Rethinking Academia: The scientific publishing system and the strive for open accessibility*

May 14 BOKU *Visting the LArchiv with Dr. Ulrike Krippner – Daten und Dokumente zur Geschichte der österreichischen Landschaftsarchitektur*

May 17 MA22 *Green.Resilient.City Advisory Board Meeting – Forschungsprojekt “Grüne und resiliente Stadt – Steuerungs- und Planungsinstrumente für eine klimasensible Stadtentwicklung“*

June 13 IG-Architektur *L-x Landscape Lecture by Florian Boer (De Urbanisten / NL): The Water Sensitive City: Water Squares, Tidal Parks and Climate Adaptive Strategies*

June 15 OeAD *Excursion to Burgenland – Eisenstadt, Rust, Mörbisch*

June 19-21 BOKU ILA *Mária Bihuňová from SPU Nitra on a short-term Erasmus+ Staff Mobility*

June 24 Conference BOKU IRUB & Österreichische Hagelversicherung *Internationale Symposium „Bodenschutz durch Raumplanung“*

June 27 OeAD *The film „Science in Exile“ and panel discussion*

June 28 Lectures and discussion Österreichische Gesellschaft für Architektur (ÖGFA) *Podiumsdiskussion „Sechs Kilometer Stadt die Westbahn-Trasse in Wien – Impulsreferate von Lilli Lička und Michael Hofstätter; Diskussion mit W. Chramosta, H. Czech, B. Götz und K. Raith*

July 2 Metropole – Vienna in English Magazine *Interview with Veronika Hribernik from Metropole Magazine on planning and designing green cities in Türkenschanzpark*

July 3 Master thesis defence BOKU ILAP *Defensio von Roswitha Weichselbaumer: Grün, qualitativ und klimaresilient wohnen in der Seestadt?*

July 6 OeAD *Excursion to Schloss Hof and Schloss Marchegg*

July 10-13 University of Salzburg *Invited lecturer at the SUNRAISE-SURE Summer School URBAN+MOUNTAINS on ‘Sustainable Natural Resource Use in Arctic and High Mountainous Areas’ – Research Group Urban and Landscape Ecology, Department of Geography and Geology – lecture on ‘Planning and Design Approach to Urban Trees and Urban Climate’; excursions to UNESCO Global Geopark in Bischofshofen and to Nationalpark Berchtesgaden*

Research team

Attila Tóth is Assistant Professor (PhD) of Landscape Architecture at the Slovak University of Agriculture in Nitra and Chair of LE:NOTRE Institute. He studied landscape architecture in Slovakia and Austria. His main research interest is Green Infrastructure from a planning and design perspective. He did research in Slovakia, Austria, Spain, New Zealand and Germany. In his doctoral research, he examined green infrastructure in rural landscapes (defended in 2015). In 2018 he conducted a research stay at RWTH Aachen University in Germany as holder of *Green Talents Award* for outstanding achievements in sustainability research. His research project focussed on planning and implementation of green infrastructure in cities and city regions of North Rhine-Westphalia. He received two ECLAS Awards for outstanding achievements in European landscape architecture education.

Doris Damyanovic is Associate Professor of Landscape Planning at the University of Natural Resources and Life Sciences in Vienna (BOKU Vienna). In 2016 she finished her professorial thesis in landscape planning. For the last 15 years she has conducted research on landscape and spatial planning topics in urban and rural areas on different scales. Her research and research-led teaching focus on landscape planning and spatial development, and in particular on planning theories, tools and methods, as well as participatory planning taking into account the gender dimension and spatial justice. Her further research interests include climate change adaptation and mitigation strategies in the context of green infrastructure planning and disaster risk reduction. In 2018 she received the Women's Prize of the City of Vienna (Frauenpreis der Stadt Wien) for her work in the category 'Urban Planning (Städtebau)'.

Florian Reinwald is Senior Scientist at the Institute of Landscape Planning of the University of Natural Resources and Life Sciences, Vienna (BOKU). He studied landscape planning at BOKU and the Technical University of Munich in Weihenstephan (Freising), Germany. His main research focus is green and climate sensitive urban development and landscape planning on different planning scales. He has done research on ecosystem services, urban green infrastructure and the implementation of nature-based solutions in several applied research projects. The Austrian Society for Environment and Technology recognized his work in 2017 with the Austrian Sustainability Award (ÖGUT Umweltpreis) in the category "City of the Future" for the project "Urban Heat Island – Strategy Plan Vienna".



Host Institution

[The University of Natural Resources and Life Sciences, Vienna](#) (Universität für Bodenkultur Wien - BOKU) is a teaching and research centre for renewable resources, which are necessary for human life. It is BOKU's objective to help make a considerable contribution to the conservation and protection of resources for future generations by providing diversity in its fields of study. Connecting technology, engineering and natural sciences with economic, social, and legal sciences, BOKU aims to increase knowledge of the ecologically and economically sustainable use of natural resources to provide a harmoniously cultivated landscape (edited excerpt from BOKU Mission Statement, 2018).

[The Department of Landscape, Spatial and Infrastructure Sciences](#) (Department für Raum, Landschaft und Infrastruktur – RaLI) is an organisational unit of BOKU that consists of seven institutes. The main fields of the department include landscape planning, landscape architecture, landscape development, recreation and conservation planning, spatial planning, environmental planning, land rearrangement, transport studies, surveying, remote sensing, land information, and statistics.

[The Institute of Landscape Planning](#) (Institut für Landschaftsplanung) is one of the seven institutes of RALI BOKU. The institute's Mission Statement defines Landscape Planning as an interdisciplinary planning discipline, which puts the different needs and utilization claims of people at the centre of consideration and is committed to sustainability and as an applied engineering science based on the knowledge of planning, designing, ecological and socio-economic theory. The Institute's teaching and research focuses on landscape planning, open space planning, political and social ecology and economy, ecological climate-resilient urban and open space development, sustainable land use, mobility, everyday life and health, participatory processes and further education, feminist planning as well as gender and women's research in planning contexts (excerpt from ILAP Mission Statement).

Current research projects of ILAP include [Biotope City](#) – construction manual for the green city of the future, and [Green and Resilient City](#) - Management and planning tools for a climate-sensitive urban development (green.resilient.city).



Universität für Bodenkultur Wien
University of Natural Resources
and Life Sciences, Vienna



Department für Raum, Landschaft
und Infrastruktur
Department of Spatial-, Landscape-
and Infrastructure- Sciences

Acknowledgements

I would like to express my gratitude to *Austrian Federal Ministry of Education, Science and Research* for funding my *Action Austria-Slovakia PostDoc Scholarship* and to *Austrian Agency for International Cooperation in Education and Research (OeAD) and its Centre for International Cooperation & Mobility (ICM)* for coordinating my scholarship and providing me with the opportunity to do research in Austria. I am also very thankful for manifold events and excursions organised by OeAD, thanks to which I could experience for instance cultural landscapes of Burgenland and Lower Austria.

Many thanks to my colleagues at the *Institute of Landscape Planning (ILAP) of BOKU Wien* for the friendly welcome in their team, which I have had the great pleasure to be part of for six months. ILAP has been a very friendly and inspiring working environment throughout my whole research stay. Special thanks to my academic supervisor Doris Damyanovic and my colleague Florian Reinwald for their time dedicated to consultations and discussions on green space planning system in Austrian cities, for their useful advices, as well as for sharing their contacts in planning departments of cities.

I am grateful to my home institution, especially to our dean Dušan Igaz and our head of department Denisa Halajová for agreeing with and supporting my research stay in Vienna, as well as to the head of the host institution Gerda Schneider for inviting me for the research stay.

Last but not least, many thanks to all the interviewees who kindly agreed to dedicate their time and share their knowledge and experiences with me – Isabel Wieshofer, Jürgen Preiss, Eva-Maria Benedikt, Edmund Maurer, Andreas Gäbler, Cristina Polito, Claudia Kaiser, Thomas Klingler and Markus Pinter. They made a great contribution to my research on green and open space planning. Thanks also to Doris Damyanovic and Florian Reinwald for their contribution to this research report and to Gerda Schneider and Ľubica Feriancová for reviewing the report and writing the forewords.

Attila Tóth
Scholarship holder

About OeAD and ICM

The OeAD GmbH (Österreichischer Austauschdienst) is the central service centre for European and international mobility and cooperation programmes in the fields of education, science and research. The OeAD GmbH advises, promotes and provides support to strategic development and provides guidance to implementation measures. It analyses international development and uses this information to form recommendations and measures (<https://oead.at/en/the-oead/>).

The Centre for International Cooperation and Mobility (ICM) brings together the areas of grants and funding and international cooperation as well as the regional offices into one department. The ICM is a specialist department within the OeAD that is responsible for internationally oriented cooperation and mobility programmes. An important component of its range of tasks is providing personal support to the grant holders via regional offices.

About Action Austria-Slovakia and the scholarship

The Action Austria-Slovakia is a fund for promotion of cooperation between Austria and Slovakia in the field of higher education and research. The action is equally funded by the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Federal Ministry of Education, Science and Research of the Republic of Austria. The management task was entrusted to the SAIA, n.o. (Slovak Academic Information Agency) in Bratislava. The contact point for Austrian partners is the Office for Academic Cooperation and Mobility of the ÖAD (Austrian Exchange Service) in Vienna.

The Action Austria-Slovakia PostDoc Scholarship supports research stays of highly qualified early career PostDocs for the duration of up to 6 months.

Annex 1

Invitation letter from the host institution

Institute of Landscape Planning BOKU Wien – Prof. Dr. Gerda Schneider

Universität für Bodenkultur Wien

University of Natural Resources and Life Sciences, Vienna

Department für Raum, Landschaft und Infrastruktur
Institut für Landschaftsplanung

O.Univ. Prof. Dr.-Ing. Gerda Schneider



Faculty of Horticulture and Landscape Engineering
Slovak University of Agriculture in Nitra
Dekan Prof. Ing. Dr. Dušan Igaz

Tulipánová 7
SK-949 76 Nitra

Wien, 2. Oktober 2018

Einladung zum Forschungsaufenthalt am Institut für Landschaftsplanung, Universität für Bodenkultur Wien

Sehr geehrte Herr Dekan Prof. Ing. Dr. Dušan Igaz!

Hiermit möchten wir Herrn Dr. Attila Tóth für den Forschungsaufenthalt zum Forschungsschwerpunkt „Planning and Implementation of Green Infrastructure in Austrian Cities“ im Rahmen der Aktion Österreich-Slowakei: Forschungsstipendien für Postdoktorandinnen und Postdoktoranden (SK nach A) für Zeitraum vom 1. März – 31. August 2019 herzlichst einladen.

Herrn Dr. Attila Tóth wird in diesem Zeitraum ein Arbeitsplatz am Institut für Landschaftsplanung zur Verfügung gestellt. Er wird in die Forschung des Instituts durch die Betreuung von Assoz. Prof. DI Dr. Doris Damyanovic unter Mitwirkung von DI Dr. Florian Reinwald eingebunden.

Wir freuen uns auf die wissenschaftliche Zusammenarbeit.

Mit freundlichen Grüßen


O.Univ. Prof. Dr.-Ing. Gerda Schneider

UNIVERSITÄT FÜR BODENKULTUR

Dept. Raum, Landschaft & Infrastruktur
Institut für Landschaftsplanung
Oskar-Simony-Haus, Peter-Jordan-Straße 65, A-1190 Wien
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Leitung des Instituts für Landschaftsplanung
Stellvertreterin der Leitung des Departments für Raum, Landschaft und Infrastruktur

Annex 2

Agreement of the home institution with the research stay
Faculty of Horticulture and Landscape Engineering SPU Nitra – Prof. Dr. Dušan Igaz



SLOVAK UNIVERSITY OF AGRICULTURE IN NITRA
FACULTY OF HORTICULTURE
AND LANDSCAPE ENGINEERING

Dean
prof. Ing. Dušan Igaz, PhD.

Institute of Landscape Planning

Department of Landscape, Spatial and Infrastructure Sciences
University of Natural Resources and Life Sciences, Vienna

O. Univ. Prof. Dr.-Ing. Gerda Schneider

Head of Institute, Deputy Head of Department

Oskar-Simony-Haus
Peter-Jordan Straße 82
A-1190 Wien

Nitra, October 4 2018

Agreement of the Home Institution with the Research Stay

Dear Prof. Dr. Gerda Schneider!

As the dean of the Faculty of Horticulture and Landscape Engineering of the Slovak University of Agriculture in Nitra, I truly appreciate your invitation issued to our Assistant Professor Dr. Attila Tóth for undertaking a post-doctoral research stay at your department and institute within the Action Austria-Slovakia.

His research topic on *Planning and Implementation of Green Infrastructure in Austrian Cities* is in line with our faculty research interests and I am strongly convinced that it will significantly support Dr. Attila Tóth's further professional and personal development.

I hereby express my full support of his application and my agreement with his research stay at the Institute of Landscape Planning of the Department of Landscape, Spatial and Infrastructure Sciences of the University of Natural Resources and Life Sciences (BOKU) Vienna from March 1 to August 31 2019.

Yours sincerely


Prof. Ing. Dušan Igaz, PhD.
Dean

SLOVENSKA POLNOHOSPODARSKA
UNIVERZITA V NITRE
FAKULTA ZAHRADNICTVA
A KRAJINNEHO INŽINIERSTVA
D E K A N Á T
Tulipánová 7, 949 01 NITRA

Annex 3

Letter of Award

Aktion Österreich-Slowakei Stipendien für Postdoktoranden



Attila TOTH

Druzstevna 32/5
94110 - Tvrdosovce
SLOVAKIA
at.attilatoh@gmail.com

Vienna, 20.12.2018

Aktion Österreich-Slowakei, AÖSK-Stipendien für Postdoktoranden
Letter of Award

Dear Mr. TOTH,

The Austrian Agency for International Cooperation in Education & Research (OeAD-GmbH), Centre for International Cooperation & Mobility (ICM) is pleased to inform you that you have been awarded a

6,0-month scholarship.

Please read the **Information for Scholars** (oead.at/scholars) and the **Scholarship Conditions** (see e-mail attachment "Scholarship Conditions") carefully. If you are ready to accept the conditions, fill in the **Letter of Acceptance** (see e-mail attachment "Acceptance") and return it signed via e-mail or fax to the

OeAD-Regional Office Vienna

fax: +43/1/534 08-498, e-mail address: wien@oead.at

within one month after receiving this notification. Please note that this scholarship only takes effect once your signed Letter of Acceptance has arrived at the OeAD-Regional Office Vienna in time.

Entry to Austria: If you need a visa or residence title, please make sure to apply for it lawfully and in time. Information about the law regulations regarding entry to Austria can be found on oead.at/scholars-entry-conditions. As soon as we receive your Letter of Acceptance we will send the necessary **OeAD Confirmation** directly to the competent Austrian representative authority and in copy to you. Please make sure to include a copy of the OeAD Confirmation when you submit the complete visa or residence permit application.

If you have any further questions, do not hesitate to contact your OeAD Regional Office. We wish you every success for your studies in Austria.

Best regards,

i. A. **Michael Schedl**, Programme Officer

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Annex 4

Research Fact Sheet for Interviewees



BUNDESMINISTERIUM
FÜR BILDUNG, WISSENSCHAFT
UND FORSCHUNG



Stipendium der Aktion Österreich-Slowakei für Postdoktoranden
Forschungsaufenthalt am Institut für Landschaftsplanung, BOKU Wien

Planung und Umsetzung der **Grünen Infrastruktur** in österreichischen Städten

Gastinstitut: **BOKU Wien**, Institut für Landschaftsplanung

Dauer: 1. März – 31. August 2019

Gastwissenschaftler: **Dipl.-Ing. Dr. Attila Tóth**, attila.toth@boku.ac.at

<https://boku.ac.at/rali/ilap/aktuelles/2019/2019-visiting-postdoc-researcher-dipl-ing-dr-attila-toth>

Betreuerin: **Assoc. Prof. Dipl.-Ing. Dr. Doris Damyanovic**, doris.damyanovic@boku.ac.at

Mitarbeiter: **Dipl.-Ing. Dr. Florian Reinwald**, florian.reinwald@boku.ac.at

Über die Aktion Österreich - Slowakei

Die Aktion Österreich - Slowakei ist ein Fonds zur Förderung der Zusammenarbeit zwischen Österreich und der Slowakei im Bereich des Hochschulwesens sowie im Forschungsbereich. Die Aktion wird gleichermaßen vom Ministerium für Schulwesen, Wissenschaft, Forschung und Sport der Slowakischen Republik und vom Bundesministerium für Bildung, Wissenschaft und Forschung der Republik Österreich finanziert. Mehr Informationen: <https://www.aktion.saia.sk/de>

Zielsetzung und Methodik

Bearbeitet wird die Frage, wie die Grüne Infrastruktur, „Grüne Maßnahmen in der Stadt“ in österreichischen Städten angenommen, integriert und umgesetzt wird. Als Fallbeispiele werden die fünf größten Städte Österreichs (Wien, Graz, Linz, Salzburg, und Innsbruck) näher untersucht. Betrachtet werden dabei Entwicklungs- und Fachkonzepte, Strategien und andere Planungsdokumente auf unterschiedlichen Ebenen und Maßstäben der Stadt- und Landschaftsplanung. Als Methodik werden 1) Recherchen und Analysen von existierenden Plänen, Konzepten und Dokumenten; und 2) Interviews mit Schlüsselakteurinnen und -akteure in Städten angewendet.

Rahmenfragestellung für das Interview

Was verstehen Sie unter dem Begriff „Grüne Infrastruktur“ (GI)? Wird dieser Begriff in Ihrer Praxis verwendet oder gibt es andere etablierten Begriffe?

Wie wurde/wird die GI in Stadt- und Landschaftsplanung in Ihrer Stadt / Ihrer Abteilung angenommen und integriert? Seit wann und unter welchen unterschiedlichen Begriffen (z.B. Grünzüge, Grünräume, Grüne Netze etc.) wird die GI in Ihrer Stadt konzeptionell geplant?

Welche lokalen Planungsansätze und -instrumente wurden im Bezug zur GI durchgeführt? Wurden neue Masterpläne, Fachkonzepte oder lokale Strategien entwickelt, oder wurde die GI als neues Konzept in die bereits existierenden Planungsdokumente und -instrumente integriert?

Wie hat die GI als Planungsansatz die gesellschaftliche Bedeutung von Stadtnatur und derer Wahrnehmung von Stadtverwaltung und BürgerInnen beeinflusst? Werden auch thematisch zusammenhängende Konzepte wie Ökosystemdienstleistungen oder Naturbasierte Lösungen in der Planungspraxis genutzt?

Wurden Projekte der GI auf der Stadt- oder Bezirksebene erfolgreich umgesetzt und realisiert? Wie war der Umsetzungsprozess? Gibt es Kooperationen mit dem Stadtumland und den Nachbargemeinden?

Welche Förderungen wurden für die Umsetzung von GI Projekte beantragt, bzw. welche Fördermöglichkeiten möchten Sie in der Zukunft nutzen? Kennen Sie Strategien, Richtlinien und Fördertöpfe zur GI auf der EU-Ebene?

Wie sind die Zukunftsaussichten für die Entwicklung, Planung und Umsetzung der GI in Ihrer Stadt? Im welchen Bereich möchten Sie eine Verbesserung erzielen?

Annex 5

Official confirmed Scientific Report for OeAD



Aktion Österreich-Slowakei AÖSK-Stipendien für Postdoktoranden
Förderungsende: 31.08.2019

Studienjahr: 2018/2019
Zl.: ICM-2018-12149

Scientific Report

The report (minimum 300 words maximum 2 pages) has to be completed by you and signed by you and your supervisor.

Please scan the completed and signed scholarship report and upload it in our online database or send it scanned to your OeAD-Regional Office to effect the payment of your last scholarship instalment. Please note that received scholarships may have to be paid back should the scholarship report not be submitted.

Study project	Planning and Implementation of Green Infrastructure in Austrian Cities	
Name	Mr. Attila TOTH	
Country of origin	SLOWAKEI	
Dates of scholarship	From: 01.03.2019 -	To: 31.08.2019
Abstract/list of scientific or study activities: In case of complete studies in Austria: Please insert the abstract of your thesis. Otherwise please list your scientific or study activities.		

The aim of the research stay was to reveal different approaches of Austrian cities to green infrastructure planning and implementation. For this, the five largest Austrian cities were selected as case studies – Vienna (Vienna), Graz (Styria), Linz (Upper Austria), Salzburg (Salzburg), and Innsbruck (Tyrol). The methodology consisted of two parts – 1) narrative interviews with municipal planning officers dealing with urban green infrastructure, and 2) collection and analysis of general and thematic planning concepts.

Narrative interviews were conducted with nine specialists in five cities – 1) Vienna – MA18 Urban Development and Planning – I. Wieshofer (Landscape and Open Space), and MA22 Environmental Protection – J. Preiss (Spatial Development) | 2) Graz – Urban Planning – E.M. Benedikt (Urban Development and Land Use) | 3) Linz – Planning, Technology and Environment – E. Maurer and A. Gäbler (Urban Planning) | 4) Salzburg – Urban Planning and Transport – C. Polito (Social, Open Space and Landscape Planning) and C. Kaiser (Urban Planning and Transport, Urban Development Concepts, Land Use and Master Planning) | 5) Innsbruck – MA III Planning, Construction Law and Technical Infrastructure Management – Green Space – T. Klingler (head of department) and M. Pinter (Green Space Planning and Construction).

The general strategic planning documentation differs in each city in terminology and contents - Urban Development Plan (Vienna), Urban Development Concept (Graz), Local Development Concept (Linz), Spatial Development Concept (Salzburg) and Local Spatial Planning Concept (Innsbruck). There are conceptual documents on urban green infrastructure, such as the Thematic Concept Green and Open Spaces (Vienna) or Green Net concepts (Graz and Salzburg). Implementation instruments include e.g. Green and Open Space Supply Standards, Open Space Network (Vienna), Open Space Planning Standards (Graz), Greening Degree (Linz) or Green Space Deduction (Salzburg). Political instruments include e.g. Green Space Declaration (Salzburg) or Green Space Offensive (Graz).

The research stay at ILAP BOKU provided a great opportunity to gain a good overview and specific insights into green infrastructure planning and implementation in selected Austrian cities.

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