

3. Green urban areas incorporating Sustainable Land Use

3A. Present Situation

Describe the present situation in relation to green urban areas incorporating sustainable land use, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator area. Where available, information/data should be provided from previous years (5 – 10) to show trends.

Include information on the indicators mentioned below for both the inner city area and the overall city area:

1. The percentage of citizens living within 300m of public green urban areas > 5000m² and public green urban areas of any size;
2. The percentage of green areas, blue areas (water areas), residential areas, industrial or economic areas, mixed areas, brownfields (this will provide important background information on the character of the city and is not an evaluation criterion itself);
3. New developments: proportion of brownfield sites, densification in the inner-city or urban cores, greenfields;
4. Population density (inhabitants per hectare) in built-up areas (city area minus green and blue areas);
5. Population density (inhabitants per hectare) for new developments;
6. Quality of green and blue areas;
7. Investments in green infrastructures (e.g. sustainable urban drainage, green rooftops...).

Maps:

Provide a land use map that indicates 1) the municipality boundaries delineating the overall city area and 2) the inner city area.

Provide the percentage of green and blue areas (public and private) and soil sealing in relation to 1) the overall city area and 2) the inner city area, including trends over the past five to ten years.

Provide additional maps showing city parks, the scale of green and blue areas in the city and their connectivity and coherence.

(max. 1100 words plus maps)

Thanks to its natural features and well-considered urban planning, Ljubljana has a distinctly green identity. The **Municipal spatial plan shows that green areas make up nearly three quarters of the entire territory of the City of Ljubljana.** As part of the comprehensive vision of the development of the city, which is based on the concentration of existing settlement structures, we emphasise internal development, the concentration of settlement along the main city access routes and the regeneration of degraded areas.

The high proportion of green areas is linked primarily to the hilly, marshy and aquatic natural hinterland of the city, an area that was historically less attractive for construction and urban development. **Almost 81% of all green areas lie in the city hinterland (contiguous aquatic, forest and agricultural areas) which extend right into the historical city centre via green wedges and riparian corridors.** The other green areas (19%) are in the **compact city**, where their presence is even more important in terms of quality of life, such as: gardens, parks, playgrounds, green areas between apartment buildings etc.

Green areas are evenly distributed across the entire city: all parks lie within the extended city centre, while playgrounds and playing fields are adjacent to residential areas. In addition, the very core of the city centre, which otherwise features smaller green areas, is penetrated from the east and west by the slopes of the forested, hilly hinterland. We believe that the role of the green wedges and the links between them is of major importance.

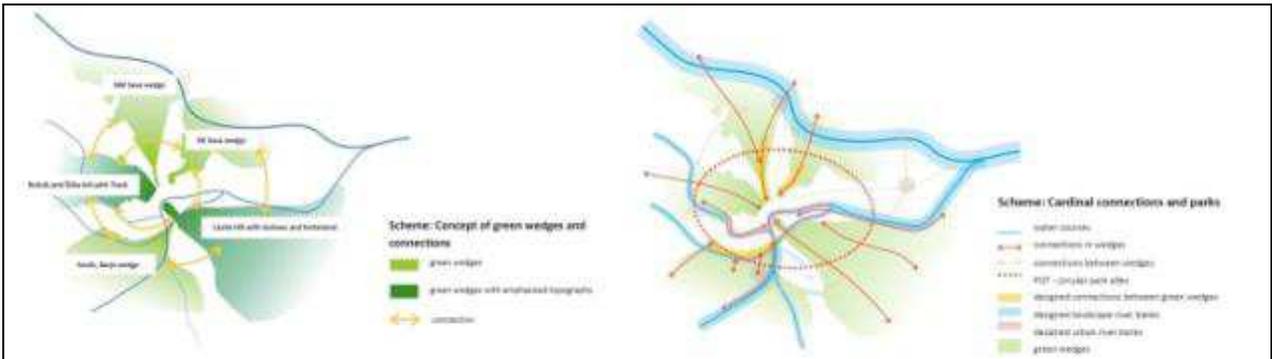


Figure 1: Concept of green wedges and the most important links between them – diagram

Ljubljana has almost 560 m² of green area per inhabitant or 542 m² of public green space. In the compact city Ljubljana has 106 m² of green area per inhabitant or 66 m² of public green space. Almost all the residential areas lie within a 300 m radius from public green spaces.

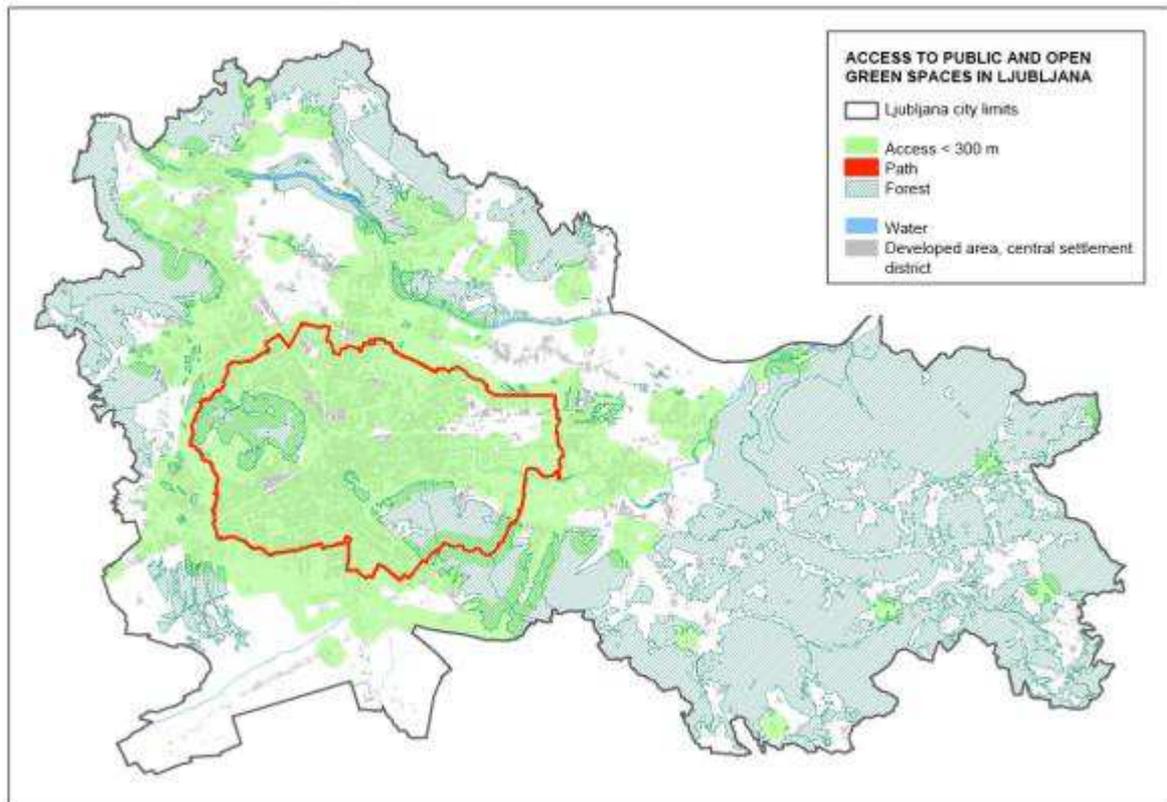


Figure 2: Access to public green spaces within a 300 metre radius

The size of the dedicated green areas in the city differs greatly, with children's playgrounds and playing fields ranging from 10m² to more than 2 ha, grassy areas ranging from 1m² to 30 ha and forest areas from 100 m² to 500 ha in the hinterland.

A comparison of the status of green areas in the city during two time periods (1998-2002 and 2007-2009) indicates that the proportion of public green spaces and green areas within the city centre has not decreased, in fact we have achieved growth; for example in the last five years we have created or renewed 40 hectares of green areas. Today the City of Ljubljana maintains 180 ha of green and open areas, which accounts for 3 % of the city budget.

Table 1: Dedicated land use in the City of Ljubljana by share

Type of use	Total City of Ljubljana		Share of areas in the zone defined by the boundary of the city centre
	Area 10,000 m ²	Share	
Aquatic areas	382.2	1.4	1.7
Agricultural land	8,010.7	29.5	28.8
Forest	10,789.8	39.7	34.9
Green areas	950.5	3.7	4.5
Residential areas (varying density)	3,332.8	12.3	14.0
Central activities	1,034.1	3.8	4.7
Manufacturing activities	553.7	2.0	2.5
Traffic areas	1,475.4	5.4	6.4
Other (defence, energy, municipal services, environmental infrastructure)	615.9	2.2	2.5
Total	27,145.1	100.0	100.0

Table 2: Comparison of dedicated land use between 1986 and 2010

Dedicated use	Long-term plan 1986 (ha)	Urban Master Plan 2010 (ha)
Building land	7,685	7,962
Primary use	19,459	19,182
Forest	11,469	10,790
Agricultural land	7,990	8,210

The green areas in the city centre are fragmented, for the most part reaching less than 200m² (75%). Ownership is also an issue, which affects the maintenance and arrangement of these areas. However, the **majority of privately-owned green areas are accessible to the public**: the majority of green areas in the compact city, a full **96%**, are in public use, regardless of ownership (of course not counting private yards and gardens).

In the new millennium, in line with the vision of compacting the city, there has been a major increase in the amount of new construction in the city. Therefore **since 2005 Ljubljana has devoted special attention to the creation of public open and green areas**. We are aware that green areas are very important for health, pleasant surroundings and quality of life in the city, which is something we wish to preserve and enhance.

In the last three years the City of Ljubljana has planted more than 2,000 trees in the city, mainly along the main roads and parks.

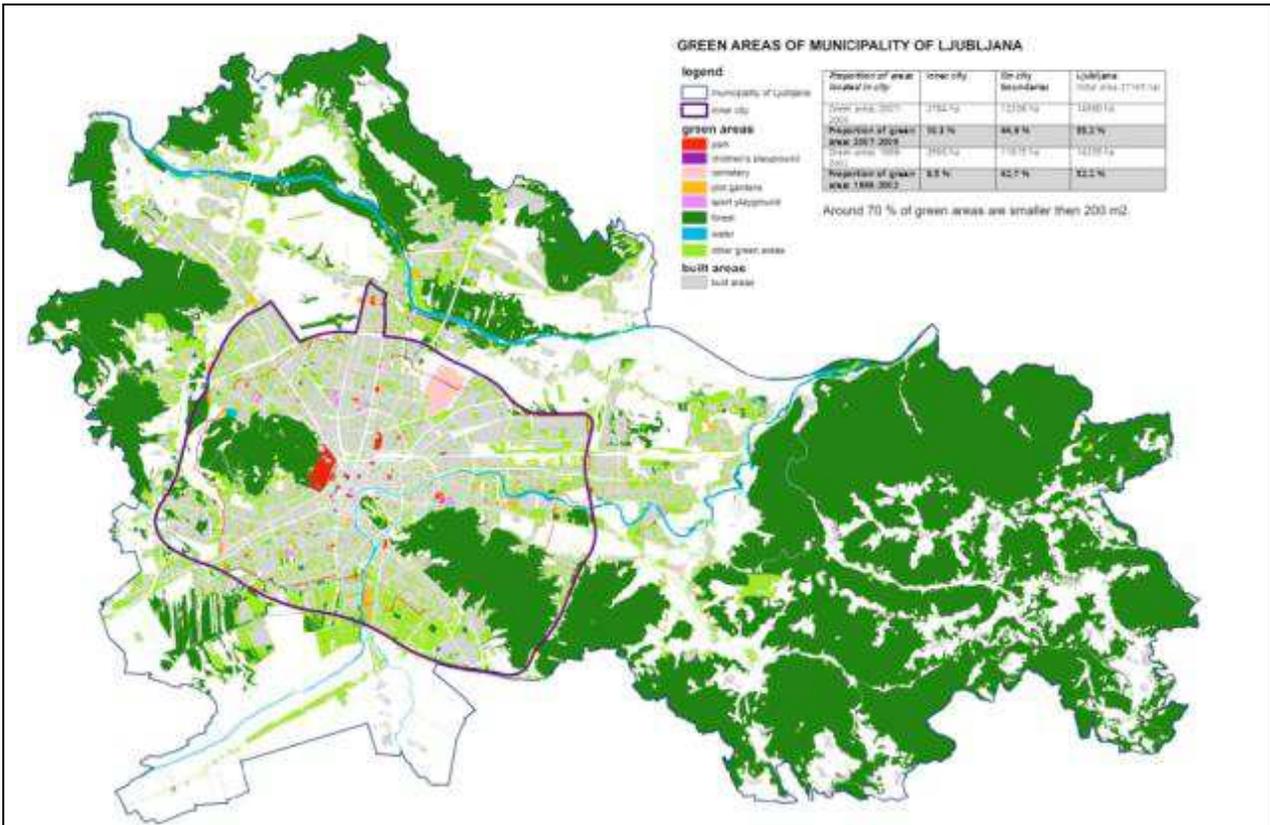


Figure 3: Map of green areas in the City of Ljubljana

In the Municipal Spatial Plan (2010) we defined the city's development objectives. In brief they are: the continued development of Ljubljana as the capital city of the Republic of Slovenia, increased support for artistic, cultural and scientific activities, and with regard to urban planning, the development of an attractive, well-ordered and innovative city, the promotion of health and safety in the city, also with respect to spatial development and the environment, and intensified continuation of the development of a sustainable city.

City development is directed mainly at **regeneration and renewal of existing developed areas** (607.2 ha in total or 83%) of all development areas. In Ljubljana we are **renewing degraded areas** (abandoned barracks, abandoned industrial zones, remediating waste dumps, concentrating construction in the city core and gaps) and **rehabilitating degraded parts of the city** (shanty settlements, illegal garden allotments, etc.).

With an average population density of around 300 inhabitants/ha of developed area or 100 inhabitants/ha of all areas, it is possible to achieve varying densities of inhabitants in development zones, depending particularly on the quantified factors of land use. These are highest along main city access routes and at selected important locations.

Summarising our commitments concerning green and open spaces, the detailed objectives for their development are to:

- arrange and preserve all five potential green wedges in the city that link the city centre with the hinterland, and represent key macro-spatial component sections of the urban space, as well as important city climate corridors;
- link together individual arrangements, areas and networks of green spaces into an integrated system of green areas;
- ensure good accessibility and even distribution of green areas that is equal for all residents;
- establish and arrange waterside features as a special element of the system of green areas;
- ensure adequate climate, residential and ecological quality in the urban environment;
- re-establish green areas that have become blighted through past construction.

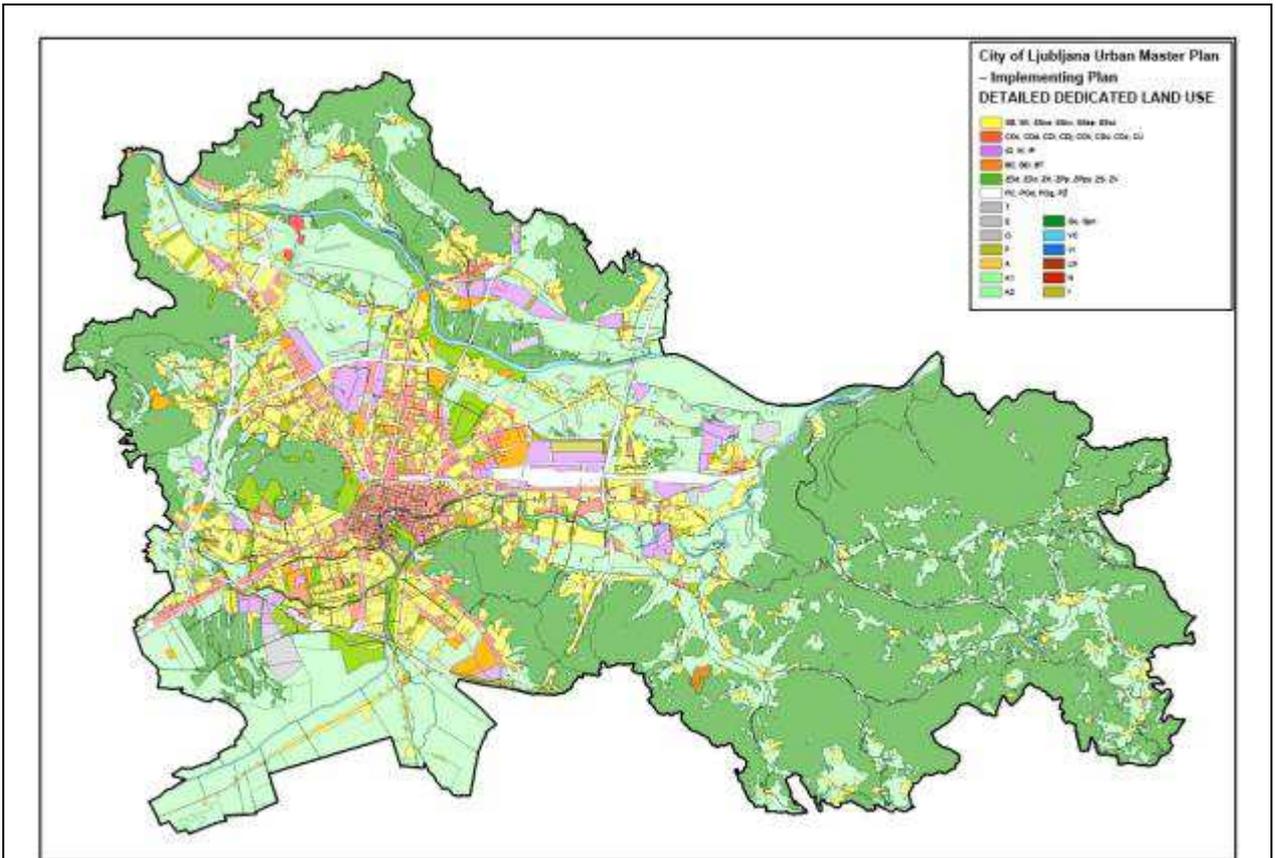


Figure 4: Detailed dedicated land use – map

For the design, selection of criteria and measures for the development of the city and the comprehensive integration of all of the areas of the city in accordance with sustainable development principles, in **2011** the consultants of the Municipal spatial plan received an **Award from the European Council of Town Planners** (ECTP) for the expert guidelines to this document and in **2013** the **Fabiani award, the nation's highest award for excellence in spatial and urban planning**.

Being aware of Ljubljana's position as a core city within the European core city network, which will dictate the orientation of spatial development in the upcoming European perspective till 2020, we have accordingly also upgraded our regional commitments. Since 2011 we have been organising the so called **Ljubljana Forum** a regionally responsible planning and development initiative; this year's topic was Sustainable Management of Transport and Water Resources.

3B. Past Performance

Describe the measures implemented over the last five to ten years. Comment on which measures have been most effective.

Make reference to:

1. Regenerating formerly developed sites (brownfields); inventorying and minimising the total area of fallow, derelict and contaminated land;
2. Increasing or sustaining population density in built-up areas while protecting green areas and providing a high quality of life within densely populated areas;
3. Renovating urban land and renewing urban design (involving stakeholders) to make city living attractive and enable a more sustainable lifestyle (e.g. short distances to services and facilities reduce the transport demand and promote walking and cycling; multi-apartment houses save energy for heating, cooling, reduce infrastructural needs);
4. Limiting urban sprawl by cooperating with the neighbouring municipalities;
5. Limiting, mitigating or compensation environmental impacts of soil sealing;

6. Integrating current and future changes such as economic growth, demographic or climate change through sustainable land use planning;
7. Monitoring the effectiveness of management measures.
8. Quality of green and blue areas

(max. 1200 words)

To overcome the modest investments in the 80s and 90s we have in the last seven years undertaken intensive rehabilitation activities on brown fields, while development of green areas and open public spaces have become priorities in urban planning policy.

Rehabilitation of degraded areas is also a prime task of The City of Ljubljana **Public Housing Fund**. The latest addition is under construction: a sustainable eco-neighbourhood with 148 apartments - Polje III. The completed neighbourhoods and settlements are shown in Table 3.

Table 3: Rehabilitation of degraded areas, City of Ljubljana Public Housing Fund

	Hectares renewed	Number of new apartments	Accompanying programmes (services) and commercial activities	Nursery school, school	Parks, playgrounds	Population density in the area (pop./ha)
Rehabilitation of shanty settlements						
Cesta v Gorice street (2001)	2.46	114 (of which 12 for mobility impaired)	Yes	Already in the surrounding area	Yes	185
Tomačevo (2003)	1.73	23 quads i.e. 92 rental apartments and 123 market apartments	Yes	Pre-school children transported by parents, transport provided for schoolchildren	Yes	212
Polje I (2005)	0.83	78 non-profit apartments 18 for mobility impaired, 10 for blind persons	Yes	Yes	Yes	375
Polje II (2012)	1.6	183	Yes	Yes	Yes	457
Polje III (starting in 2013)		148				
Concentration of city into abandoned commercial zones						
Trnovo Home for the Elderly (2009)	0.31 + 0.69 (park)	60 apartments with home care and 98 rooms for 160 home care recipients	Yes (pharmacy, hairdresser, pedicure)	Not necessary (located nearby)	Yes	23.6 (data for district community, not just area)
Vič	0.74	31 non-profit apartments and 59 market apartments	Yes	Yes	Yes	364
Abandoned barracks						
Nove Poljane (2001)	4.8	309 non-profit of which 20 for functional obstruction	Yes 1,173 m ² of commercial space	Yes	Yes	274
Abandoned industrial area						
Zelena Jama (2009)	0.41	126 non-profit of which 10 for mobility impaired	Yes	Yes	Yes	1,229

Cesta v Gorice street – area before regeneration



Cesta v Gorice street – constructed settlement



Polje I – constructed settlement – ground plan and view



Polje II – constructed settlement – views



Polje III – view of planned internal axis



Figure 5: Rehabilitation of degraded areas, City of Ljubljana Housing Fund

Parks and open spaces

Complementing the extant parks in Ljubljana, amongst them the oldest **Tivoli Park**, built exactly 200 years ago, and largest **The Path of Memories and Comradeship (PMC)**, started in 1946, **we added five new parks.**

PMC, the backbone of the green system of Ljubljana, is a continuous green space in Ljubljana, extremely popular for sports and leisure activities. It also connects various green spaces in the city and even between the green city wedges. **It is the longest tree-lined avenue in the city, with 7,000 trees and numerous memorials, rest points and other features.** The Path runs along the line of the former barbed wire barrier erected by the occupation forces during the Second World War. The design and landscaping, completed in 1985, are continuously upgraded (length 34 km; 166 hectares of green areas). Today the Path serves as an **exceptional feature of city infrastructure, offering residents recreation both in summer and winter: we have installed fitness stations with wooden exercise equipment, and maintain cross-country ski trails in non-settled areas when there is snow cover.** The most attended event on the Path is the annual 9th May Walk, a holiday in honour of Ljubljana that is attended by more than **30,000 people.**



Figure 6: The Walk on the Path of Memories and Comradeship

The **five new parks** were built on degraded land (overgrown riverbanks, abandoned industrial areas etc.), which amounts to an increase of **40 hectares in four years!**

In addition to the **Severn** (Northern) **Park** and the park along the **Gradaščica River**, we have the new **Šmartinski Park** (2009; area: 12.7 ha) and **Zelena Jama Park** (2010; 0.9 ha), which are directly tied to the green area of the main **Žale cemetery** (40 ha), and the **new Stožice Sports Centre** (2010; 12.7 ha). **Zelena Jama Park** was arranged in a degraded area where there were once garden allotments and later a waste tip for construction materials.

Šmartinski Park was started in 2007 when allotment gardens were removed. The landscaping, including building of paths, public lighting and paved areas, installation of street furniture and planting of flowers and lawns, was done in 2008. Other features such as a children's playground, plant collections, recreational and educational features, etc. are in the pipeline.

The new **Stožice Sports Centre** was also built in the degraded area of a gravel pit, landscaping of the park areas is in the final phase.



Figure 7: Landscaping in the Stožice Sports Centre

An example of linking green spaces with urban rehabilitation is the internationally awarded project **Renovation of the Banks and of the River Ljubljanica** (recipient of the European Prize for Urban Public Space 2012). By establishing footpaths along the river with four new bridges for pedestrians and cyclists, new landing stages, paved areas and loggias that descend in steps towards the river we have extended the pedestrian zone in the city centre to the river, while adding cultural and socialisation opportunities (e.g. reading points, the *Library under the Trees*), educational elements (archaeological site at Špica) and commercial attractions (quays as the starting point for boat tours, catering etc.). In 2013 a further 500 m of regenerated space on the Petkovšek Embankment were opened to the public and Novi trg was repaved.



Figure 8: New open public spaces: Špica and the Library under the trees

We have successfully completed the first phase of **Revitalising the Embankments of the River Sava** project, involving the renewal of 20 hectares of heavily degraded areas. We have removed several illegally erected structures, and designs have already been made for establishing interpretive trails and sports and recreational features.



Figure 9: Recreation and education centre by the Sava

Severni Park



Zelena Jama Park – under construction

Šmartinski park



Park by the Gradaščica



Figure 10: New Ljubljana parks

Together with non-governmental organisations Ljubljana is also undertaking many smaller projects associated with the quality of the living environment in neighbourhoods and local communities. Furthermore, the interactive online citizens' initiative service offers citizens to participate in daily management of the city. In 2010 a collaboration of residents and artists produced the **Labyrinth of Art** project, in which each person has the opportunity to become the caretaker of one tree. The **Beyond Construction Site** project is a small-scale neighbourhood project in which in August 2010 two non-profit cultural organisations with the help of residents transformed an abandoned building site into 25 vegetable garden allotments.



Figure 11: Labyrinth of Art



Figure 12: Beyond Construction Site

Policy concerning green and open spaces, urban sprawl and regional cooperation

The preservation of the current proportion of vegetation cover of nearly 80% of the area of the City of Ljubljana, i.e. the relationship between the size and the level of development of open living areas and green areas in development projects, is ensured through the application of two urban planning factors:

1. The **green areas factor** (GAF) is the ratio of green areas on land with vegetation cover to the total area of the parcel intended for the construction of non-residential buildings. Green areas are intended for landscaping next to buildings on land with vegetation cover. In the area of the core city centre, land with vegetation cover can only be replaced by paved areas if this involves arranging a square or multi-purpose developed area.
2. The **open living areas** (OLA) factor is the area of open living areas as a proportion of the total area of the parcel intended for construction of buildings with dwellings. It includes at least 50% green areas on land with vegetation cover and a maximum of 50% paved areas that do not serve as traffic areas or municipal functional areas. Applying this factor we also achieve a corresponding consolidation of land with vegetation cover, in other words we protect land from excessive development of construction land.

Urban sprawl is being limited by focusing on denser construction within the existing urban fabric,

especially in degraded areas and along existing public transport routes. In cooperation with neighbouring municipalities, we are establishing better public transport links (extending city routes), while simultaneously reducing the pressure from motorised traffic on the city environment through the establishment of P&R facilities along the main city access routes and in regional centres. By 2017, 23 of these lots will be built in Ljubljana and the neighbouring municipalities.

Such results justify the operations of two bodies established at the City of Ljubljana: the **Public Space Council** and the **Deputy Mayor's Collegium for Public Space and Traffic**. The Public Space Council plays a primarily advisory role and links professionals in various fields. It is responsible for the promotion of best practices associated with the management of green areas and other public spaces, and also has various competencies in decision-making on individual spatial planning arrangements. The Deputy Mayor's Collegium is an operative body which includes representatives of various departments of the municipal administration, public utilities and contractors, and which discusses the planning, maintenance and renewal of green and open areas in the city. The Collegium contributes to the quality of green urban areas by improving the level of coordination between individual actors and promoting the exchange of information, knowledge and experience.

3C. Future Plans

Describe the short and long term objectives and the proposed approach for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

With particular reference on the establishment and management of green urban areas (public and privately owned) taking into consideration their function:

1. People's quality of life and recreation;
2. Additional ecosystem functions and services such as regulating water balance, balancing climate extremes, filtering air pollution, education, etc.;
3. Rehabilitation of brown field sites, derelict and/or contaminated land.

Please make reference to the criteria that will be used to measure progress and impact.

(max. 800 words)

Tending garden allotments is very popular in Ljubljana. The Urban Master Plan specifies dedicated land use; the city has developed model allotments on city-owned land. In 2010 we handed over 66 landscaped garden allotments in two locations, and have plans for five new areas (a total of 400 allotments gardens). In addition to the 46 hectares of land dedicated for gardening allotments, we also enable the establishment of temporary gardens on inactive construction sites and on agricultural land.

Allotment areas before landscaping



Allotment areas after landscaping



Figure 13: Regulation of allotment gardens

Sports, recreation and children

The main objective in planning sports and recreation areas is the provision of 0.5m^2 of covered space and 3m^2 of open space per inhabitant in a sustainable manner. This implies ensuring access for cyclists, pedestrians or public transport. We are planning the construction of **12 sports parks** (3 ha in area) that are an integral part of the university sports centres and the city district sports centres, and **sports islands** (capacity of up to 500 people) within an accessible radius of 300 m from the settlements.

In addition to the already constructed Stožice Sports Centre, we are planning the construction of other **sports centres**, such as e.g.: Podutik Sports Centre (indoor skiing), Sava Sports Centre (water sports), Trnovo Suburban Sports Centre (water amusement park, olympic swimming pool, golf centre) and an Urban Sports Centre (skating, monobiking, bmx). Along the Sava River we are continuing construction of the city's largest recreational park (cycling, running, horse riding and walking trail, fitness path).

We maintain **240 children's playgrounds**. In the new parks we are setting up children's playgrounds and areas for safe play. The Municipal spatial plan also stipulates provision of children's playgrounds in new residential construction projects.

Our varied activities in improving the sewage system in the city with adequate water treatment plants are benefiting the quality of the Ljubljanica River. By year 2014 it will be suitable for bathing!

Rehabilitation and regeneration

An example of an **ambitious and long-term regeneration project** is the **Šmartinska Partnership**, which is a public-private partnership formed in 2008 for the long-term transformation of a former industrial zone (total of 228 hectares, of which 147 ha are for regeneration). Sustainable building practices and modern technological approaches are emphasised. Two buildings have already been completed: the Crystal Palace, the tallest commercial building in Slovenia, and the Hotel Plaza. The central motif of the integral design is the "central park", which is part of an interconnecting layout of open and green areas between Žale (the Ljubljana cemetery), the River Ljubljanica and the city centre.

View



A look inside the renovated former factory



Figure 15: The Rog centre of visual arts

Additional functions of the ecosystem

Green areas and land use also have an important function for ecosystems and mitigating climate change. In 2010 we declared **1,400 ha** in the City of Ljubljana territory as forests of special purpose i being enormously valuable as a CO₂ sink. We will define the measures to mitigate the heat island phenomenon by the European UHI project (started in 2011).

Ljubljana is also participating in a **Life+ project** for the renewal of the Ljubljanica corridor and improving the riparian water regime, particularly for the endangered fish species *Hucho hucho* (Danube salmon), *Rutilus pigus* and *Leuciscus souffia*.

We are also active in the preservation of natural habitats; since 2011 we have been implementing a project for the suppression of the invasive plant **Ambrosia artemisiifolia** (common ragweed).

A special budgetary fund has been established to resolve national responsibilities concerning old environmental burdens. Thus in 2008 and 2009 we replaced all the **asbestos roofing on nursery schools and primary schools**, and at the same time added heat insulation.

Together with the national government we have been drawing up plans for **flood prevention**. The SE section of Ljubljana requires the construction of a retention basin in one of the neighbouring municipalities at a cost of €50 million. In order to avoid possible delays, the City of Ljubljana has already **adopted an independent action plan with the prescribed content tied to flood protection and preventive measures**.

The City of Ljubljana is one of the few European cities that has **its own stable stock of high-quality drinking water accessible to everyone**. We are installing public drinking fountains around the city, much appreciated by residents and visitors, especially during the summer. To assess the water balance in the Ljubljansko Polje aquifer in the process of adapting to climate change the City of Ljubljana is implementing the European **CC-WaterS** project.

3D. References

List supporting documentation, adding links where possible. Further detail may be requested during the clarification phase. Documentation should not be forwarded at this stage.

(max. 400 words)

- Municipal spatial plan – land use: <https://urbanizem.ljubljana.si/index3/>
Public interface:
 - <https://urbanizem.ljubljana.si/UrbinfoWeb/profile.aspx?id=Urbinfo2@Ljubljana>
- Regional projects:
http://www.rralur.si/fileadmin/user_upload/projekti/Promet/JPP_v_LUR_KP_pog1.pdf
http://www.rralur.si/fileadmin/user_upload/projekti/Promet/PozivBrosura/JPP_brochure_ang.pdf
- **The European Prize for Urban Public Space for the renovation of the banks on the Ljubljanica River:**
<http://www.publicspace.org/en/prize/2012>
- Beyond the building site: <http://onkrajgradbisca.wordpress.com/english/>
- Partnership Šmartinska – Šmartinska District Partnership:
http://www.google.com/url?sa=t&rct=j&q=partnership%20%C5%A1martinka&source=web&cd=1&ved=0CCIQFjAA&url=http%3A%2F%2Fwww.ljubljana.si%2Ffile%2F4275%2Fkatalog-mipim.pdf&ei=AiRPUJ65CcnVtAbn2YBw&usq=AFQjCNEE77373dpxd_xsKRC1StYexapITg
- Investment projects: <http://ljublanski.projekti.si/#>
- Ljubljana, smart city: <http://www.ljubljanapametnomesto.si/>
- Stožice Sports Park – an example of sustainable and rational construction: <http://www.energijadoma.si/znanje/zapis/sportni-park-stozice--primer-trajnostne-in-racionalne-gradnj>
- Energy-efficient refurbishment of multi-family dwellings, example of good practice: <http://www.izs.si/index.php?id=642>
- City of Ljubljana publications: <http://www.ljubljana.si/en/municipality/publications/>
- EU 2020 Going Local: <http://www.eu2020goinglocal.eu/subpage.aspx?MenuID=68731&showmenuid=68731>
- CCWaterS project: <http://www.cwaters.eu/>
- European INCOME project: www.life-income.s
- Battling Ambrosia artemisiifolia: <http://www.ljubljanapametnomesto.si/aktualno/arhiv/clanek?aid=481>
- Life project Ljubljanica – endangered fish species: <http://ksh.fgg.uni-lj.si/ljubljanicaconnects/>