

PILOT EVALUATION REPORT - Implementation of the Green Cadastre and analysis of spatial indicators for the evaluation of selected urban green areas of Zadar, Croatia

Summary reports on the main outcomes of pilot actions and the lessons learnt within, with an outlook to prospective follow-up actions and potential transfer of the results to other areas within the same FUA and beyond

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1. Activities and outcomes

1.1 Brief summary

Our pilot activities were concentrated around the creation and implementation of the Green Cadastre Service which was supposed to contain:

- A GIS system
- Map of at least two green area locations within the Zadar County area (5 were mapped in the end).

The goal with the implementation of the Green cadastre was to get a platform for the intelligent management of urban green areas. In order to organize more efficient managing of urban green areas, there had to be a clear and systematic overview of the green area status which has been achieved by establishing this cadastre.

Due to the fact that Zadar County is mostly touristic and agricultural region down mentioned indicators have been chosen (chapter 1.3). By setting these indicators we wanted to see what is our "status quo" regarding these two sectors and how do we stand in comparison with our partners from other Central European countries. Besides that, our goal was to determine where we are so that we could decide which way we want to take our urban green planning in the future. Due to tourism, people are moving out from Zadar's city centre. Hopefully we may be able to stop this with, among other things, smart planning of content for children such as green playgrounds etc.

Implementation of the Green Cadastre went smoothly and was done by the set deadline which was December 31st 2017. As agreed, Green Cadastre has been put online in order to be accessible to wider general public. Luckily there were no challenges while implementing the Cadastre because during the procurement phase we have chosen the company that already had experience with such work. The benefits of the Cadastre are yet to come.

1.2 Activities performed– What happened in you pilot action?

To create a Green Cadastre, administrative resources and modern geodetic equipment have been provided. The development of the Cadastre has taken place in several phases: preparation, field work, data entry and analysis.

Preparatory work was related to database preparation, exploration of existing documentation, definition of spatial objects, and elaboration of work plan. After carrying out inventory and assessments, it is possible to have a continuous insight into the conditions of the selected pilot areas that will be available to everyone. This means that the information of the selected areas (which we hope will expand in the future) are available for the general public but also available for editing and direct input from the experts on the field through the application.

The Green Cadastre Service encompasses:

- A GIS system
- Mapping green areas

The following locations were mapped:

- Antun Gustav Matoš street - area of approximately 700 m² and about 110 trees
- Part of the Prince's Trpimir shore next to the Uskok Sailing Society- a surface of approximately 4,200 m² and about 170 trees
- Green triangle at the bottom of Dražanica bay - surface of approximately 500 m² and about 10 trees
- Sphinx Garden - approximately 7,100 sqm and about 170 trees
- Perivoj in Maestral bay with a surface of approximately 5.500 m² and with about 140 trees

There are, in total, about 18,000 m² of green areas with about 600 trees.

- Preparation for setting up a green cadastre
- The information collected about the individual plants included: Category, Type, Year of planting, Health, Aesthetics, Height, Height of the trunk, Edge diameter, Visible damage, The diameter of the crown, Photograph. Not all plans have the same categories listed.
- Interactive web based green cadastre version fully accessible to the public – the Cadastre has several different functionalities: zoom in and zoom out of the selected area, choose from 5 different categories for viewing (lawns, trees, hedges, bushes and perennials).

Stakeholders were asked to give their critical opinion on local needs and accordingly to choose adequate indicators (chapter 1.3) which will help give answers to aforementioned needs. We have collected their opinions via the discussion itself during the SP meeting and the National roundtable, and the short questionnaire we prepared for the SP meeting/Nat. roundtable. We identified the need for expanding the green cadastre to include privately owned green areas and also a needed functionality in the Cadastre where the citizens can directly report any issues with the specific green area or its inventory.

1.3 Outcomes- What are the results?

There was a need for systematic inventory of public green areas in municipalities of FUA as well as for the continuous collection of data on their surface, organization and use in order to facilitate the identification of measures required for their sustainable management and increasing the quality of use.

The whole process was carried out through the implementation of the Green cadastre via pilot action in chosen locations in Zadar. The implementation of the Green Cadastre went smoothly and was done by the set deadline. As agreed, Green Cadastre has been put online in order to be accessible to wider general public.

In order to document the implementation steps in a harmonized way, a logical structure has been designed where every partner indicates the reference parameter and spatial dimension of each indicator in use as well as the corresponding data, metadata, calculation routines and display options. The choice and communication strategies have been motivating in terms of relevance for the stakeholders, especially regarding community involvement and capacity building directly linking to the project's other TWGs. This applies particularly to the key indicators because of their high analytic, descriptive, and integrative value.

By creating the Green Cadastre, we have a platform for the intelligent management of urban green areas. In order to organize more efficient managing of urban green areas, a clear and systematic overview of the green area status that is achieved by establishing a cadastre was essential. Our goal was to ensure the best quality decisions, as soon as possible, when managing green areas, taking all key criteria and parameters into account.

Chosen elements of the model

1. Basic (*basic figures mainly needed for inventory aspects or derivation of composite and key indicators*):
 - Elements with positive influence on the sojourn quality (benches, playgrounds, sports facilities, etc.) [n]

- Distance to public transport (efficient stops) [m]
 - Existence of water bodies within parks [y/n]
 - Protection status of a single green space [y/n]
2. Maintenance (*inventory of UGS types, effort and costs for conservation*):
 - Density of public trees per grid cell [n/ha]
 - Share of all public green areas per grid cell [%]
 - Age of objects within {plant class|species} [years/plant class | years/species]
 - Costs for cutting and watering per {plant class/ species} [€/m² | €/plant class | €/species]
 - Sustainability (supply of natural UGS functions):
 - Green space per capita [m²/person]
 - Soil conditions [categories]
 3. Attractiveness (*accessibility, usage and satisfaction with UGS, contribution to liveability and quality of life*):
 - Mean distance to the three closest public transport stops [m]
 - Number of children in walking distance of playgrounds [n/playground]
 - Share of residents within walking distance (500 m)/biking distance (2 km) of recreation grounds [%]
 4. Profitability (*economic potential of agricultural, recreational, and touristic use of UGS*):
 - Share of agricultural and forestry areas with good soil conditions [%]
 - Share of residential area within walking distance of 1 km from recreation grounds [%]

These indicators have been chosen based on the fact that Zadar County is mostly touristic and agricultural region. By setting these indicators we wanted to see what is our “status quo” regarding these sectors and how we stand in comparison with our partners from other Central European countries. Besides that, our goal was to determine where we are so that we could decide which way we want to take the future urban green planning. Due to tourism, people are moving out from Zadar’s city centre, which is something we might be able to address with smart planning of content for children such as green playgrounds and other similar areas.

1.4 Evaluation– Are you satisfied with the results?

The essential goal was to adopt some of the community involvement techniques and tools made in TWG2 model and add them to those that have already been used in FUA Zadar. Participatory approach has been identified as crucial in the decision making process especially when bottom up approach is being applied.

The Urban Green Fest activity was a great success with a huge attendance. Listening to the feedback given by those who participated in the organisation and event agenda, but also those who attended as guests, it was apparent how much these types of events can assist in furthering the goal of clever usage of UGS, especially when it comes to systematic and clever management of our public green areas. The data was collected through a questionnaire.

By establishing Stakeholder Platform and by engaging relevant public authorities, knowledge institutions, enterprises and civil organisations we ensured generation of project outputs. SP members function as important actors of knowledge transfer both to and from the transnational partnership due to their practical knowledge and networks. As they are familiar with the state of the art in the greenery sector then their participation at the meetings is clear. It is important for all key people from the sector to sit together and agree on steps in order to achieve successful coordination and effective development of green areas. The input received through these channels have been of enormous help during all the phases. Stakeholders were asked to give their critical opinion on local needs and accordingly to choose adequate indicators which will help give answers to aforementioned needs.

Chosen indicators were analyzed and represented through 5 relevant groups of valuating urban green areas, that is, the specific pilot locations: Biodiversity, Economic feasibility, Functionality and purposefulness, Attractiveness, Sustainability.

1. Biodiversity – all locations have been found to have a high level of biodiversity. This is a crucial indicator in so much that it directly affects other indicators.
2. Attractiveness – all locations have been found to be extremely attractive, although there are visible consequences from vandalism and other types of inappropriate usage of the locations. However, a lot of effort is being put in to remedy this which keeps this indicator on a high level.
3. Sustainability: the pilot locations have been found to imply conflicting state – large biodiversity in the locations can aid in the sustainability of the ecosystem but it also requires a more thorough up keeping, which required heavier financing.
4. Economic feasibility – it was found that the pilot locations in general have high capacity for economic feasibility, mostly in regards to tourist promotion. the areas are large and one of the parks (the park of the Queen Jelena Madijevka) is the oldest kept, public park in the country.
5. Functionality and purposefulness – one of the two main parks was found to be functional in a very limited sense since it is cut off from the regular walking routes so its purposefulness is targeted. The other park has, in turn, a whole host of functions – recreation, relaxation, new activities added to the area etc.

The benefits of the Cadastre are yet to come as we expect a further development of the GI system where there will be a possibility of direct involvement from the citizens and the general public in the sense that they will be able to report any issues with the Cadastre directly within the application.

Budget table

Costs description	Budget line (external/ equipment/infrastructure)	Status 1) performance in progress/ 2) performed but not paid/ 3) performed and paid)	Final amount of the costs
Setting up an integrated GIS system, mapping green areas, preparing a tree cadastre and creating a free access online version of the green register	External expert	3	25000
Extra pilot	External expert	1	3000
Stakeholder meetings	Staff	3	1500

		<i>Total costs:</i> 29500	
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2. Follow-up actions

2.1 What about the future?

When it comes to the sustainability of the pilot, we strongly feel that perhaps the most influential and successful activity organized during the implementation of the pilot activities, was the Green Fest. Considering the feedback we received, it was clear that for this particular region, one of the most impactful ways of spreading and strengthening the mindset of utility, conservation and green initiatives is by directly including the citizens in the decision making process by adding a functionality to the web-based Cadastre. They will be able to report any issues with the Cadastre's inventory directly from the application.

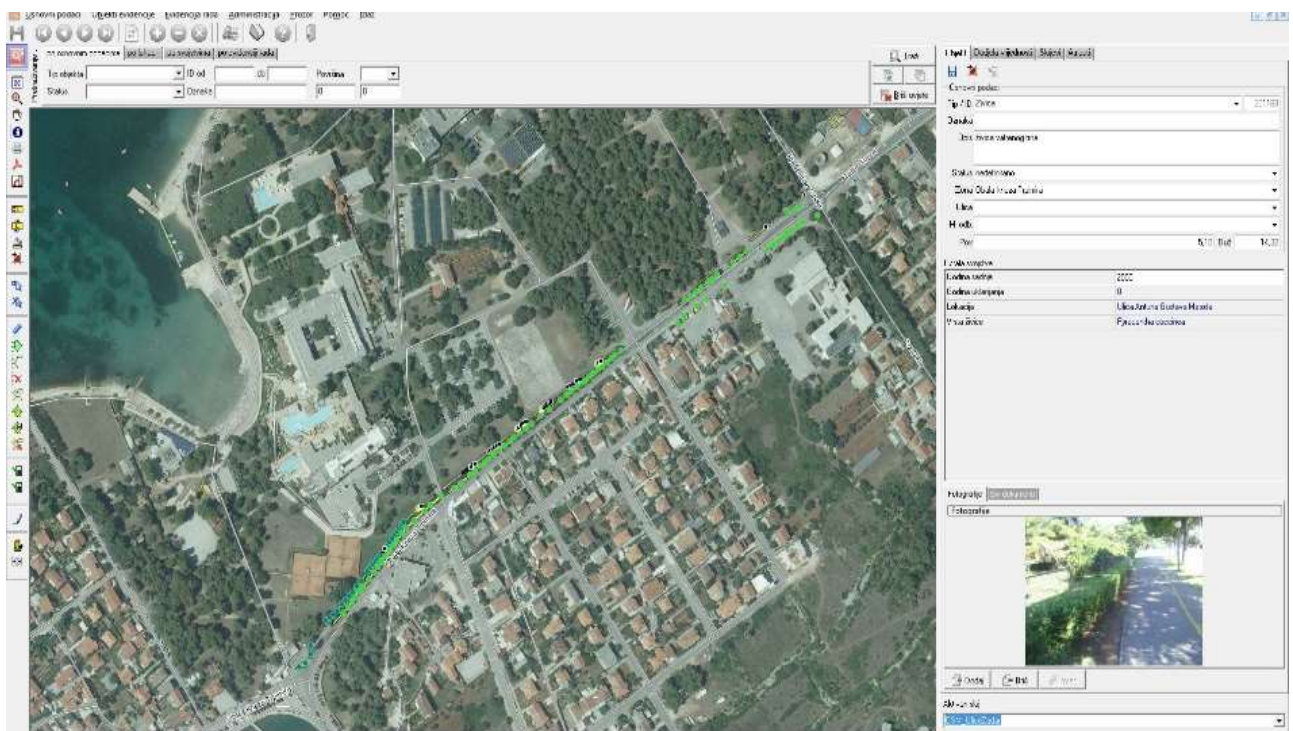
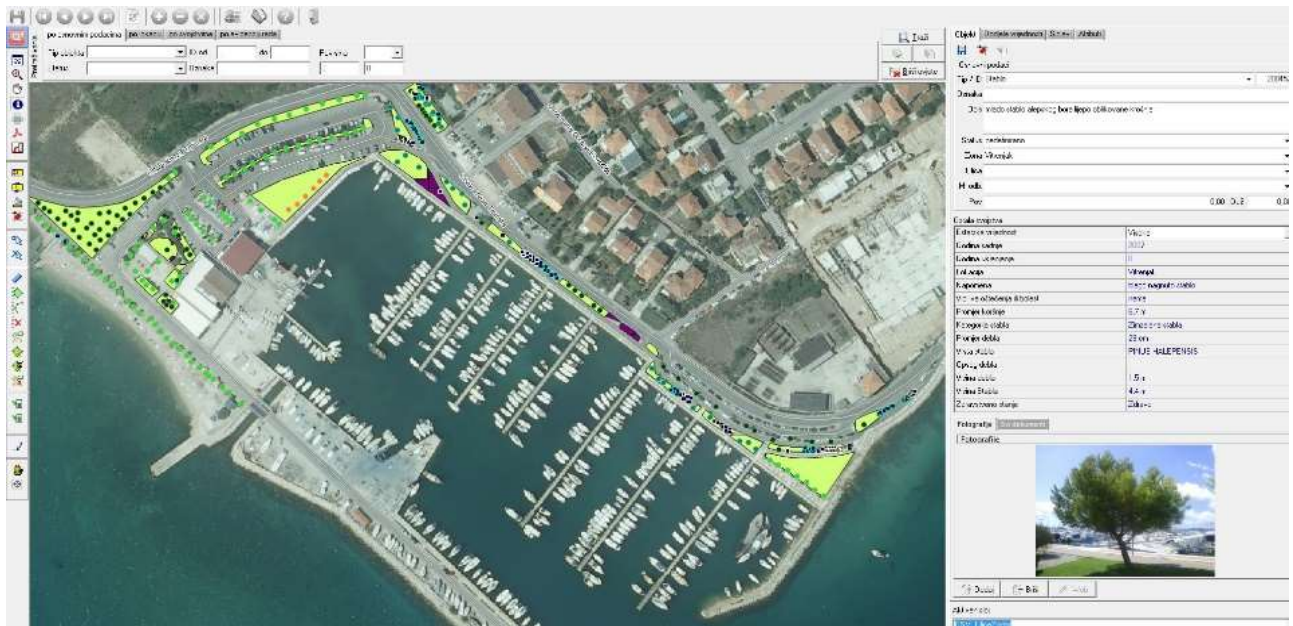
Communication activities organized during this period, but also those that are to come, we feel, have made it possible for us to spread the net of essential interactions with various service based businesses as well as public facing ones (such as media outlets). Clearly, the possibilities are endless, especially when it comes to initiating and motivating the public and those representing public opinions and wants, to participate in the future initiatives.

When it comes to the Green Cadastre itself, the plans are centered around updating the information of the database, and adding additional functionalities to include overview of privately owned green areas and its inventory, and capability of reporting issues within the inventory directly to the database. The owner (the city of Zadar) will then be responsible for checking the reported issues and updating the database on a planned schedule (which is yet to be determined). The selected indicators will be in use for the foreseeable future as we have found them to be very valuable.

2.2 Lessons learned to upgrade the draft models to “make them smart” – What can be transferred?

During the pilot process, we have focused on attaining and analyzing the data collected within the Green Cadastre which are aim to assess the quality of the green areas specified within the pilot. Perhaps the utility and transferability profile of the pilot is best seen within the scope of the legal requirements during future development of urban areas which mandates the knowledge on the quality of urban green areas, but also the precise indicators that allow this framework to produce needed result and information.

We believe that the major lessons from this model, in order to upgrade it, has to do with the categories, that is, the 5 relevant groups of valuating urban green areas produced from the chosen indicators. Those categories are: Biodiversity, Economic feasibility, Functionality and purposefulness, Attractiveness, Sustainability. When combined with the inventory of the Green Cadastre, it is possible to extrapolate extremely useful data on the overall quality of a UG area and provide the decision makers with the tools to frame and guide their decisions.



Informační systém pro evidenci zeleně (ISIZ)

Mapa: 201006

Objekt: 201006

Název objektu	201006
Jednotlivý objekt	201006
Číslo objektu	201006
Adresa objektu	201006
Číslo parcely	201006
Číslo pozemku	201006
Číslo pozemku v rámci katastrálního území	201006
Číslo katastrálního území	201006
Číslo obce	201006
Číslo státu	201006
Číslo zeměpisné souřadnice	201006

Mapa: 201006

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Informační systém pro evidenci zeleně (ISIZ)

Mapa: 201022

Objekt: 201022

Název objektu	201022
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Číslo objektu	201022
Adresa objektu	201022
Číslo parcely	201022
Číslo pozemku	201022
Číslo pozemku v rámci katastrálního území	201022
Číslo katastrálního území	201022
Číslo obce	201022
Číslo státu	201022
Číslo zeměpisné souřadnice	201022

Mapa: 201022

Objekt: 201022

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Mapa: 201022

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