

## MID-TERM PILOT STATUS REPORT

Mid-term pilot status report on implementation of the  
GIS-based assessment model in the Salzburg FUA

Authors: Johanna Schmitt, Günter Gruber



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# 1. Activities

## 1.1 Brief summary

This report refers exactly to the ten tasks defined in the overview table of the Pilot Activity Concept and describes the current state and progress of these activities. Most of them spread over the whole pilot action period and therefore currently still are in progress. However, some intermediate results can be presented. The first step of the analysis focuses on the assessment of zoned recreational areas. It consists of an evaluation of their recreational quality and the supply they provide for the residents living in the study area. This step now is completed and will be followed by an analysis of other green land types. All activities that at this point should have been started, currently are in progress or have already been finished.

## 1.2 Activities performed

### Data acquisition and management

In this step, the required data for the GIS-based assessment have been collected. Most of them are from SAGIS (GI system of the Federal State Salzburg) and OpenStreetMap. On the one hand, they include the green spaces that serve as input for the analysis (e.g. parks, playgrounds, football pitches, but also riverbanks and similar areas). On the other hand, they encompass data needed for the in-depth evaluation of these areas, e.g. existing water bodies, noise zones, tree cover density, equipment features like benches or playgrounds, or a street network. Some additional data including borders and similar topographic features were collected, because they serve as input for the cartographical representation of the calculated results. For the analysis of the fair supply, also a population grid from Statistik Austria needed to be acquired. All datasets have been preprocessed in order to use them as input for maps or analytic steps.

Status: completed

### Discussions with stakeholders/partners

This activity was defined as a permanent action and, therefore, will be in progress during the whole pilot activities. Issues and questions regarding the development of the model and the progress of pilot actions were discussed during the study visit in Padova in November. We could learn some practical applications based on the smart model concepts by observing the landscape transformation management of an urban green space as well as the implementation of a web-app for tree inventory purposes. The coordination and support of our thematic working group is ongoing in order to achieve good results.

Our own pilot activities are in close cooperation with our local stakeholders representing administration and government of Salzburg Municipality and the federal state. Our study visit currently is being prepared involving some of those representatives and other local experts. The synergy workshop is planned for July 2018 and shall be part of the GI\_Forum, an annual symposium on geoinformatics. A session with experts' talks on green infrastructure followed by a discussion panel is scheduled. Furthermore, scientific exchange between our institution and the University of Salzburg frequently is being performed.

Status: ongoing

### Final choice of indicators

Since the first part of the analysis now is completed, the indicator set for this step will not be altered in the further progress. The indicators used mostly belong to the attractiveness pillar that has been defined in the Draft Model. This pillar especially was designed with a focus on recreational areas with regular public use (e.g. parks, playgrounds, sports grounds) and, therefore, meets the requirements for the defined goal

of this step. We decided to group the defined indicators into three categories that in the later steps serve as indices: nature and scenery, properties and infrastructure, and accessibility. Each index on its own already provides information about the value of recreational areas, but together they serve as input for the determination of an integrated recreational value as key indicator.

Nature and scenery	<ul style="list-style-type: none"> <li>• Relative relief [m]</li> <li>• Existence of a water body within/directly adjacent to the area [y/n]</li> <li>• Tree cover density [%]</li> <li>• Share of biotopes [%]</li> <li>• Share of areas with noise levels causing annoyance for at least 50 % of the population [%]</li> <li>• Share of protected areas [%]</li> </ul>
Properties and infrastructure	<ul style="list-style-type: none"> <li>• Area size [ha]</li> <li>• Existence of parks [y/n]</li> <li>• Existence of playgrounds [y/n]</li> <li>• Existence of sports grounds [y/n]</li> <li>• Number of categories of equipment features positively influencing the sojourn quality [n]</li> <li>• Path density within each area [m/ha]</li> </ul>
Accessibility	<ul style="list-style-type: none"> <li>• Size of service area within a walking distance of 400m [km<sup>2</sup>]</li> <li>• Size of service area within a biking distance of 3500m [km<sup>2</sup>]</li> <li>• Number of bus or train stops within a walking distance of 400m [n]</li> </ul>

Nevertheless, for the conduction of the second step (inclusion of all types of green and more ecosystem services) additional indicators are needed. They will be definitely defined within the next weeks using the GIS model framework as fundament before the beginning of the new calculation processes.

Status: in progress

#### Indicator calculation

The indicators were calculated individually for 289 recreational areas distributed over the whole study area. Afterwards, the index values could be derived by calculating a weighted average based on the appropriate indicators. For the indices “nature and scenery” and “properties and infrastructure”, in each case two indicators received a higher weight, while for the index “accessibility” only one indicator was assumed more important because this index only includes three indicators. The remaining percentages were equally distributed on the remaining inputs. The indicators with higher weights are listed below.

- Nature and scenery: tree cover density (30%), existence of a water body (30%)
- Properties and infrastructure: equipment features (25%), path density
- Accessibility: size of the service area within a walking distance of 400m (50%)

Status: in progress

#### Integrative analysis, key indicator derivation

The integrative analysis includes the identification of the recreational value of individual green spaces in categories from 1 (low quality) to 5 (high quality). Based on that, a supply study using a 250x250m population grid as foundation could be conducted. The following figures serve for a better understanding of the analytic steps. Figure 1 shows the calculated integrated quality level. Light colors indicate low quality, while recreational areas with a darker green are of higher quality. Figure 2 shows the quality level of the highest rated recreational area that can be reached from populated cells in the grid if the residents are willing to walk

400m (average accepted walking distance including all age groups). Again, the lighter the color the lower is the recreational value. Grey indicates that no recreational area is available within 400m.

Status: in progress

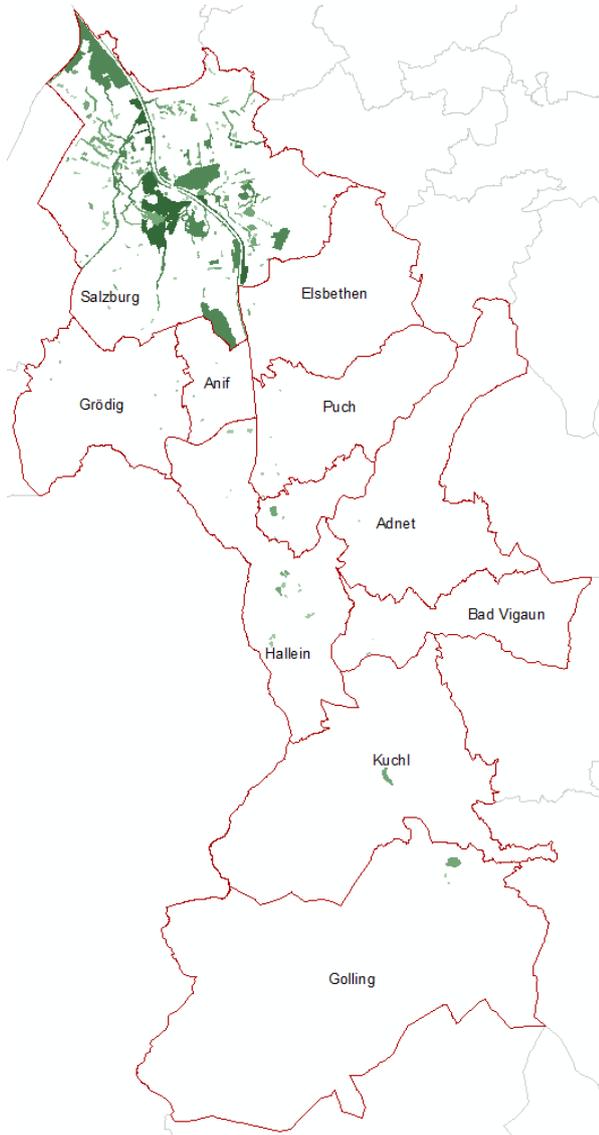


Figure 1: Integrated recreational value for individual recreational areas

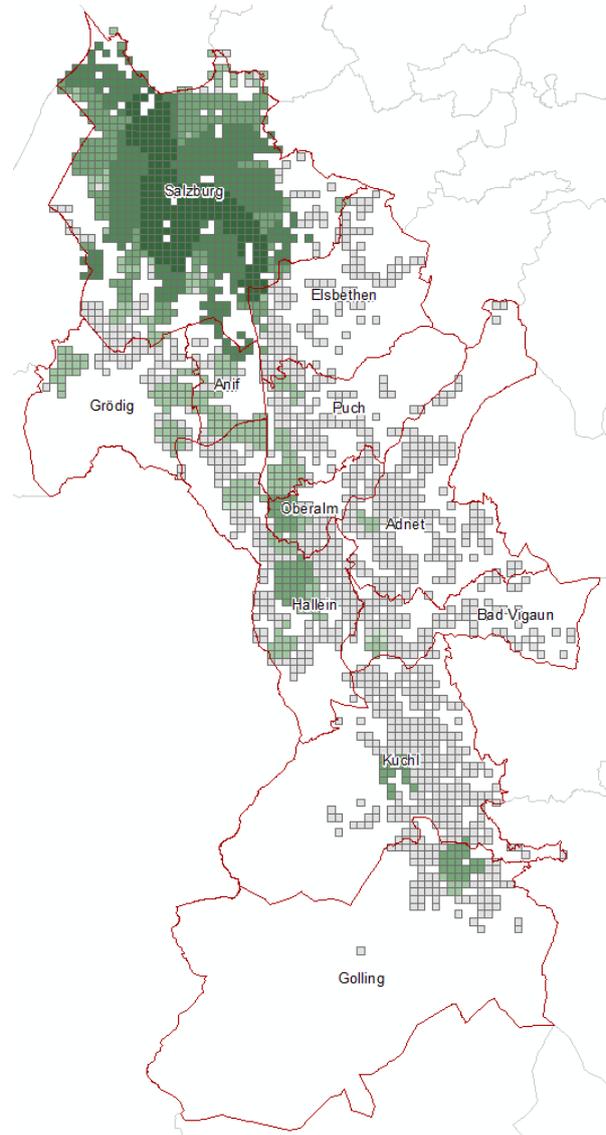


Figure 2: Recreational quality levels in short walking distance of populated grid cells

### Mapping of results, implementation, application design

Interim results already have been mapped for the publication submitted at GI Forum. They are supplemented with some statistical diagrams and tables including the share of recreational areas by quality level and information about the reachability of green spaces for residents. Similar representations are planned for the next part of the analysis.

Status: in progress

## 2. Status and Prospect

### Evaluation indicators

Number of events organized: 2 (+1 in work), number of publications submitted: 1 (+1 in work)

Important steps to the elaboration of an integrated green index as defined in the pilot concept have been conducted (cf. chapter 1). We managed to evaluate the attractiveness in terms of recreational quality of designated recreational areas as key indicator as well as initial demand and supply studies on this basis. The population distribution and their reachability to green have thus been already integrated to the analysis. However, we will widen this approach by assessing other types of green land (acres, meadows, woods etc.) to their potential for recreation and other ecosystem services (mostly connected to the sustainability pillar of the framework) as well. Additionally we started to integrate non green-specific neighborhood data like zoning plan and population statistics. By doing this, the study on fair supply will be enlarged and deepened by interconnecting more analytic levels, consequently. The prioritization of green spaces and their interrelation with management efforts and costs cannot be done before the end of the assessment procedure.

In terms of communication outputs, two events have been organized: The first national roundtable in Austria, which involves mainly local to regional politicians, professionals and other experts, will take place around the TWG1 pilot visit in early March. The synergy workshop will be integrated to the annual GIS conference AGIT/GI\_Forum in summer (if accepted by the JS) including experts' talks and a discussion forum for national and international scientists. Furthermore, we intend to fill a session on green infrastructure at the annual "Alpine building culture" forum in autumn and aim to connect one of these major conferences with a green fest for the visitors and the broad public. A scientific paper was submitted to the GI\_Forum and a contribution to the poster session at AGIT 2018 is intended. We always keep an eye on possible further contributions of project outputs to other national and international conferences.

### Budget

<i>Costs description</i>	<i>Budget line (external/equip- ment/infrastructure)</i>	<i>Status (procurement in pro- gress/contracted/paid)</i>	<i>Amount of the costs</i>

### Assessment

To this point, the implementation mostly is in schedule. It can be assumed that most results of the remaining analyses can be available within the next two months because several models used for the calculation of the indicators needed for the first step can be reused. After this is finished, evaluation procedures will have to be performed. According to the Pilot Activity Concept, they will start in April, which appears realistic. The last step includes the update of the GIS model, which according to the application form needs to be concluded until 31.05.2018.

## **Challenges and amendments**

So far, one major change of plan is the division of the analysis into two parts, where at first an evaluation of zoned recreational areas is performed, which is followed by the assessment of other green land types. But this does not result in major changes of the activities listed in the table included in the Pilot Activity Concept. Only the end Step 3 (final choice of indicators) needs to be delayed since additional indicators will be required for the evaluation of remaining green land types. Nevertheless, it can be assumed that the other defined steps will be performed according to plan.

## **Potential future risks**

We do not see any major risks for the implementation process. However, certain issues may impede or stretch the future work. The applied indicator set might not be appropriate for the foreseen purposes, so adaptations could be needed in terms of choice of indicators, their calculation procedure or weights for integrative studies. This can be linked to potential additional wishes or expectations from stakeholders that we might not be able to fulfill in the scope of the project. If there are any, we will document them and try to implement them in some other context.