Provision of recreational areas in urban spaces –
An international long-term comparison of the
developments of selected European cities

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Abstract
Open spaces and in particular recreational areas are for many reasons a very important
factor for the quality of life of the urban population. Based on GIS data sets for the cities
of Bilbao, Bratislava, Lyon, Dresden and Palermo from the EC-projects MURBANDY/
MOLAND\textsuperscript{2} analyses were carried out to show the development of the provision of rec-
reational areas and the quality of their reachability within these cities during the past 50
years. The presented paper aims at measuring possible deficits and comparing trends
within the analysed cities.

1. Introduction
The quality of life of the urban population is considerably determined by the exist-
ing vegetation and the available open spaces in the cities. Wittig (in Sukopp/Wittig,
1998) refers to the fact that „also in cities flora and vegetation have a great influence
on the climate, the quality of soil and the fauna“.

In addition to the availableness of open spaces it is furthermore their potential as
recreational areas, which is decisive. Important aspects when looking at recreational
areas are in particular their reachability and the free access to the public. Though a

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\textsuperscript{2} MURBANDY … Monitoring Urban Dynamics, MOLAND … Monitoring Land Use/Cover Dynamics
city can have sufficient provision of open spaces, the proportion of open local public recreational areas can be much less. Stadiums, private gardens, vineyards etc. make urban areas much greener, but are in general either not accessible to the public or not free of charge.

In this sense one indicator of the initiative “European Common Indicators towards a Local Sustainability” (European Common Indicators, 2001), which was launched at the Third European Conference on Sustainable Cities & Towns in Hanover (Germany) in February 2000, was dedicated to the topic „Availableness of public recreational areas“. The European Commission (Environment DG), the European Environment Agency (EEA) and the expert group on the urban environment created in 1991 by the European Commission started this joint initiative for the development of a European common set of local sustainability indicators. “This initiative aims at encouraging European local communities to use common indicators in order to measure their recorded progress towards sustainable local development.” (European Common Indicators, 2000). The works contain a set of indicators for a local sustainability which have to be considered as a proposal for the “first generation”.

2. Data bases

Within the framework of the MURBANDY research project, which was initiated by the EU in 1998 and integrated into the subsequent project MOLAND, 31 European cities and urbanisation regions have for the first time mapped land use trends over the past 50 years using satellite and aerial imagery. The upshot is a highly accurate database to a scale of 1:25,000 that is underpinned by a finely nuanced use-type catalogue (extended CORINE land cover legend) and survey slots in the mid-50s, late-60s, mid-80s and late-90s. Hence, it is possible for the first time to analyse long-term land trends in the individual exemplar cities whilst also comparing these with those of other urban entities.

The five selected study cities Bilbao, Bratislava, Dresden, Lyon and Palermo are European cities with approximately 500,000 inhabitants. All cities have an important national status in common, i.e. as the capital of a country, state (in terms of a county etc.) or region. Furthermore, this selection is suitable to compare the developments in Western and (formerly) Eastern European cities.

The analysed area was created by the entity of contiguous settlement areas (core zone) which existed in the reference year (last survey slot 1997/98) plus a surrounding zone. This surrounding area was created by means of a buffer around the core zone (buffer distance $\sqrt{\text{area}_{\text{core}}}$). Hence, there were three areas to analyse (core, surrounding and entire city area), in which the land use saw different developments and which thus have to be evaluated separately.
For the works on recreational areas the results and findings of the research on land use change (Meinel/Winkler/Lavalle, 2001) could be used.

3. Methodological approach

According to ECI criteria (European Common Indicators, 2001) recreational areas are public parks, green and open areas which are designated for the exclusive use of pedestrians and cyclists. Furthermore, open-air sports facilities and private areas (private parks, agricultural areas) have to be included as long as they are accessible to the public and free of charge. According to ECI criteria and the structure of the MURBANDY data (MURBANDY-Change – “Invitation to Tender”, 1999) the analyses were related to all recreational areas greater than 5000 m².

For the analysis of the reachability those residential areas have been looked at which are situated within 300 m “as the crow flies” to nearby public open areas. The figure of 300 m has been used by the EEA, DG Regional Policy und ISTAT (Italian Institute Nazionale di Statistica) and is furthermore in particular orientated towards the needs of elderly people. It is based on the assumption that a distance of 300 m “as the crow flies” is equivalent to 500 m on foot. In view of the angular road network, waiting time at traffic lights etc. a walking time of up to 15 minutes at a moderate walking pace can be assumed for a distance of 500 m. A period of 15 minutes maximum to reach nearby recreational areas can be accepted and thus represents an admissible benchmark.

The MURBANDY nomenclature contains several classes which according to ECI criteria can be considered as recreational areas accessible to the public free of charge. Apart from green urban areas also agriculturally used areas as well as forests and semi-natural areas can be classed as recreational areas. From this asset some sub-classes resp. areas were not considered as being relevant for recreational purposes. On the one hand these are recreational areas that require the payment of an entrance fee. On the other hand these are private, mostly fenced, and thus not open to the public areas as well as areas with no recreational function at all. Furthermore, all areas used as cemeteries, which were classified as urban green areas according to the MURBANDY nomenclature, were not assigned to the group of recreational areas. For the cities of Bilbao, Bratislava, Lyon and Palermo city maps on scales ranging from 1:10,000 to 1:25,000 were utilised to detect the areas being used as cemeteries. For Dresden finely detailed ATKIS data was available which had been intersected with the land use data of the MURBANDY project. Apart from the cemeteries all areas which had been classified as “gardens” according to the ATKIS object catalogue were cut from the asset of potential areas with recreational abilities. These

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3 ATKIS ... Amtliches Topographisch-Kartographisches Informationssystem – Authoritative Topographic Cartographic Information System
are privately used, and therefore not accessible to the public, gardens which one can find quite often in Dresden.

4. Analyses

4.1. Share of recreational areas

After the selection of the relevant recreational areas from the totality of areas within the four survey slots the shares of recreational areas in the entity of the relevant analysis area were calculated and presented separately (see Figure 1).

For the cities analysed a continuous degradation of the share of public recreational areas within the past 50 years has to be stated. Mainly this could be ascribed to the enormous decline of agriculturally used area for the benefit of settlement areas, i.e. urban, commercial and industrial areas (Meinel/Winkler/Lavalle, 2001). In particular, there was a steady decrease of recreational areas in the core zones. Especially Bratislava saw an above-average negative development. The proportion of recreational areas within the core area went down from 70 % to 15 % from 1949 to 1997 (see Figure 1). In Palermo, whereas the proportion of recreational areas was only 43 % in 1955, the development until 1997 had taken place less dramatically so that there was still a value of 28 % in 1997, which is a comparatively high figure. The low share of recreational areas in the core area of Dresden (see Figure 1) can be explained by the fact that the meadows along the river Elbe, which represent a big contribution to the city’s recreational ability, were counted among the surrounding area. Therefore they do not belong to the core zone.

![Share of recreational areas in the analysed area](image)
4.2. Reachability of public recreational areas

Around all recreational areas buffers at a distance of 300 m were drawn. Subsequently the proportions of the residential areas which were situated inside respectively outside these buffers (see Figure 2) were calculated. According to the ECI criteria explained in chapter 3 the share of residential areas within a buffer of 300 m from recreational areas can be considered as a measure for the quality of the environment of living. The results are represented only for the core zones (see Figure 2) as the residential areas in the surrounding zones were characterised by a very good provision of recreational areas (90-100 %). Therefore, the main focus shall be the investigations within the problematic core zones. Since for the city of Lyon no core demarcation line had been delivered investigations were solely carried out for the entire city area. Yet, the extent of the data of Lyon seems to be similar to the size of the core zone of the survey slot of reference (1997) which makes the results comparable with those of the other cities.

Again the negative development in all cities became apparent, in particular in the city of Bratislava. In 1949 still provided with the best provision (91.6 %) – in comparison to the other cities – this proportion decreased to 57.6 % in 1997 (see Figure 2).
4.3. Spatial allocation of recreational areas and areas with insufficient provision

In order to make detailed statements about the quality of the provision spatial presentations and subsequent evaluations are indispensable. Considering as example, an apparently insufficient provision of areas with a recreational function could be recorded for the south as well as the east and the centre of Bratislava in the year 1997 (see Figure 3). Evidently, the very compact and dense land use development in this city (Meinel/Winkler/Lavalle, 2001) took place at the expense of the provision with recreational areas.

Figure 2
Reachability of recreational areas accessible to the public free of charge in the core zones.
5. Conclusion

For all cities a degradation of the provision of recreational areas within the past 50 years can be stated, in particular in the core zones of the cities. Quondam existing open spaces had been overbuilt due to their advantageous location. Therefore not only a decrease of recreational areas in general occurred but also a degradation of the provision of recreational areas for the citizens.

Hitherto there are no official standard values existing that define the proportion of residential area or inhabitants which ought to have access to recreational areas within a certain distance. However, the methodology sheets of the “European Common Indicators” annotate that “access to green areas … (is) recognised as essential for healthy local communities and local sustainability.” In this sense a future aim must be an improved provision of recreational areas, even if this seems to be a great challenge in consideration of the present situation.

The presented analysis also indicates that the negative development of the inner-city provision of recreational areas is a European-wide issue. A great potential to counter this deficit may be the re-use of derelict land within the city. Therefore it needs an integration of this topic into local concepts of city development (e.g. INSEK Dresden, 2001). Arlt et al. (2003) see a possible activity for the inner city development in the “changed use and re-use of derelict industrial and commercial areas as well as of areas formerly used for traffic, military and other public services.” In the same way Siedentop (2002) pleads for a „so-called land recycling which marks the modified use and re-use of derelict or under-used areas“. The measures of inner-city developments are part of a “double strategy” which aims at “using built-up, industrial and traffic associated land on the one hand and evolving open spaces within the settlement area on the other hand” (Arlt et al., 2003). The extension respectively valorisation of inner-city open spaces must not lead to an increasing building activity in the surrounding areas. Therefore it is advisable to revitalise recreational areas in particular on those derelict areas in strategically important, i.e. with insufficient provision, areas. If this is not feasible new plantations of trees and shrubs can help to improve the ecological upvaluation of insufficiently supplied areas.

Despite the ample scope Siedentop (2002) also points out that „building within existing built-up areas is much more influenced by dependencies, coercions and commitments than building on the “green meadow”“. Furthermore Siedentop (ibid.)
suggests that „inner-city development … in view of these backgrounds will be accomplished only as a long-term learning process.”

Acknowledgements

The workings of the presented paper were based on data of the project MURBANDY. We would like to thank Mr. Carlo Lavalle (JRC, Institute for Environment and Sustainability) and his team for their kind support of the works and the appropriation of the data bases.

Bibliography


