Role of Green Areas in Development of Public Space System in Small Towns On the Basis of Chelmza

Iga Grzeskow

1 Department of Urban Design and Rural Architecture and Planning, Faculty of Architecture, Warsaw University of Technology, Poland

Abstract. Town, as the main environment of a majority of contemporary population, should meet collective and individual expectations of the urban population. The key role of green areas is to provide people with conditions boosting social interactions in contact with natural, safe and beautiful environment. Urban green areas provide the possibility to combine social life with the natural environment. The role of green areas in a town is not limited to merely providing the residents with the possibility of relax, health improvement or recreation. The need to have contact with nature in esthetic and structured urban spaces also indicates that green areas generate the town specific atmosphere and play a representative role as an important component of public spaces and open urban areas. Green infrastructure plays a very important role in shaping the quality and state of natural landscape in a city, where green areas are constantly shrinking or their importance is being neglected. Due to the three major functions of green areas, the local authorities should be interested in maintenance of such areas, keeping appropriate proportions between open areas, including green ones, and built-up areas. The main purpose of the study is to identify the role of green areas in the process of public space management of a small habitat. The analysis applies to the space of Chelmża, a small town situated in the east part of Kujawsko-Pomorskie Voivodeship, in Poland. The article presents result of research, including analyses of green areas forms and their functions which have a significant influence on an increase in symbolic and esthetic values of the location, subsequently improving the quality of life in this town.

1. Introduction

According to Tadeusz Tołwiński, the role of urban green spaces is to keep balance between a humans and nature. Green areas in the city, should be treated as an equally important element of urban infrastructure, having an impact on the town image and contributing to its development. The statement that “great importance of the green areas system and a delay in their implementation to date, indicate that they need to be urgently included in the new urban and regional planning” [7], has not lost its significance.

According to the Polish Environment Protection Act, green areas are considered to be ‘areas integral with the technical infrastructure and surrounding buildings, covered with plants, performing a public function; these including: parks, promenades, boulevards, botanic and zoological gardens, children’s playgrounds, cemeteries, street trees, plants outside buildings and in squares, historical fortification, plants near airports, train stations, dumps and industrial objects.” [8] Plants co-create the city image and, therefore, need to be included in urban planning which “provides protection of identity and traditional elements of urban environment, such as: buildings, historical places, green and open areas”, [6].
2. Importance of greenery in the city

The major role of greenery in urban public spaces is to provide architectural integrity, by filling empty and degraded spaces, masking spatial defects, creating community areas as well as mitigating the stress of city life, generating spaces for recreation, relax, sport and social interaction. Effects of so developed green areas are included in analyses of transformations such as: sanation, gentrification, re-urbanization and renaturization. Urban greenery is a factor creating identity of the location and determining the quality of life. Therefore, it has become a reflection of the natural and cultural heritage of its users which conveys spiritual, intellectual and also material values. According to Wojciech Kosiński, modern societies are increasingly focused on healthy lifestyle and hedonism and they appreciate beautiful surroundings [3]. Thus, urban green areas are supposed to improve the town appearance and life quality of its residents through structuring, creating and upgrading public spaces. Agata Zachariasz emphasizes that the complexity of issues connected with a design of public green areas increases along with the development of civilization. They should be integral part of the urban system of the city and highlight the role of plants as a citygenic factor which, however, is often underestimated and minimized. This is a mistake as throughout ages ‘green areas have been one of the most important elements of towns, and by shaping urban space, they cement their structure and contribute to stimulation of the adjacent areas”, [10].

People must do their best to preserve the cultural heritage and protect integrity of the natural environment of towns. In dealing with the role of green areas in a city the study uses documents which include criticism of modern towns and raise concern about their harmonious development. The New Charter of Athens of 2003, emphasizes reasonable use of resources, especially ‘natural non-renewable’, and says: ‘spatial planning is vital for achievement of sustainable development. It is used for thoughtful management of space being the major, though limited, natural resource” [6] In turn, the postulate of ‘Coherent City’ involves preserving continuity and identity of historical development, along with coherence of the environment. It is a postulate of a town whose wealth and cultural diversification result from the history and skillful and harmonious integration of its urban environment with the natural one.

Treatment of urban green as an important factor determining the town structure and providing attractive public spaces with the use of plants, is not only a condition necessary to keep balance between the man-made environment and the natural one, but also a determinant of the quality of life. The Polish outline of spatial policy, included in the National Urban Policy, is based on these premises. The policy focuses on ‘local authority actions on behalf of the natural environment, which should take into consideration long term environmental impacts and comply with the idea of ‘blue – green infrastructure”, [4].

Nowadays, green spaces have become key elements of new urban assumptions and projects of revitalization of degraded areas as well as important elements of public spaces where the significance of plants has significantly risen as compared to past times. Extension of the number of green spaces in cities involves extension of green public spaces and providing public spaces with more plants.

3. Systems of urban green in town public spaces

The rules of urban green management largely depend on the conditions of the environment and existing historical solutions. Throughout ages, green spaces in towns have been formed in dependence on the geographic conditions, climate and in consistence with the development of their functional-spatial structure. The systems of green areas were created on territories with natural predispositions such as: river beds, canals and, the so called, manmade traffic routes. Urban green, as a component of the town landscape, structures its space and provides for the dispersed tissue of the town. Being integral elements of spatial order, systems of green spaces, have evolved from closed single structures such as squares, parks or promenades, to from interrelated open systems of green spaces. Tadeusz Tołwiński claims that the system of town green areas should be treated as a core element of the landscape composition. According to him, ‘they provide a city dweller with the possibility of taking advantage of benefits of nature, harmonious physical and mental development, positive social behaviors and generate a background for using benefits of technical civilization as well as conditions for social interaction”, [7].
In the past, towns were located in places with favorable natural conditions. They occupied relatively small areas, including green spaces which were limited for the purpose of defense. Enclaves of greenery were created according to residential requirements, along boulevards or rivers. They performed mainly the representative and esthetic functions. Nowadays, urban green areas are transformed into systems which are linked with the structure of urban environment, being divided into areas including, the so called, node areas, nodes, cul-de-sacs and corridors. All these systems, forming a chain of green areas, perform climatic hydrological and biological functions. The approach which assumes green areas to be separate elements of the whole structure, classical solutions worth mentioning, such as:

- ring system, commonly used in post fortification areas, in the form of planted area designed for strolling, or parks were supposed to prevent from uncontrolled expansion of the city, forming a green surrounding area,
- radial system involves forming green spaces which penetrate build-up area, frequently along radially placed exit roads, in areas which due to their characteristics, are unfit for building but deeply enter the town tissue,
- strip system used near a strip of buildings forming green belts which frequently merge with adjacent open green areas,
- spot system with somehow irregular pattern of green areas location, resulting from utilization of some remains of green areas, such as former gardens, castle parks, sports fields cemeteries.

Now, the tendency is to incorporate green areas and parks into the public space of the town. It is intended to bridge the gaps between different city zones and parks, squares or streets which is consistent with the current tendency to treat urban green spaces in a systemic way and a good prognosis for the future.

An analysis of literature on the subject of the role of green areas in the systems of public spaces shows that this issue has already been analyzed in detail for important historical cities, where the representative green area solutions dominate. There are not enough available results of research on the spatial arrangement role of greenery in the systems of public space in small towns. Therefore, it is justified to undertake research on applied and planned solutions concerning green areas systems in small towns.

The author makes an attempt to analyze the role of green areas forms in creation of the green zone systems in public spaces of a small town, on the basis of Chełmża situated in the Kujawsko-Pomorskie Voivodeship, in Poland whose spatial development stands out positively as compared to other towns in the voivodeship. Spatial and environmental distinctness of Chełmża, due to its location, historical background, local tradition and slower pace of development, make up its unquestionable potential. Thanks to these factors, this small town has preserved its consistent urban structure. Small area of Chełmża, intimacy, readable plan scheme, integration with the landscape and architectural dominants are determiners of its spatial order including green structures well composed with the town structure.

4. Historical background and architectural and town-planning development

Chełmża is situated in Poland, north-east part of the Kujawsko-Pomorskie Voivodeship, in Chełmińskie lake district, in the west it borders with Jezioro Chełmżyńskie. The area of the commune is a flat morainic plateau, formed during the last ice age. Its Surface is covered with different forms created in the zone of dead-ice. These are holes of different size and morainic hills which reach height 112 m above the sea level. in the eastern part of the commune there are ozy and postglacial gaps. These are strings of hills with Winding lines and wavy crests with relative height not higher than 6 m.

In XIII century, on this territory there was a fortress, where Chełmińska Diocese was founded 1244, in 1251 transformed into Celmńckie Bishopric.
In the same age Chełmża was granted city rights and was located along the east-west axis. City gates were built on the west and the east sides. After foundation of a settlement two gothic churches were constructed: cathedral and parish church. The network of streets had a pattern of a chess board of land parcels designed for development, with a square market in the middle. In the north of the market square there were low buildings. The buildings were wooden similar to rural houses. Roofs were covered with straw or cane. The town was surrounded with defense walls with towers which were built in the first half of XIX century. Another architectural-defensive issue is the land around the cathedral called Tum. This area was isolated from the east side in a natural way by a steep slope and on the other side by a wall with a tower. Another gate was located directly in front of the cathedral, before the west facade. From the side of the lake, there was a separate track finished with a drawbridge and a gate [1]. Chełmża was destroyed during numerous Teutonic, Swedish wars and fires. The architectural – planning
assumption has not changed until XVIII century. In the middle of XIX century, development of only one street in the south-east direction, was extended behind the medieval walls. In 1881 a sugar factory was opened in the town which boosted its growth. the number of residential housed increased more than twice. supply system was built.

At the same time a railway line was founded to connect the town with Toruń and Malbork. It was necessary for the factory to operate and develop. At the turn of XIX and XX centuries the town was featured by development of industrial and residential architecture. Streets were paved, a new water in the period between two world wars of the XX century, in Chelmża there were two school complexes, a sugar factory, a big railway station, neogothic town square with a town hall and churches market with a neo-gothic town hall. In 1900 ‘Park Weldego’, was opened, a green area with trees and flower beds, in the center there was a fountain. In 1933 the area was surrounded by a fence. There were also many squares, eg at ul. Gen. Sikorskiego and Dąbrowskiego, at ul Chelmińska and 3 maja. A Society for Town
Management (Towarzystwo Upiększania Miasta) was established and they started its activity with foundation of Park 3 Maja, development of Jezioro Chełmżyńskie (Chełmżyńskie Lake) shores and created a promenade. At that time town gardens and parks covered 18 ha. [2] During World War II in 1940 – 1943 a space development plan was provided for Chełmża called ‘Town of Gardens”, according to which a housing estate was constructed called ‘New Haimat’.

5. System of green areas in public spaces in Chełmża
In the Local Revitalization Program [5], developed in 2009, the downtown area was indicated as the most socially and structurally degraded area, including the most attractive areas near the lake. Old Town was assessed to be an area with key importance for the development of the entire town, in terms of its public and economic functions; and the adjacent ‘Boulevard of 1000 – lecia’ was regarded as an attractive tourist- recreational area of the central part of the town. The promenade underwent revitalization to provide spaces for active sports, and one of the project components was to introduce new plants which increased aesthetic values of this site.

Nowadays, the system of green areas starts with a park on the corner of Gen. Sikorskiego and Dąbrowskiego street, in the west part of the town, where the above mentioned triangular shaped green area still exists. At its south end there is a chapel with a cross, whereas at the west end it is surrounded by a compact development of villas from the beginning of XX century. This area extends to the north, along an asymmetric composition axis. At its end there is an open round site whose central point is a low fountain. In this part of the park tall trees are completed with colourful flower beds which highlight entrances. On the east side, the lateral axis, cutting the terrain, features the promenade entrance. It borders with apartment buildings located downtown. The view of the Chełmżyńskie Lake opens from the south. Along a pedestrian – bicycle trail, there is a playground for children, a marina and sites for relax. The promenade ends with a public beach with an amphitheatre and another water sports center. The promenade is connected with the town market by numerous paths.

The town square is surrounded by compact development of townhouses with stores and service points on the ground floors, in the east and west parts, the square is decorated with seasonal plants, placed on elevated beds such as begonia and surfinia plants with low decorative trees between. There is a fountain, in the north-east part of the square. The square is dominated by the tower of Medieval Saint Trinity Church, highlighted by coronas of deciduous trees. Along M. Kopernika street, in the direction to the west, one can see the silhouette of Saint Nicholas Church surrounded by a row of small limes. The town square provides openings of landscape view of the opposite shore of Chełmżyńskie Lake through Łazienna and Sądowa streets. On the shore there is another town beach.

On the east side of the lake, near 3 Maja street, there is a yacht marina, which borders with the town park and a recreational- sports complex. The park is of rectangular shape and is covered with tall trees. Walkways are randomly arranged with the main track on the side of the lake shores. This vast area closes the system of public spaces in Chełmża. The town green area system is completed with numerous green alleys and flower beds situated: in front of schools, public utility buildings, churches and the Community Center. They consist of plants and flowers different in respect of height and colour with high aesthetic value.

Below, presented in tables, there are results of assessment performed on the basis of analyses of planning documents and the urban system, for the role and function of green spaces in Chełmża.
Table 1. Analysis of elements of public space with green areas providing Chełmża, a small town of Kujawsko-Pomorskie Voivodeship, with identity. (source: author’s own study)

| Lp | Factors determining the assessment criteria of the public space system in combination with green areas | a | b | c | d | e | f | g |
|---|-------------------------------------------------|---|---|---|---|---|---|---|
| 1 | Kind of public spaces with green areas in a small town: |   |   |   |   |   |   |   |
|   | Element of town green areas system             | +++ | +++ | +++ | +++ | +++ | ++ |   |
|   | Public spaces with plants                       | -   | -   | -   | -   | -   | -   | -   |
|   | Green public spaces                             | +++ | +++ | -   | -   | -   | -   | -   |
| 2 | Spatial -composition role of green areas in the system of small town public space. |   |   |   |   |   |   |   |
|   | ++ | +++ | +++ | +++ | ++ | ++ |   |
| 3 | Function of green areas in a small town public: |   |   |   |   |   |   |   |
|   | Representation                                  | ++ | +++ | +++ | ++ | ++ | ++ |   |
|   | Culture                                         | -  | -   | -   | -   | -   | -   | -   |
|   | Aesthetics                                      | -  | +++ | +++ | ++ | ++ | ++ |   |
|   | Composition                                     | ++ | +++ | +++ | ++ | ++ | ++ |   |
|   | Relax                                           | ++ | +++ | +++ | ++ | -  | -   |   |
|   | Recreation                                      | ++ | -   | -   | -   | -   | -   | -   |
|   | Educational                                     | -  | -   | -   | -   | -   | -   | -   |
|   | Ecological                                      | -  | ++  | +++ | ++ | ++ | ++ |   |
|   | Social                                          | ++ | +++ | +++ | ++ | ++ | ++ |   |
|   | Quality of life improvement                     | ++ | +++ | +++ | ++ | ++ | ++ |   |
| 4 | Adjustment of plant colours, shapes and values to the functions to be performed in different lighting and in different seasons. |   |   |   |   |   |   |   |
|   | - | +++ | +++ | ++ | ++ |   |   |

In assessing the system of green areas in public spaces of Chełmża it should be noted that its largest park, situated on Chełmżyńskie Lake, is harmoniously connected it the whole spatial system. However, new functional solutions need to be introduced, especially that, it is situated in the vicinity of two recreational- sports facilities. The second park situated near Gen. Sikorskiego street performs the representative and esthetic function. It has been revitalized and is connected with the promenade leading to Chełmżyńskie Lake. The promenade, as a public space, uses the values of the natural landscape. At the same time, the rich functional program of this area makes it highly attractive for the town inhabitants.

Public space of the market is based on a medieval urban system and plant compositions highlight its frontages. Streets opening to the most important monuments of culture start there. Car traffic is limited around the square and abundance of many parking lots makes them too visible in this precious historical space.

Chełmża is one of the oldest towns in the north of Poland. Its greatest boom dates back to the Middle Ages, thanks to foundation of a bishopric. Having been destroyed by wars and numerous fires, it started to regain its significance at the turn of XIX and XX centuries. Nowadays, due to many studies carried out to provide information on the subject of spatial management and improvement of architectural-urban structure, attempts ae been made to restore its spatial order and introduce the rules of sustainable development. European Union funds allowed to revitalize the town square into a new representative space which needs, however, to be completed with introduction of additional functions to motivate inhabitants to visit this place. Squares are well incorporated in the town tissue and stand out due to their harmonious and distinct composition. Their natural, historical and functional values enhance the integrity of public spaces, improving the town image and the living standards of its inhabitants. Location of the town on the shore of Chełmżyńskie Lake and creation of public spaces in this setting makes the town more attractive and provides them with the possibility of active and passive recreation, [7]. According to the results of assessment of particular public spaces, it can be said that, together with green
areas, they create a consistent system which provides the town with identity, distinctiveness and increase its attractiveness.

6. Conclusions
As mentioned at the beginning of the article, urban green areas combined with the town system and its spaces, are supposed to be integral part of its architectural structure. Modern concepts of urban public space management, including green areas and assuming their integrity with the entire town structure, are becoming more and more widespread. They assume full integration of green spaces with the town spatial systems. They are viewed as a whole and the tendency is to blur the division lines into traditional urban zones. In this way, new public spaces in Chełmża smoothly link the town park with the promenade, town square and the beaches as well as industrial areas with open green spaces.

In turn, the implemented revitalization project of the town park at ul. Gen. W. Sikorskiego street and the promenade in Chełmża allowed to provide these spaces with appropriate functions and importance. Introduction of plants as elements of the composition, utilization of natural conditions, changes in traffic system, exposure of interesting architectural structures, provide consistent, distinctive space and make the town identifiable. These areas are main public spaces of a small town who’s properly composed green areas contribute to its overall structure.

Consciously arranged urban green areas play an important role in identification of the town particular zones, as well as location of an individual structure in the landscape with diverse natural conditions. Public spaces along with green areas make up a desired system of urban closures and openings. They offer many interesting aesthetic impressions, connect and highlight the town architectural structures and individualize its space.

The example of Chełmża, lets us agree with Tadeusz Tołwiński that ‘we cannot stand and stare at the wrongful practice of eliminating nature from the city interior – just the reverse – we should conquer back this concrete fortress to fill it with nature.”

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