

URBAN GREENS AND SUSTAINABLE LAND POLICY MANAGEMENT (CASE STUDY IN WARSAW)

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Abstract: This paper examines the changes of meaning of public greens in the contemporary urban landscape. Although the value and preservation of green areas have become important land use policy topics, still little attention is paid to family gardens and their tenants. As a part of tradition and history, allotments have been present on the European landscape for over one hundred years. At first, they were located in the suburbs during the nineteenth century, scattered on the fringes of towns. However, as the gardens are now located on sites found close to city centres, they have recently come under the threat of being overtaken by developers. In Poland, local authorities are responsible by law for the provision and management of allotments, yet there are usually long waiting lists, at least several years in Warsaw. If there is shortage of allotments why not create more 'family gardens'? What role do allotments play in official spatial planning policy? What is the statistical picture of allotments in Poland? This paper not only examines the tradition of urban allotments and their contemporary picture as a public green space, it juxtaposes two sub-themes: the story of allotment gardens in Poland and the story of a single Warsaw allotment site, where our field studies were carried out. The empirical results of our field surveys show that urban inhabitants are very interested in gardening. First, these gardens represent important source of recreational activity to males and females, regardless of their age and social status. Second, these gardens represent urban and family tradition, as contemporary tenants are often representatives of the third or even the fourth generation of the users of a particular plot. Third, for thousands of low-income families, allotments are both essential as a source of fresh produce (fruits and vegetables) and also as an opportunity to enjoy holidays free of charge. All in all our research results suggest that allotment gardens in the contemporary built environment not only improve the urban climate but also play an important role in strengthening family and community connections. Moreover, by providing the opportunity for various recreational, outdoor activities such as gardening, sports and games considerably help to promote 'healthy life style'. This paper is based on the author's field experience and on empirical studies, both of which strongly support the notion that contemporary urban allotments play a crucial role in town green systems and provide a significant contribution to life quality of urban inhabitants, especially for the elderly and low income citizens. It seems that a growing interest in urban ecology and sustainable planning policy should lead to the idea of saving allotments (along with other urban green spaces). The paper

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concludes that, when considering the future of urban allotments, the main problems can be seen in the present institutional context of urban planning policy, land use concepts, and attitudes of the local authorities towards allotments. The allotments, which often occupy the city's prime locations, are accused of limiting urban development possibilities and are criticised for ugliness and poor management. However, as it seems, as the leisure value of allotments has increased in recent decades, their role in urban space, new plot layouts and garden design should consequently be revised.

Key words: green landscape, allotment gardens, land use policy, sustainable planning

1. Introduction

1.1 European tradition of allotment gardens

The popular meaning of an allotment is a small piece of urban or suburban land which is rented by individual. The allotment's main purpose is to cultivate flowers, fruits, and vegetables for domestic use, but one cannot contradict their significant role as an outdoor recreation site or role in improving urban ecology. The allotment garden can be the basis for healthy lifestyles and personal well-being as working with plants and close contact with nature has therapeutic value and contributes not only to rehabilitation and physical health but also to self-esteem, social skills, inclusion, responsibility and sense of purpose (Bellows 2004; Crouch 1997; 2007; Gutry 2007; Hyde 1999; Kuropatwińska 1928; Viljoen 2005).

Nowadays the term 'gardening for health' is popular and well known in several European countries. In 2008 it was reported that in the United Kingdom about 330,000 people held an allotment, while 100,000 people were on allotment waiting lists. In Denmark in 2001 the number of allotment gardens (*kolonihave*) was estimated at about 62,120. Today in Germany there are about 1,400,000 allotment gardens (*Kleingarten*) covering an area of 470 km². In Poland there are about 960,000 allotment gardens (*ogrodydziałkowe*). Most of these gardens are located in urban areas, cultivated not only by the working class (as it was long ago), but also by young middle-class professionals. Contemporary allotments are usually located on the fringes of the towns, not attached to housing estates as they were in the past, but at some distance from the apartments of the users of the plot. Nowadays only a few allotment gardens can be found at the original location where they had been established; however, those with long histories are often protected as an element of urban community tradition and tend to become permanent (Bellows 2004; Groening 2005; Pawlikowska-Piechotka 2009, 2010; Polish Allotment Society 2008).

1.2 Tradition of allotment gardens in Poland

In Poland, allotments were first located in the suburbs in the late nineteenth century, scattered only on the fringes of towns. When the Second Polish Republic was established after the World War I, the first allotment legislation was introduced in Poland (1928), encouraging local authorities to provide allotments (Bellows 2004; Kuropatwińska 1928; Polish Allotment Society 2008). From 1945-1950, when there was a need for food after the war, there was a strong political concern to develop even more allotment gardens to help the working class overcome constant food shortages and cease complaining (Davies 1996). The number of allotments increased when local authorities, empowered by the government, used vacant land that had been requisitioned by Law Order in 1946 as allotments (Polish Allotment Society 2008). However the economic difficulties in the mid-1970' and an increase of food prices led to even greater interest in allotments after the 1976 (Table 1, Table 2). In the past two decades, due to political changes in Poland since June 1989, the number of allotment gardens has declined. There were two main reasons: a) requisitioned sites were returned to their owners or b) developers demolished the best-located allotments and new houses were built on the land (Pawlikowska-Piechotka 2010).

Year	1928	1932	1937	1939	1947	1958	1965	2008
Individual plots	6,344	14,142	44,209	50,241	163,837	280,412	320,860	966,000
Allotment gardens	51	135	461	602	1,458	2,435	3,768	5,000
Area (ha)	239	699	2,704	3,124	6,465	13,441	15,773	44,000

Tab 1. Allotments in Poland: 1928-2008. Source: Anna Pawlikowska-Piechotka, research project report (unpublished) DS-114/AWF Warsaw 2008-2010.

At present in Poland there are about 960,000 individual plots, meaning one plot for every ten households. This ratio varies between country regions and between urban and rural areas, due to different local histories, tradition, culture, policy and local demography (Bellows 2004; Central Statistic Office 2008; Pawlikowska-Piechotka 2010; Polish Allotment Society 2008). Accordingly to legislation issued on 8 July 2005, a family allotment garden is an apportioned area of land, managed by Polish Union of Allotment Gardens, divided into general areas and individual allotments, and equipped with essential infrastructure for its proper functioning. A family allotment garden shall encompass at least 50 individual plots (the maximum number is not to exceed 500 individual plots). The recommended area of an individual plot is 300-500 m² each. Plots are usually rented on a contract basis for ten years or more. As in Poland today there are about 960,000 allotment gardens, it demonstrates the highest popularity of this form of recreation in Europe (Bellows 2004, Polish Allotment Society 2008 - 2011). This is strongly supported by recent research conducted by Jolanta Mogiła-Lisowska from the Joseph Piłsudski Academy of Physical Education, which showed that gardening was the second most popular leisure activity, as declared by 47% of Poles, cycling being the most popular (Mogiła-Lisowska 2010). Interestingly, more women declared gardening as a favourite leisure activity (52.3%) than men (42.7%). In Poland gardening is valued as an outdoor recreational activity mainly by elders over 65 (48.2% male and 61.3% female). The younger urban generation seems to be less interested (38.9%). The gardening is a rather irregular recreation activity (42.4%) and only 30.4% declared everyday regularity. About one-quarter (24.1%) of respondents declared gardening as an activity undertaken about three times a week. Occasionally, 3.1% of Poles do gardening less than once a week (Mogiła-Lisowska 2010: 125-126).

Year	1928	1932	1937	1939	1947	1970	2008
Individual plots	308	1,382	3,583	5,210	7,500	17,200	54,000
Population	1,010,000	-	1,289,000	1,350,000	478,000	1,315,600	1,655,700
Ratio: Number of citizens/per one individual plot	3279	-	359	259	63	76.4	30.6

Tab 2. Allotments in Warsaw: 1928-2008. Source: Anna Pawlikowska-Piechotka, research project report (unpublished) DS-114/AWF Warsaw 2008-2010.

2. Materials and methods

2.1 The overall objective and research questions

The main aim of this paper is an attempt to examine the contemporary meaning of urban allotment gardens in the urban landscape. However the overall objective was not only to improve our understanding of allotment gardens as a part of public urban greens, but also to examine the present position of allotments in contemporary urban space and to rethink the vision of their future role. Although, as previously indicated, the urban community is interested in plot-holding, little is known about family gardens and their tenants. What is the present role of allotments in the official spatial planning policy? What is the present statistical picture of allotments in Warsaw? We were interested in how urban planners intend to include the question of allotment gardens demand in spatial development strategy. What is the contemporary role of allotments in the official planning policy? What is the present statistic picture of allotments in Warsaw (plot totals, plot size, infrastructure such as water provision, security fencing, and facilities for those with disabilities, ownership and status, waiting lists and

ratio of vacant plots)? What are the characteristics of contemporary tenants? Why do they decide to spend a huge part of their free time gardening? Do women like gardening and are they active plot holders? Does the community contribute in the fundamental decisions about the future of family gardens? What are the motives of applicants waiting years to get tenancy?

2.2 The research framework, research tools and research material

Our research project aimed to analyse the allotment tradition in Poland, its contemporary meaning for plot users, and connections between urban ecology issues and planning policy in Warsaw. In the course of this survey all formally registered allotment gardens in Warsaw were examined. In addition, a more detailed case studies of selected allotments were undertaken on specific themes, such as: the history and tradition of the garden; sense of place for plot users; their recreation activities; women's participation in garden activities; cultural events; social interactions; safety; pressures for change; proposed renewal strategies including the contribution of allotment tenants in decision-making processes. We examined the diversified preferences of the users, their expectations of recreational infrastructure and management improvements, as well as formal policy and legal possibilities available to local government to fulfill these needs. We were aware of the fact that the allotment gardens studies, which are the part of the urban green landscape, meant the necessity to develop a complex approach to examine the following research questions and consequently the use several research tools:

- a) general historical information, statistical questions, history of allotment garden, present number of present allotments, their locations, single plot size, ownership and status of allotments tenants: critical literature review and statistical data analyze (Central Statistic Office, Polish Allotment Society Bulletins, Warsaw Municipal Office planning materials);
- b) allotment garden characteristics, its location in the contemporary urban space, history of garden, ownership status, number of allotments and their size, electricity and water provision, security, facilities (toilets, communal house, waste removal and sewage, facilities for disabled), management and maintenance, consultation procedures with tenants, community contribution at decision-making stage: case studies at allotment garden, field notes, drawings, photo documentation, participant observations at selected garden (case study: allotment gardens in Warsaw);
- c) lifestyle and preferences of the tenants; owners characteristics (male and female roles), social class, occupation, age, family structure, patterns of social relationship; forms of typical plot arrangements, garden hut (shed) technical state and size, preferences of interior design and facilities: structured questionnaire conducted on focused group; sample group (tenants) from selected allotment gardens in Warsaw ('Aleja Waszyngtona', 'Augustówka', 'Park Dolny');
- d) availability of allotments, waiting list policy: structured interviews with local authority representatives and structured and semi-structured interviews with associated allotment garden board (Żoliborz Borough, Warsaw);
- e) ecological dimensions of urban environment, legislation, allotments in the urban spatial plans, allotment gardens as a part of urban green system: critical review of historical planning documents, of law regulations, of contemporary urban strategy of spatial development (Warsaw Municipal Office, Mazovia Region and Warsaw Planning Department).

As the aim of this research was to study the status of allotment gardens in Warsaw and to examine their contemporary meaning for leisure and healthy lifestyles, our survey was carried out throughout allotments in Warsaw, using a questionnaire and interviews with allotment tenants and representatives of allotment garden associations. At present in Warsaw there are allotment gardens with a total of almost 55,000 plots. Most of the gardens were developed from 1945-1975, following the Second World War. The number and size of gardens per city borough varies: from 250 m² to hundreds of square meters, in most cases to 400 m², as a result of land use planning, size and distribution of urban land areas, the sensitivity of local authorities, and the presence of alternative urban greens and leisure opportunities. In most cases the use of

allotments should follow individual allotment garden administrative regulations (ranking in the list of applicants, contract conditions, duration, lease rate, utility rates, insurance) and technical regulations (type of use, maintenance, fencing, use of chemicals and water). However, agronomical aspects are often neglected. These are coordinated by recommendations from the Polish Allotments Society and regulations of the Allotment Act of 2005 (Polish Allotment Society 2008).

We decided that an analytical and detailed account of the history and present state of the allotment gardens in the Żoliborz Borough might provide an ideal opportunity to examine connections between urban ecological issues and allotment gardening; to understand the principles of sustainable land use and local planning; and to measure the contemporary meaning of allotments. The case study explores how the garden reflects community gardening and ecological issues, as well as the meaning of allotment gardens to tenants both young and old. The case study reports on the innovative approach to landscape design taken in the garden, which is focused on 'open space' to all community members. The garden has several public recreational and sport areas for leisure and sports. The benefits from these amenities are not limited to the garden's tenants. Moreover the garden is mostly planted with native plant species, and is expected to have a positive impact on local biodiversity. The planning process which led up to the design of the garden and its management has been participatory in nature, encompassing local residents, city planning officials and local authorities. Today the garden also addresses emerging issues associated with the economic crisis by providing food production (fruits and vegetables). However, its location, today considered very attractive by developers, makes the future of this allotment garden rather uncertain. In the present development plan of Żoliborz Borough it is included in an extensive housing zone, meaning the liquidation of the community gardens is highly possible, despite the energetic protests of plot users and local community members.

The community garden, as part of the urban environment, can be examined in terms of a wide range of architectural, environmental, landscape, social and cultural factors. This richness of context meant that we could not rely on a single data collection. To answer the aforementioned research questions, a wide range of field studies was necessary. Therefore our methodological principles required many perspectives and concepts to get quantitative and qualitative data (Finn 2000, 13-25; Sugiyama and Ward-Thompson 2007, 153-162). Our research tools varied at different stages of our research: critical review of the literature and spatial urban plans; analyzing legal regulations and statistical data (both quantitative and qualitative); participant and structured observations; structured and semi-structured interviews with focus groups of allotment tenants. In this paper the outcome of the case study is presented, a stage of research aiming to explore and probe in depth the particular organization and tenant community of Żoliborz Borough allotment in Warsaw. In April 2008, a sample group was formed out of 273 tenants having plots at this garden. This part of the study aimed to find out the characteristics (demographic questions) and leisure preferences of allotment tenants, typical plot arrangement, and the garden shed technical state and its interior arrangement. A standard interview schedule was designed to answer a series of aforementioned questions on a face-to-face basis. We hoped that this interview structure would produce quantitative and qualitative data for analysis. Our aim was not only to understand this particular allotment garden organization and its community, but to also draw out analysis that had a wider applicability. The framework was derived from a pilot study based on a few semi-structured interviews undertaken in the community garden in Żoliborz Borough (April - May 2008). The data collection method finally used (survey in 2009) was participant observation and structured interviews with the allotment garden community, both of which were conducted in the setting (the allotment garden) by undergraduate students of the Institute of Tourism and Recreation Joseph Pilsudski Warsaw University. Students were instructed to establish a feeling of trust and understanding with the interviewee, to be non-judgmental and sympathetic, and to appreciate the interviewee's point of view. They were told to control the topics, but without special unnatural posing, to be open, informal – to gain a good cooperation and a feeling of nothing more but 'structured conversation' (Finn 2000, 70-75). Although we decided on face-to-face contact between respondent and researcher to generate high response rates, our final result was only 67%. We got only 207 answers out of total number of 273 tenants in the surveyed

allotment garden. The main excuse not to participate in the interview was a lack of time. Unfortunately, despite our attempts to be efficient and effective, an interview took about 20-30 minutes. For the security reasons, students were encouraged to work in pairs.

3. Case study in Warsaw: Żoliborz Borough community garden

3.1 Community garden of Żoliborz Borough: general description

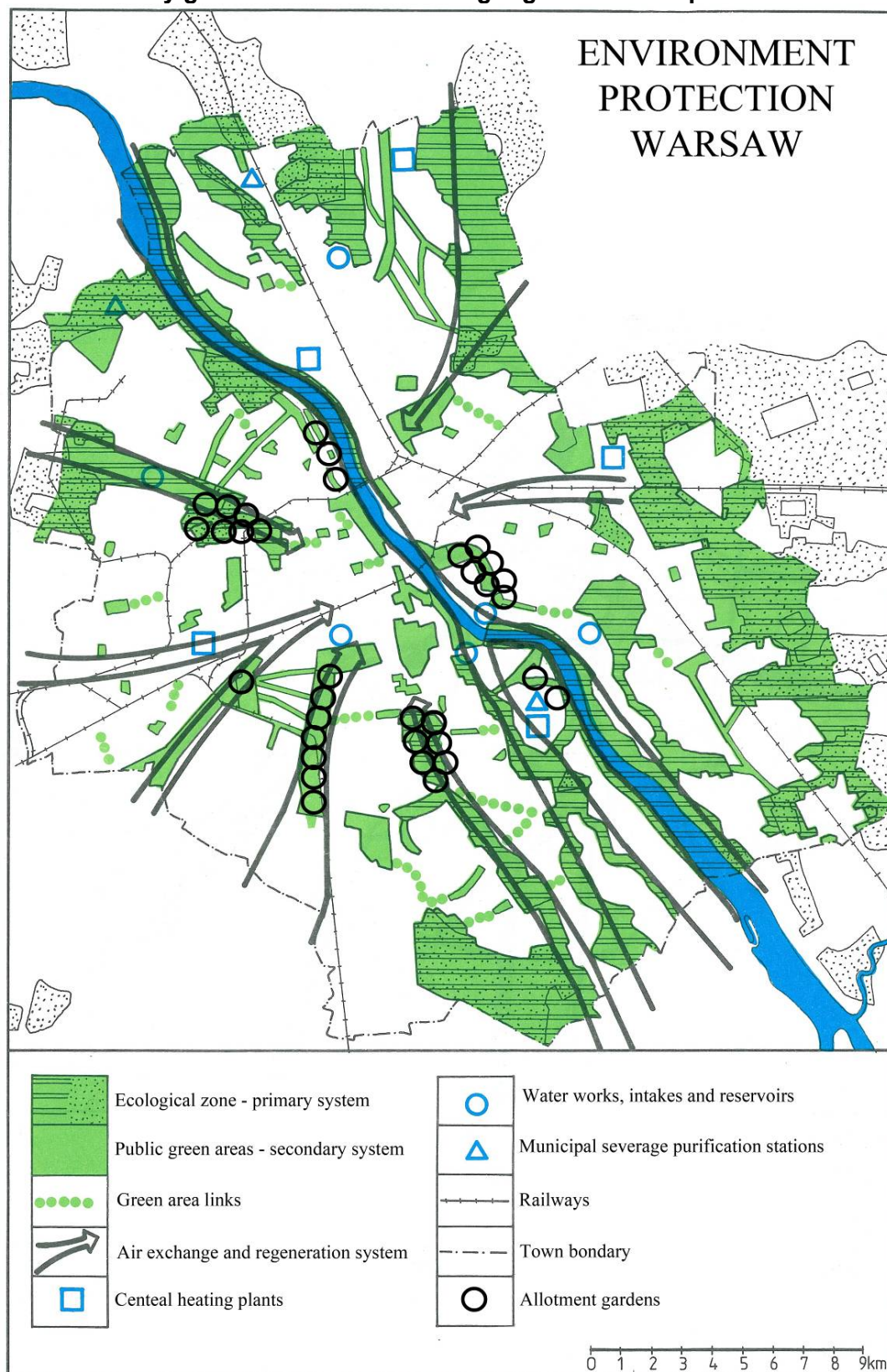


Fig 1. Allotments in Warsaw and their connection with urban green system [source: author, 2012].

The surveyed community garden was founded in 1946 on the site of Moniuszki Park, a public park on Promyka Street in Warsaw. The park does not exist today, as it was seriously demolished during bomb attacks that occurred from 1939-1945. This allotment garden is located about five kilometres from the city centre (Palace of Culture and Science), settled at the north of the Żoliborz Borough. Although the garden is situated sufficiently far from urban crowds, it has good public transportation connections with the city centre. It occupies an 11,000 m² site located between Promyka Street and Wisłostrada Street, and stretching along the picturesque Vistula River Valley. At present it has about 300 plots, of which 273 are under cultivation. The average size of individual plot is 366 m², and each small garden is tended by one family. There is a water and electricity supply to each individual plot, but not sewage infrastructure. There are also footpaths, outdoor sports facilities, roads, and parking sites provided by the Allotment Association (Site Society) together with the Żoliborz Borough Local Authority. A sport area and toilets are located close to the main entrance the family garden communal house. The allotment was founded on the basis of a landscape architect's plan and guidelines. A tenant is allowed to erect his hut without prior permission and approval of design, materials, colour and location. Still these recommendations are obligatory and today one can appreciate the effects of keeping the allotment area fairly neat and tidy. [Fig. 2]

3.2 Individual plot arrangement

When entering the main gate located at Promyka Street, one finds himself or herself in the enclave of rural tranquillity. Within the fenced area of this allotment, along the narrow paths, individual plots are located with strips of grass, flowers, and fruit trees. In springtime one can see yellow and red tulips; in summer months brightly coloured sunflowers, hollyhocks, and geraniums; in late autumn the flowers are usually red roses. Most common fruits are popular in Poland: apples, pears, and plum trees; also, strawberries, blackberries and different examples of tomatoes categories. We also admire the much more exotic in our severe climate: peach and apricot trees, melons and grapes. Fruits are clearly favoured, however, and can be seen at almost every plot – one can rarely spot vegetable beds. Only sometimes can we see carrots, lettuce, and cabbage, but never potatoes, as they are considered as vulgar and not elegant enough to be cultivated at contemporary urban allotments. Individual plots are fenced with wire netting of about 150 cm, providing an important source of security. It is very important psychologically as unfortunately acts of vandalism are reported several times per year. A garden shed is located at the centre of each individual plot. The shed is either homemade or made of prefabricated wooden elements and surrounded by garden furniture. Small garden tools, together with forks, spades, bags of compost, etc., are usually shyly kept at the back of the garden shed. The allotment huts are interesting examples of self-building art, 'architecture without architects'. Although there are several rules to be followed, you can see wooden and brick-made huts, unpretentious and showy big, one or even two stories high, looking like a small, one-family house. Components and materials are used accordingly to the builder's level of craftsmanship, (usually the plot tenant), his building abilities, creativity and financial possibilities. What the site looks like depends on the plot holders. One can spot next to a well kept plot, with a tasteful, good looking garden hut and a charming composition of flowers and beautiful lawn, a shabby shelter surrounded by weeds, broken fence, and neglected cultivations. One can see poor fences, misshapen gates with ugly, pretentious ornamentation, and huts made from whatever came to hand ('anything will do' philosophy), walls made from composition board, from sheets of plywood, amateurishly protected by tarpaper, with the once painted textures looking scored and faded. Although luckily only few plots can be described as an eyesore and bastions of ugliness and chaos, unfortunately several impoverished plots ruin the landscape. Accordingly to the Allotment Garden Rules, after 2-3 years of poor and inadequate plot holding, the tenant can be excluded from the family garden community and the site handed over to one of the families selected from the long waiting list. [Fig. 3 - Fig. 7]

3.3 Allotment garden community: characteristics of plot holders

In Western countries, an allotment garden's potential contribution to a healthy and active lifestyle is well recognized, especially with regard to elderly populations (Sugiyama, Ward-Thompson 2007, 153-162). However, in Poland no studies have empirically examined

the beneficial effects of allotment gardening. A survey was conducted among 207 members of the Żoliborz Borough allotment. Respondents were divided into two groups, younger and older, with the division made at 60 years old for females and 65 years old for men, which equals the average retirement age in Poland. We conducted our investigations on weekdays in the spring (April - May 2009), having interviews in situ (semi-structured) with busy gardeners devoutly working or enjoying their free time among beds of flowers or rows of vegetables, resting under the shade of fruit trees. As a matter of fact, mostly we were encouraged to join the tasks or leisure pleasures (as invitations to have tea together).



Fig 2. General view of allotment garden in Warsaw [source: author, 2011]



Fig 3. Example of modern wooden chalets in allotment garden, Warsaw [source: author, 2012]



Fig 4. Example of simple brick chalet with basement in allotment garden, Warsaw [source: author, 2012]



Fig 5. Example of family chalet in allotment garden, Warsaw [source: author, 2011]



Fig 6. Example of ornamented garden pond in allotment garden, Warsaw [source: author, 2012]



Fig 7. Example of community house (founded in 1909), allotment garden in Warsaw [source: author, 2012]

The survey included self-reported health measures (general health, acute health complaints, physical constraints, chronic illnesses) and self-reported well-being measures (stress, life satisfaction, loneliness, and social contacts with friends). Most respondents (82%) were positive that their health and well-being were good thanks to outdoor recreation activities such as gardening and cycling. The impact of allotment gardening on health and well-being were

moderated by age. Allotment gardeners of 60 years (female) and 65 years (men), as well as older tenants, reported the significant meaning of active recreation, while the health and well-being of younger allotment gardeners were not closely connected with gardening. The greater health and well-being benefits of allotment gardening for older gardeners may be related to the finding that older allotment gardeners were more oriented towards gardening and being active, and less towards passive relaxation than the younger generation. We also asked about the general meaning of allotments as 'leisure garden' and its contribution to the family budget. The younger generation seemed to be more oriented towards 'fun' and leisure, while about 70% of the older gardeners admitted that garden products (fruits and vegetables) played an important role in contributing to their monthly budget. Against the popular stereotype and stigma associated with 'charitable background' in this community garden one can see instead of retired or unemployed workers (our strongly fitted mental image of the 'gardening male proletariat') young mothers with their toddlers or middle-aged women having fun when gardening, being obviously of middle-class origin. Ownership status shows: 45% retired, 24% working class, 20% middle class, and 1% unemployed. Although most of the plot holders are people over 60 years old (52%), it was not rare to see grandparents with children. There were more women (52%) than men (48%) actively involved in gardening tasks. We discovered that women were generally very careful in the garden, but open for innovation, showing imagination and patience. They avoided describing their garden commitments as 'hard labour' and themselves as 'workaholics', rather clearly enjoying the fresh air and outdoor activities, which 'do me well'. Traditionally in the spring and summer time, especially on sunny afternoons, one can meet families picnicking on their plots, often plot holders together with their friends – as it was a hundred years ago. In the surveyed allotment for the nearly three hundred plot holders and their families, gardening is part of everyday life scheme. It is mostly treated as active family recreation, a favourite leisure form which corresponds with their values, culture, also very often with family tradition. Many interviewed plot holders could recall with nostalgia the allotments of their own parents or grandparents, relatives or friends. It seems that today they could find there a friendly community, a good atmosphere, achieve a sense of security and continuity (family tradition). Surprisingly, we also realized that contemporary plot holders could establish their identity through producing their own flowers, fruits and vegetables rather than through buying the products. When interviewing plot holders we discovered that sharing and reciprocating home-produced items (exchanged freely with allotment community, family, friends) is regarded as very important to one's involvement in the community life (co-operative project, promotion of mutual bonds, enjoyment gained from giving). It is to be strongly underlined, however, that most allotment holders definitely consider gardening more than a pastime or pure satisfaction; for many families, it is important help to augment their monthly budget. Regardless of gender, profession, or stressful life events, both younger and older allotment gardeners reported higher levels of physical activity during the spring and summer rather than in fall or winter. All in all, the Żoliborz Borough Allotment Garden has several socio-cultural and economic functions particularly significant for senior citizens. It provides them with a place for meeting and overcoming loneliness as well as a place where fresh vegetables can be raised at a minimum cost, all while providing an opportunity for self-fulfillment during retirement.

3.4 Żoliborz Borough (Warsaw) Allotment Association Board

The Allotment Association Board (drawn from its tenant community) is responsible for the site's management and maintenance and contact with the local administration (Żoliborz Borough Local Authority). This board is also responsible for calling public monthly meetings for the purpose of discussing any questions relating to community garden management and for publishing annual reports of activity (including the budget). Cooperative involvement plays an important role in the recently developed in allotment shared projects focused on environmental protection concerns, interest in wildlife, landscape and mastering gardening skills. The 'manifesto' accepted by tenants underlines the regard and necessity for environmental protection issues such as: respect for nature, cycles of nature, reverence for social and spiritual needs, and family values. Allotment tenants are encouraged to be responsible for a plot's aesthetic value and the good use of farmland, to implement organic and biodynamic methods (growing own seeds, composting green wastes for the garden, planting

with a sustainable and balanced variety). Due to the community's accepted resolutions, all tenants should be conscious of energy consumption (Environmental Protection Act 2001). To enhance public safety everybody should support community control by active participation in patrols, organized seven days a week, covering 3-4 hours duties. The community's members are able to take part in social events: sport competitions, parties, cultural events and lectures. Sharing information is one of the important issues. The Allotment Association Board tries to improve facilities for elderly and disabled members including smooth and wide pathway surfaces; accessible toilets; having the privilege and possibility to park his/her car next to the plot. To enhance garden aesthetic values, all tenants are encouraged to grow flowers and evergreens and are warned to be rather careful with vegetables (planting potatoes is strictly forbidden). Moreover any commercial use, including the sale of surplus products or the keeping of livestock such as pigeons and rabbits, is against the rules. Sometimes they get permission for keeping their pets such as dogs and cats. All tenants are obliged to leave cars outside the garden unless they have special permission to take a motor vehicle inside the garden. At the main gate at Promyka Street the parking plot is arranged for about 90 cars.

3.5 Waiting list for prospective plot holders

There are a considerable number of people on the waiting list at the Żoliborz Borough Allotment Garden. Usually about 30 people have enrolment forms officially submitted to the Allotment Association Board. The estimated waiting time is 10-15 years. It indicates that the number of vacant plots is not enough to fulfil present local community needs. Interestingly, prospective tenants mentioned several important concerns in their applications as reasons to submit their petition: the need for outdoor exercise, interest in organic gardening, chances for family pastime, cooperative involvement projects, difficulties in economic terms, low-income family conditions, and hopes for growing their own food. Many applications are written by middle-aged, middle-class representatives, or single parents. It shows not only local demographic change, but also new trends in urban society and their leisure time preferences. Recently, as the site is located close to the city centre, the Allotment Garden is constantly under the threat to be overtaken by developers, as are all other allotment gardens in Warsaw with prime locations.

4. Allotment gardens as a part of urban green systems

4.1 Warsaw's natural environment and city development

Warsaw's natural environment is constantly being transformed due to the process of urbanization. This process brings both positive elements to the socio-economic city's development, such as economic growth, and negative elements, such as climate degradation. For past few decades, Warsaw has remained the most attractive area in Poland for investments. The land use structure in the city is highly differentiated: housing developments, industrial and productive services, the transport network and agricultural areas. The meadows, pastures, and orchards used for agriculture, together with other green areas such as forest parks, are treated as potential land for urban investment. Unfortunately, the public parks and allotment gardens used for sport and recreation areas are also treated as such. Consequently, the gradual shrinkage of green areas has led not only to higher pollution and to specific climatic features, but also to poor provisions for outdoor sport and recreation areas and the limitation of allotment gardens. It goes without saying that urban green areas have a variety of environmental functions. It is a widely recognised fact that greens extending from the suburban area play a significant role in ameliorating the disadvantageous conditions associated with intense urban development (Czerwieniec, Lewińska 1996; Gutry-Korycka 2005; Worpole 2007). The inflow of air along the wedges stretching between the peripheries and the downtown area alleviates thermal conditions, reducing pollution and improving aero sanitary conditions. As for climatic factors, green spaces improve hygienic conditions, acting as wind barriers, affecting temperature, humidity content, and heat radiation. Temperatures are higher in winter and lower in summer between plants than between buildings. This is true, for example, at the Żoliborz Borough Allotment Garden. The greens, which reduce bacteria, mechanically filter out dust and other atmospheric pollution, and dilute gases produced by traffic, can physically, chemically and biologically improve the environment (Pawlikowska-Piechotka 2010). Green areas reduce

airborne dust by preventing surface dusting and by absorbing dust carried by the wind. Together with dust, urban vegetation also counteracts fog formation. In addition, greens absorb noise, improving auditory comfort (Czerwieniec, Lewińska 1996; Worpole 2007). Furthermore urban vegetation has important aesthetic functions when helping to 'shape' space, pointing to buildings, monuments, opening and closing views – enhancing townscape. Unfortunately in recent decades we can observe the gradual shrinkage of valuable green areas, especially those of important public functions: urban parks, children's playgrounds and allotment gardens (Central Statistic Office, 2008; Gutry-Korycka 2005). [Fig. 1]

4.2 Tradition of natural values protection in Warsaw

Just as green space management is critical to the present state of Warsaw's environment, we should not forget the ecological aspects of planning undertaken in the last one hundred and fifty years as a result of well thought out, highly professional concepts. These were prepared by town planners including: William Lindley (1859), Sokrates Starynkiewicz (1886), Tadeusz Tołwiński (1916), Stanisław Różański (1930), Jan Chmielewski and Szymon Syrkus (1933), Marian Spychalski (1938), Zygmunt Skibniewski (1945-47), and Jeremiasz Rosciszewski (1992). As a result, for the last 150 years Warsaw has had better conditions for environmental protection than other Polish cities, having planned special air exchange corridors. For example, the advantageous role of greens was described in Warsaw's master plan as early as 1916, and elaborated by architect Tadeusz Tołwiński, one of the promoters in Poland of the famous concept for developing garden cities, as proposed by Howard. One of the most important elements of his Warsaw master plan was the revolutionary idea of vast green spaces entering the city from the east, northwest and southwest. In the downtown district a vast green public space called the 'Pole Mokotowskie' Park, with an area of 140 hectares, was designed (now registered as urban historic park), accompanied by vast public green space of the allotment family garden (Warsaw Capital City Office 1993). Undoubtedly these traditional green belts, which still influence on the improvement of local climate in Warsaw today, cannot be overestimated by urban planners [Fig. 1].

4.3 Allotments in contemporary urban planning policy

At present, Warsaw's agglomeration is delimited as the area comprising the capital of Warsaw and its 31 suburban *gminas*, all defined as the Metropolitan Area of Warsaw. The systematic political changes that took place after 1989 brought revisions to the planning system, adopting principles of a local democratic system and a market economy. The Act on Spatial Organization was passed by Parliament in 1994 and later revised (Act of Spatial Planning, 2003). The hierarchical character of the planning system was partly abandoned and the sovereignty of *gminas* established. In accordance with the Act, two approaches of planning documents are expected at the level of local authority, differing in their legal qualifications. The first is elaborated for the entire territory ('Study of Directions and Conditions of Spatial Development') and determines the main issues of spatial policy of the local authority. The second ('Local Physical Development Plan') is the instrument of policy implementation and determines land use directions and principles of development. It doesn't need to elaborate for the entire territory; however, it may be prepared for a group of *gminas* (in view of the procedure nuances and financial consequences, plans for portions of the *gminas* dominated). Unfortunately, the city of Warsaw has been encompassed only to a limited degree in valid local plans elaborated after 1995. In 2007, there were 107 local plans for spatial development and a further 265 are in the course of being elaborated. The areas covered by the individual plans are highly differentiated with regards to their size. However, they do not exceed tens of hectares. These local plans are distributed unevenly, dispersed across the entire agglomeration. The aforementioned shortage of local plans for physical development in the Warsaw agglomeration has had a negative impact on sustainable urban growth. Unfortunately, under Polish law the lack of a spatial plan does not stop investment projects from being implemented (Act of Spatial Planning 2003). It has a disadvantageous impact on harmonious urban landscape, including fatal consequences in terms of public green area reduction for the 'Kępa Potocka' Allotment Garden, Bulwar Stanisława Augusta City Park. In an effort to protect urban parks against development, local communities have organised several protest campaigns that

have insisted on the radical protection of greens. From 2000-2004, for example, 'Earth Day' celebrations had as many as 60,000 participants. This protest was very successful: historic Park 'Pole Mokotowskie', which in 2000 was scheduled to be reduced in size and partially sold to developers, is now covered by a protection programme. Unfortunately, despite the eager protests of local community members and plot tenants, it did not include the Allotment Family Garden, which was founded almost one hundred years ago and had a special meaning as one of the strongest city landmarks. It is noteworthy, however, that community protests in Warsaw do not always lack effectiveness. In January 2009 a determined local community succeeded in stopping investors from overtaking the historic, nineteenth century landscape park 'Arkadia Park' in Warsaw. Subsequently, one can often hear about dynamic local community protests against the liquidation of the Żoliborz Borough Allotment Garden. Unfortunately, urban expansion of new structures is too often taking place at the expense of open urban recreation green spaces that are valuable to the local community and important to city ecosystems. Sometimes the allotment gardens in question have long histories, several decades of tradition, and generations of tenants who are deeply involved with gardening not only financially but also emotionally. There is no doubt that if changes in the land use of open green areas concern even relatively small patches of land, the negative consequences might be significant and have crucial, broad impacts [Fig.1].

In 2005 the Polish government established a committee to examine allotment policy and suggest any necessary changes in legislation. As a result, allotment legislation was updated (Allotment Act 2005). The terms 'allotment' or 'community garden' were replaced by 'family garden', which reflected the contemporary change in allotment use. Consequently the Polish Allotment Society has changed its name to the Polish Association of Family Gardens. Today in Poland there are 5,000 allotment gardens with 966,000 plots occupying 44,000 ha (Polish Association of Allotment Gardens 2008-2010). Almost one million Polish families are using 'family gardens', meaning 10% of the Polish population (about 3.5 million) actively takes part in this programme (Main Statistic Office, 2008). In Warsaw there are 55,000 individual plot holders. Today demand for allotment gardens (family gardens) has generally declined but in Warsaw for example, sites with good locations and adequate facilities are sought after (Tables 1 and 2). The average plot size is 300-500 m² in towns (77.3%) and more than 500 m² in country locations. The average tenancy payment is 12 grosz (3 cents) per 1 m², or about 12 euro/per month/per 300 m² plot (Polish Allotment Society, 2008-2011). In Poland accordingly to the Act of 8 July 2005, family allotment gardens are considered public utilities, designed to meet the leisure, recreational and other social needs of members of local communities. The gardens do this through ensuring common access to the areas of family allotment gardens and plots and facilitating horticultural cultivation for one's own use as well as to enhance ecological standards of the surroundings [Table 3].

Allotment 'Family Gardens', as non-built environment and public green areas – at least theoretically – are subject to protection provided in regulations regarding the protection of rural and forest areas (Act of 27 March 2003; Act of 27 April 2001). It is most unfortunate, however, that despite the very strict law focused on urban ecology and greens protection, an attempt to create new allotments is weakly represented in Warsaw's present city planning, the Spatial Planning Act of 1994. Moreover where local plans in the other EU countries are concerned with historical landscapes, attention is principally devoted in Warsaw to individual buildings, sites and monuments, or small areas of special interest. Concepts concerned with the urban green structure are largely ignored (Historic Relics Protection Act of 2005). The study of the history of Warsaw's greens shows that increased pressure since the 1990s to not only limit the number of new allotments but to liquidate some still in existence in order to use them more intensively as potential building sites, despite their socio-cultural significance, and as a much more profitable enterprise for the city. In the last two decades, decision-making policy about proposals to redevelop allotments has frequently been changed, reflecting the large number of interested parties, and the scope for different interpretations of planning policies. On the level of local planning, it has been characterized by changes in policies and disagreements among those making and influencing decisions (Warsaw Municipal Office 1993; Warsaw Municipal Office 1992; Warsaw Municipal Office 1998; Warsaw Municipal Office 2004; Warsaw Municipal Office 2007).

The role of allotment	Detailed social, economic and ecological benefits
Allotments as a resource of food	Dietary benefits at low cost: food grown on allotments is different from 'supermarket quality', considered safer (free of chemicals, not sprayed), tastier, cheaper, looks better (like 'real food' with irregular shapes); encourages people to eat more fresh vegetables and fruits, to compost green waste; food is not transported over great distances
Allotments as a resource for health	Physical, active recreation: gardening offers healthy physical recreation for all; working an allotment is recognized for its therapeutic value
Allotments as a community resource	Bring people together: contributing in enhancing community identity, enabling building co-operation, local community links and everyday contact, bringing people together from all age groups and social backgrounds, fostering mentoring relationship (sharing knowledge) where more experienced gardeners can pass on their knowledge to younger, less experienced tenants; the annual festivals, fetes, concerts, fairs, competitions organized by association are of the 'open for local community' formula, successfully embracing local people – promoting allotment idea (as consequence demand for new allotments should increase)
Allotments as an educational tool	Education school projects: local schools and associations could built joint education projects, opportunity to create 'green classes' (children are taught biology, informed where food come from, the value of fruit and vegetables for healthy lifestyles), active outdoor recreation programs (gardening classes), possibility to fostering contact between generation
Allotments as a resource for bio-diversity	Varied and valued habitat: wide range of plants are opportunities for wildlife and species of flora and fauna to thrive; allotments often located on the outskirts of housing estates make often important links in eco-corridors and green chains;
Allotments as a public open space	Outdoor sport and recreation space: important public, outdoor recreation space
Allotment and urban landscape - controversy	Allotments as pell-mell of urban space: allotments which mainly occupy the city's prime locations are accused of limiting urban development possibilities; criticised for being ugly, having poor maintenance and limited accessibility.

Tab 3. *The contemporary environmental and social role of allotments in urban space (Warsaw). Source: Anna Pawlikowska-Piechotka, research project report (unpublished) DS-114/AWF Warsaw 2008-2010.*

5. Conclusion

The findings presented are drawn from a survey of allotment gardens conducted in Warsaw that identified the extent of their usage, their meaning as leisure gardens, the contemporary characteristics of the allotment movement, and possible lines for future development. Our findings are consistent with the notion that allotments are an important part of urban green systems and that having an allotment garden may promote an active lifestyle and contribute to healthy aging. Unfortunately allotment gardens were found to suffer mainly from uncertain futures and the constant threat of liquidation. Many of these issues have been highlighted by the Polish Allotment Society in its bulletin (2008-2010).

Therefore two alternative urban planning strategies are possible: a) to leave things as they are and accept that there is no future for this form of urban greens, or b) to recognize that allotments are valuable recreational resources, comparable, for example, with sports centers and swimming pools, parks and playing fields, and should therefore be a central concern of the local department responsible for parks and recreation. In Europe, urban planning concepts such as zoning and greenbelt additions have traditionally been applied. In Warsaw allotments located on the fringes of the city might encourage controlled urban growth. Allotments, together with woods and urban parks formed as greenbelts, could create a landscape whose function is a smooth transition between the urban and rural environments, providing a new stability to tenders for new allotments. The basis for the successful establishment of allotment gardens should be laid through private, individual tenders and local council projects, which include provisions for land, water systems and other means of infrastructure. Unfortunately, at present one cannot find such solutions in the Warsaw's land use planning concepts. Moreover, in the last two decades the future of allotments became involved in political struggles. Because of the fact that allotment gardens are mainly excluded from present zoning (land use) plans, it might take allotment holders serious engagement before they succeed and their gardens regain their important role and become included in zoning plans. To sum up:

- a) Today Polish allotment gardeners represent the largest land users in Poland. The contemporary location of allotments in cities (often in prime city space) reflects the history of urban development, as the primary allotment location was on the fringes of towns. Their use in recent decades reflects the social, political and economic transformations of the nineteenth, twentieth, and earliest twenty-first centuries. In the beginning these gardeners were focused on food production, whereas today allotments are considered more as leisure gardens. Therefore allotment gardens in the context of urban space policy should be revised, as the present situation provokes not only tension among stakeholders and but also a contentious debate about the private and public uses of urban land.
- b) As a capital city, Warsaw must respond to the requirements posed by its developing capital functions and metropolitan status. It is growing in size and population, with a population of 1,697,000. Probably during our lifetime it will grow further, its space will be rebuilt and restructured. All of this means dramatic changes. Of course it is difficult to predict future changes as present growth is less by natural increase (births) and more through migration. People continue to move to Warsaw attracted by its inherent advantages and opportunities. Many contemporary negative consequences of rapid city growth are associated with unlimited urban expansion into green areas, which includes into allotment gardens. Although matters of environmental protection are the subject of numerous discussions, unfortunately it is not always perceived how important the protection of urban green spaces is for the environment. Although urban sprawl is an irreversible process, it is believed that through sustainable spatial planning we can alleviate some of its negative inputs. If we follow 'smart urban growth' and its ecological rules (Town Natural System) and apply these ideas to planning practice, we may have sustainable, smart growth of a 'vital city' with urban allotments included in this green system.
- c) The survey's first results show that allotments could answer many complex urban community needs in the areas of active recreation, meeting places, and landmarks, as well as addressing global warming. These principal objectives – environment protection, social needs, the economy – should be considered as key factors in the urban development concept, and treated integrally in both sustainable planning and design and maintenance as encompassed in Warsaw Development Master Plans or Warsaw Spatial Strategy. It should be more consequently observed than it was before in the plans conducted in 1992, 1998 2004, and 2007. This is nothing new, for in the historic zoning plans developed for Warsaw in 1919-1976, allotment gardens were seriously considered as an integral segment of urban green systems. It goes without saying that allotment holders should be actively engaged as important stakeholders in urban local land use planning policy. As it becomes a political issue, all future land use development plans should be consulted with not only officials from the Polish Allotment Society, but also with plot users.
- d) Our research showed that today in Poland allotment gardening seems to be very different from the days when they were used to provide food for families of poor workers. With Poland's increased economic status, reasons for Polish people to have an allotment have changed. Today, when fresh fruits and vegetables are easily available in supermarkets, allotment gardening is regarded as a leisure pursuit, an opportunity for fresh air, relaxation, exercise, and family recreation. The traditional image of the allotment user (poor working-class family, retired couples) has slowly been changing, as more young people and also representatives of middle-class families take on plots. It should be also underlined that although allotment gardening is rather dominated by senior males, today more and more women participate, both middle-aged and young mothers with children.
- e) In Poland allotment sites are mainly provided and managed by local authorities, although a few that were founded by government institutions (Polish Railway Company, coal mines, shipyards) still exist. In reality, all case management responsibilities have been delegated to an allotment association boards that are based on sites and selected

from its tenants. Our research shows that association boards are usually active, as their members now expect a greater level of quality: security features, parking spaces, communal houses, access to running water and toilets, and roadways. The associations also actively provide literature and organize lectures that assist new plot holders with planning crops, good examples of recycling, promotion of healthy lifestyles and other useful advice. Lectures are usually planned as winter activity programmes. More opportunities to socialize are offered in the summer season: concerts, parties, dancing soirees, third-age University, different kinds of competitions [Table 3].

- f) In each allotment garden there are some vacant plots, although no more than a few per site. These cause problems such as weeds seeding to neighbourhood plots and poor landscaping. Neglected plots often encourage vandalism and antisocial behaviour. It is necessary to underline that vacant plots rarely appear and usually only one per season, as often there are some potential plot holders already registered on the long waiting list.
- g) Today, rather than supporting traditional allotments, the tendency is to support family 'leisure gardens' with typical garden facilities: sheds in form of a romantic chalet, fountains, sculptures, and children's playgrounds, etc. Quite often, formal restrictions limit some 'indecent' types of crops – tomatoes and potatoes are regarded as such. On the other hand, great emphasis is put on well-tended plots: ornamentation, flower growing, fruit-trees, evergreens and caring for landscaping around sheds. Although permanent residence in chalets is not permitted, they are often used for the occasional overnight stay. At most, local authorities don't have much to say regarding appearance and design, but floor space limits (30 m²) in all cases has to be strictly obeyed (Act of Spatial Planning 2003). At present there are numerous building companies that specialise in constructing wooden allotment chalets, often using prefabricated units. New approaches for allotment ideas have attracted the attention of big companies, which has lead to an allotment section, offering goods and advice on how to arrange a plot and decorate a chalet's interior, and offer direction to allotment tenants. Furthermore, there are numerous magazines and professional journals focused on questions of not only gardening but also all the fashion connected with a leisure garden's contemporary style.
- h) Although the demand for allotments has fallen, the distribution of allotment sites within a local authority's jurisdiction does not always match demand. Only in Warsaw do about 1,000 families wait for tenancy possibilities, usually people who live in apartments (Polish Allotment Society 2008-2010). Rather than a traditional allotment, they expect a 'leisure garden' with appropriate facilities including a club house, play areas, and technical infrastructure as well as organized activities. Hopefully in the future it will be treated as serious by local authorities, as allotments form an important part of leisure provisioning in urban space and this needs to be reflected within a local authority's Leisure Strategy, an obligation underlined in the Local Agenda 21 initiatives. One of the responsibilities of local planning (Act of Spatial Planning 2003) is to ensure the availability of high quality public outdoor recreational spaces of the right type and in locations close to housing estates. Moreover, this informal green area can perform other important functions in public urban space by enhancing:
 - urban environment quality, improving quality of life for local communities, providing informal recreational space close to the housing estates;
 - promotion of healthy lifestyles, active recreation, opportunities for people of all ages for everyday recreation, sport for all (walking, Nordic Walking, cycling);
 - urban biodiversity, natural habitats for flora and fauna in urban space, providing potential eco-corridors;
 - community identity, creating places for congregating, for holding community events and periodic activities (concerts, sport competitions, fetes, fairs, educational activities);

- traditional family values, as common gardening in these enclaves of tranquillity is regarded by plot holders as a perfect pastime for multi-segmented, extended family (parents and children, grandparents and grandchildren);
- aesthetic values, positive element of the urban landscape, embellishment of public open space, although that sometimes is questioned.

The paper concludes that allotments still play a significant role as urban greens in Warsaw; however several problems are seen in the institutional context of urban planning and municipal governments. Their contemporary role and place in the urban land use policy, however, should be seriously revised.

6. Discussion

As the leisure value of allotments has recently increased, their role in urban landscape and spatial plans should be revised. Assuming that allotment gardens have a future in Warsaw and considering their significance as urban greens in spatial planning and contemporary land use policy strategies, the following issues should be seriously discussed:

- A growing interest in nature conservancy and ecology leads to the idea of saving allotments from demolition by developers, covering by protection as other natural resources.
- Protection programs of existing 'family gardens', especially allotments of long tradition, of historic value, and that play a role in public green space and are landmarks for a local community, should be seriously considered by urban planners [Table 3].
- The great contemporary demand on allotment plots in Warsaw and other Polish cities should not be neglected; the important social role of allotments as contemporary 'family gardens' and 'leisure gardens' should be respected.
- A possible answer for sustainable urban land use policy is a resilient use of allotment family gardens as open space for outdoor recreation, sports, games. It seems that the formula of 'opened' urban allotments (accessible for all local community as outdoor recreation space 'for all') is a sensible formula for sharing public green space.
- The improvement of an allotment garden's maintenance, the serious discipline of plot holders, and more care for the order and attractiveness of a shelter and its surroundings seems to be of the utmost importance in answering criticism and accusations that allotment gardens are a shameful pell-mell in an urban landscape.
- Plot holders should be consulted regarding all land use development plans covering areas of allotments. The holders must be encouraged to be actively engaged in the land use planning process; moreover politicians, professionals, local authorities, NGOs and others involved in urban land use planning need to understand the contemporary role of allotments and seriously consider local community expectations before deciding in favour of liquidating the garden.
- Many allotments have gradually vanished from Warsaw's landscape and we have to accept the fact that many more might soon share this fate. It is as natural as the changing role of the gardens, which has varied in recent decades and possibly will vary in the future.
- New allotments located on the fringes of Warsaw might together with woods and urban parks form a city green belt used as a recreation area valuable for Warsaw's environment and creating a landscape which is a smooth transition between the urban and rural environments.

To sum up, when considering the future of urban allotments in Warsaw, one should not only see their value, but also the rather disputable land use concepts and quite versatile attitudes of the local authorities expressed in urban planning policy towards allotments. Allotments, which mainly occupy the city's prime locations, are accused of limiting possibilities for urban development. Moreover, they are often criticised for ugliness and poor management. As the leisure value of allotments has increased in the last decades, consequently not only their role in urban space, but also new plot layouts and gardens designs, should be revised. As our survey was limited to Warsaw, additional research is needed to confirm and extend the current findings to other Polish cities.

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