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COST Action Urban Agriculture Europe: Documentation of 4th Working Group Meeting

Warsaw 02-04/04/2014

Documentation of 4th Working Group Meeting

Warsaw, 2- 4 April 2014

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Table of contents

Introduction

1. Meeting's setting and general overview of Warsaw meeting 5

2. Programme of Warsaw meeting 6

3. Welcome addresses

3.1 Prof. Kazimierz Banasik, Rector's Attorney for International Research Project 9

3.2 Prof. Dr. Frank Lohrberg, Action Chair..... 11

Keynote lecture and presentations

4. Elizabeth Brabec: 13

5. Barbara Szulczewska, Katarzyna Bruszewska: Urban agriculture in Polish cities - development constrains and possibilities (spatial planning issues) 15

6. Tomasz Sławiński, Maciej Sulmicki: Suburbanisation and urban sprawl in the Warsaw Metropolitan Area and their potential impact on future development - a planner's perspective 25

7. Mirosław Grochowski: Suburbanisation and urban sprawl in the Warsaw Metropolitan Area and their potential impact on future development - a geographer's perspective 37

8. Kazimierz Wiech, Eugeniusz Kondracki: Allotment gardens in Poland 43

9. Iga Kołodziej: Warsaw Urban Agriculture - early bird initiatives 51

Fieldtrip documentation.....59

Working Groups' Reports

10. Working Group 1 Report..... 65

11. Working Group 2 Report..... 69

12. Working Group 3 Report 73

13. Working Group 4 Report 77

14. Working Group 5 Report 85

4th Working Group, Meeting Warsaw 2-4 /04/2014, PHOTO COVER 89

Introduction

1. Meeting's setting and general overview of Warsaw meeting

Prof. Barbara Szulczewska and prof. Frank Lohrberg

The meeting took place on April 2 – 4, 2014 in Warsaw at Warsaw University of Life Sciences (Faculty of Horticulture, Biotechnology and Landscape Architecture, Department of Landscape Architecture). This event had a honorary patronage of the Rector of Warsaw University of Life Sciences, the Minister of Agriculture and Rural Development and the Polish Television.

Programme of the meeting included: 1 plenary session, a fieldtrip, 3 working groups' sessions and 1 closing session. Welcome addresses were delivered by prof. **Kazimierz Banasik**, Rector's Attorney for International Research Projects and prof. **Frank Lohrberg**, Chair of the Action who also described the Action's work progress.

During the plenary session their speeches presented:

- Keynote speaker: **Prof. Elizabeth Brabec** (Department of Landscape Architecture and Environmental Planning at the University of Massachusetts Amherst): Urban agriculture – new concepts and ideas
- **Barbara Szulczewska** (Department of Landscape Architecture, Warsaw University of Life Sciences): Urban agriculture in Polish cities - development constrains and possibilities
- **Tomasz Sławiński** (Deputy Director of Mazovian Office for Regional Planning): Suburbanisation and urban sprawl in Warsaw's functional area and their potential impact on future development
- **Kazimierz Wiech** (Member of Działkowiec Editorial Board, Representative of the National Council of Polish Association of Allotment Gardens): Family allotment gardens in Poland. Tradition and current state.
- **Iga Kołodziej** (Representative of NGO): Warsaw Urban Agriculture, early-birds initatives

Fieldtrip entitled 'Agriculture in Warsaw and Warsaw Metropolitan Area' was guided by Mirosław Grochowski (a geographer from Faculty of Geography, Warsaw University). It included the following main points: Family Allotment Garden "Ursynów", suburban horticulture of Jerzy Zdunek (Municipality of Nowa Iwiczna), "New spatial settings" of Warsaw's outskirts and Eco-Farm: Four Seasons in Powsin.

The working groups' sessions were dedicated to specific tasks, which had been agreed before meeting among the Chairs and WG participants. Results of the discussions, as well as plans for future steps ,were presented during a closing session.

In the meeting, depending on the date, took part:

02.04 – 60 participants
03.04 – 59 participants
04.04 – 53 participants

Acknowledgements:
We are grateful to the following people for their help and support in planning and executing the 4th Working group Meeting:

- **Eugeniusz Kondracki –** President of National Council of Polish Association of Allotment Gardens
- **Maciej Aleksandrowicz** – Officer for Gardening in National Council of Polish Association of Allotment Gardens
- **Marian Socała** – President of the Board of Family Allotment Garden "Ursynów"
- **Jerzy Zdunek** – owner of small horticulture holding in Nowa Iwiczna
- **Michał Pachlewski** – owner of ecological / educational farm "Four Seasons" in Warsaw (Powsin)
- PhD students of Faculty of Horticulture, Biotechnology and Landscape Architecture at WULS - SGGW: **Adam Pirowski** and **Maciej Żołnierczuk**

2. Programme of Warsaw meeting

Wednesday (2.04.2014)

Time	Place	Activity
12.00-13.30	112 Hall, Building 8 Old part of SGGW Campus	Welcome Lunch + Coffee + Registration
13.30-14.00	112 Hall, Building 8 Old part of SGGW Campus	**Welcome addresses:** Prof. Kazimierz Banasik, Rector's Attorney for International Research Projects Prof. Frank Lohrberg, Chair of the Action: Welcome address and information on the Action's work progress
14.00-14.40	112 Hall, Building 8	**Keynote address:** Prof. Elizabeth Brabec (Department of Landscape Architecture and Environmental Planning at the University of Massachusetts Amherst): Urban agriculture – new concepts and ideas
14.40-15.00	112 Hall, Building 8	Coffee
15.00-16.30	112 Hall, Building 8	I**ntroduction:** Barbara Szulczewska (Department of Landscape Architecture, Warsaw University of Life Sciences): Urban agriculture in Polish cities, development constrains and possibilities **Local Experts Presentations** 1. Tomasz Sławiński (Deputy Director of Mazovian Office for Regional Planning): Suburbanization and urban sprawl in Warsaw's functional area and their potential impact on future development 2. Kazimierz Wiech (Member of Działkowiec Editorial Board, Representative of the National Council of Polish Association of Allotment Gardens): Family allotment gardens in Poland. Tradition and current state. 3. Iga Kołodziej (Representative of NGO): Warsaw Urban Agriculture, early-birds initatives 4. Eva Hass: Information of COST reimbursement rules
16.30-17.00	112 Hall, Building 8	Coffee
17.00-18.30	112 Hall, Building 8	**Short Term Scientific Missions presentations**: Charlotte Provè, Ana Maria Fennema Galparsoro, Attila Tóth, Luke Beesley, Marian Simon Rojo
18.30-19.00	112 Hall, Building 8	MC meeting

Thursday (3.04.2014)

Time	Place	Activity
9.00-15.30	Warsaw and its suburban zone	Study Tour: Agriculture in Warsaw and Warsaw Metropolitan Area guided by Mirosław Grochowski 1. Family Allotment Garden "Ursynów" 2. Suburban horticulture of Jerzy Zdunek (Municipality of Nowa Iwiczna) 3. "New spatial settings" of Warsaw's outskirts 4. Eco-Farm: Four Seasons in Powsin (Lunch)
16.00-18.00		WG meeting (Coffee available in meeting rooms) (2h)
18.30		Common Dinner (notice: formal dinner but informal dresses)

Friday (4.04.2014)

Time	Place	Activity
9.00-13.00	Faculty Council Hall Building 37 ground floor and rooms of the Department of Landscape Architecture Building 37 III floor	WG meeting (Coffee available in meeting rooms) (4h)
13.00-14.00	Room 13 Department of Landscape Architecture Building 37 III floor	Lunch
14.00-16.30	Faculty Council Hall Building 37 ground floor and rooms of the Department of Landscape Architecture Building 37 III floor	WG meeting (Coffee available in meeting rooms) (2.5 h)
16.00-17.30	Faculty Council Hall Building 37 ground floor	Closing Plenary Session

Warsaw University of Life Sciences-SGGW

Welcome addresses

3.1 Professor Kazimierz Banasik, Rector's Attorney for International Research Project

Prof. Kazimierz Banasik

It's a great pleasure to welcome you all here at Warsaw University of Life Sciences. I'm glad that conference within the COST Programme, Action TD1106 " Urban Agriculture Europe (UAE)" takes place at our University.

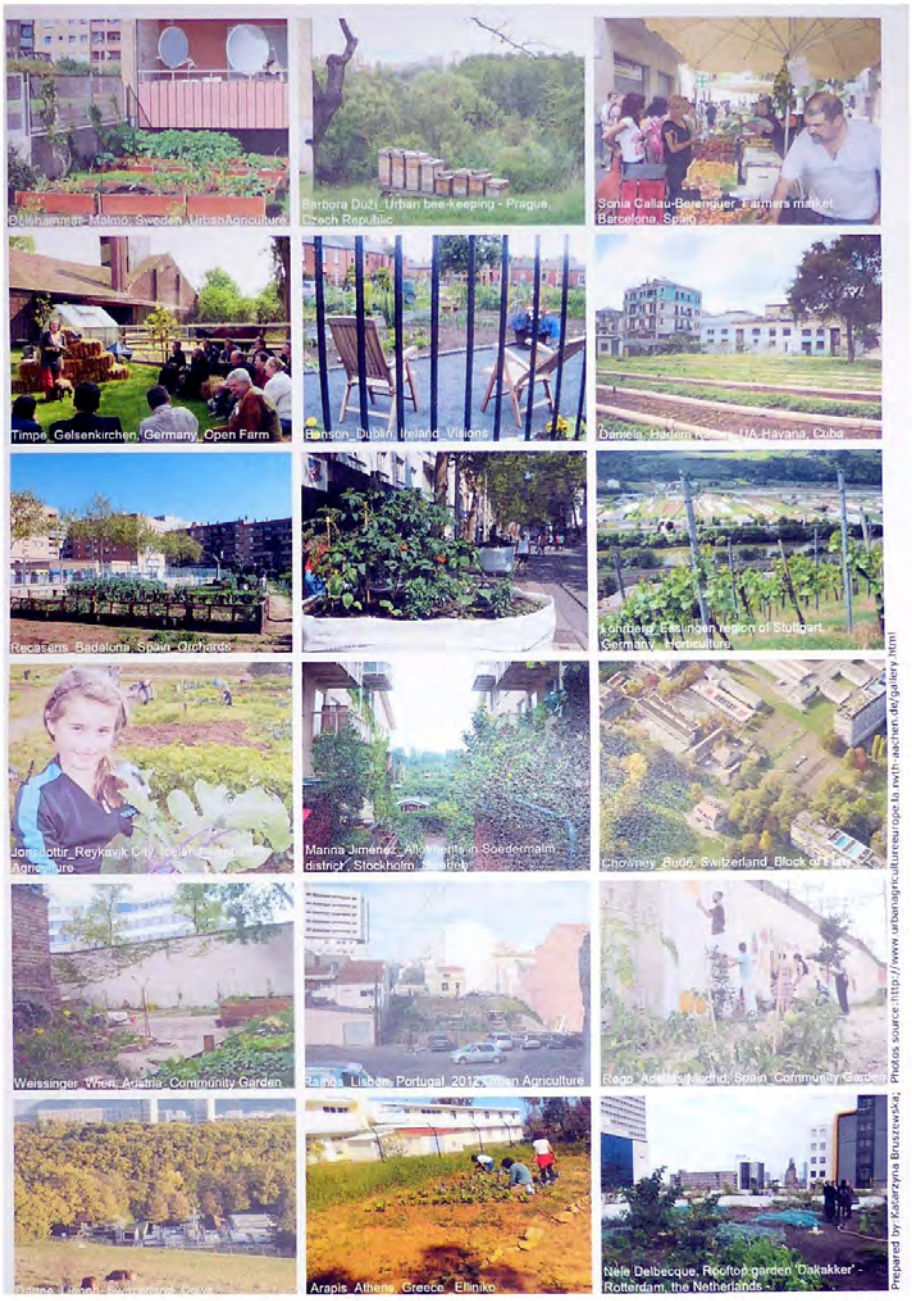
Our University is one of the premier and the most prestigious institutions of higher education and research in Poland. The Warsaw University of Life Sciences was established in 1816 as the Institute of Agronomy in Marymont, the first agricultural institution of higher education in Poland and only the fourth one in Europe. Our University is well known and respected, both nationally and internationally.

The strategic goal of WULS– SGGW is further expansion of research collaboration within international programmes. Each year the number of international research projects is increasing. Moreover, many of our researchers are currently involved in the COST Programmes and we constantly deploy new projects.

Thank you very much and I wish you fruitful work and enjoyable stay in Warsaw.

Fig. 3.1 Warsaw University of Life Scienses campus

COST - Action Urban Agriculture Europe



4th Working Groups Meeting
2-4 April 2014, SGGW, Warsaw, Poland

Warsaw University of Life Sciences-SGGW

cost

Ministry of Agriculture and Rural Development

TVP Warszawa

3.2. Welcome address and information on Action's progress

Prof. Dr. Frank Lohrberg, Action Chair

Prof. Dr. Frank Lohrberg, Action Chair

1. Information on ongoing activity:

- WG groups continued, WG 5 started
- Training School Toulouse
- 8 (R)STSM conducted or on its way
- More than 30 publications on UA
- 10 national research applications (2/3 already approved)
- 1 EU research application

2. Allocation of work with TD 1201 based on a joint typology

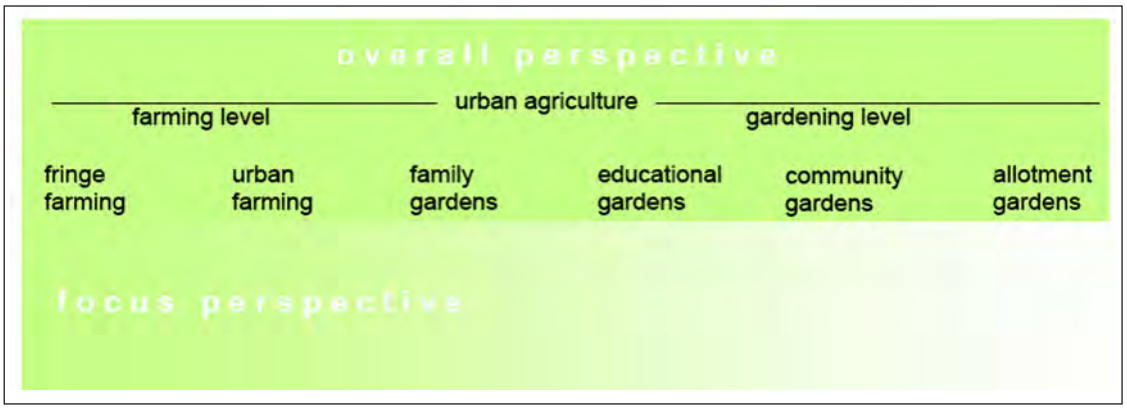


Fig.3.2 COST Action' Urban Agriculture Europe' perspective

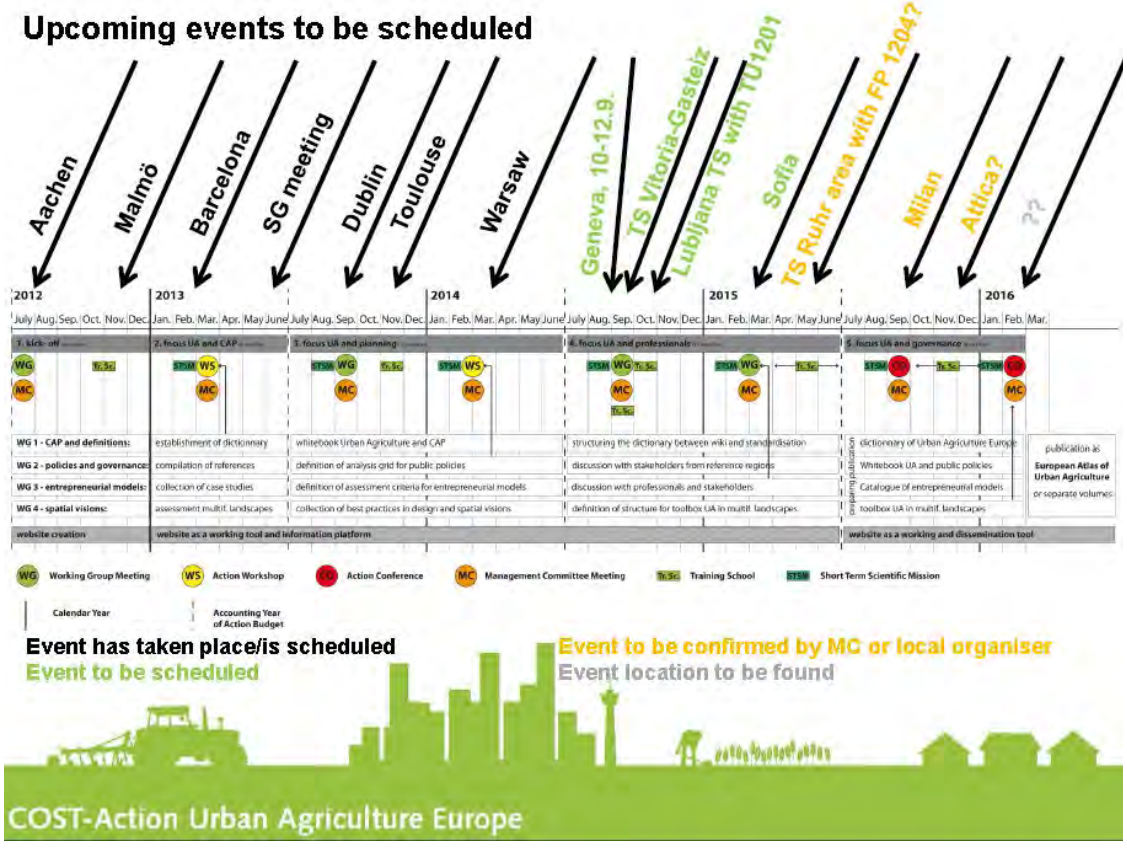


Fig.3.3 COST Action 'Urban Agriculture Europe' timelive

Fig.3.4 Atlas of Urban Agriculture Europe

3. Atlas of UAE

Since its start in October 2013 more than 100 case studies have been included. It creates valuable tool for internal work and presentation to third parties.

4. Mission

- Sampling of UA research need and addressing it to Horizon 2020
- Meeting with DG Agri/DG Research and Innovation
- Meeting with SCAR-members
- Contacting EIP Smart Cities and EIP Agri
- Contacting potential publishers of a final book on UAE

5. From mission statement to main messages

Urban Agriculture is characterized by various forms of interaction between agriculture and the urban sphere. Defining these forms of interaction will lead to a better understanding and managing of Urban Agriculture.

Interaction

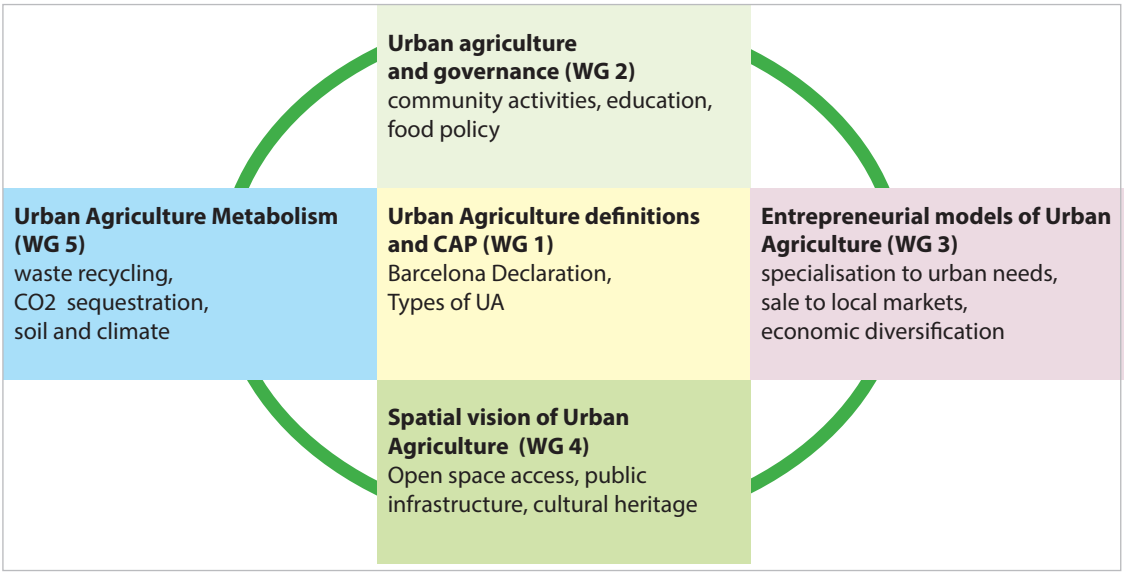


Fig.3.5 Interactions between working group

4. Urban Agriculture: Is it really about food security?

Elisabeth Brabec

Prof. Elisabeth Brabec

Over the past few years, a new movement has been sweeping across agricultural research, theory and practice. It is wrapped up in two notions: urban food production and food security. The apparent goals of this movement are difficult to argue with: creating a stable base of local food production that is safe, sustainable and is a part of the daily life and fabric of urban areas. But as we delve into both the dialogue and practice surrounding this movement, it quickly becomes clear that the movement is much more complex in it's motivations than may be immediately apparent.

Food security is, of course, an issue that will grow in importance with the increasing impacts of climate change, the food requirements of an increasing world population, and the health issues of virulent pathogens and other contaminants resident in the food system. The demand for locally-produced food, the origins of which can been seen or at least mentally located by the consumer is increasing, as a hedge against those unknown contaminants. However, there is little clarity in the dialogue about the distinctions between economically-viable production and personal consumption production in the urban environment. Each has different goals, motivations and spatial requirements, and therefore different implications for urban planning and policy.

This presentation explored these themes in the literature, and presented some preliminary results of a comparative case study project of urban agricultural production in the cities of Vancouver, Prague and Amsterdam.

Note of the author:

Elizabeth Brabec is a Professor and past Department Head in the Department of Landscape Architecture and Environmental Planning at the University of Massachusetts Amherst. With a Master in Landscape Architecture from the University of Guelph, Canada, and a Juris Doctor from the University of Maryland, she founded and managed the landscape planning firm, Land Ethics, Inc. in Washington, D.C. and Annapolis, Maryland. She has also taught and held administrative positions at the University of Michigan, School of Natural Resources and the Environment, and Utah State University, Department of Landscape Architecture and Environmental Planning. Her research interests are focused on land conservation and the design and planning of sustainable open space, complemented with a focus on the culture and historical basis of landscape form and meaning.

COST Action UAE: 4st WG Meeting Warsaw April 2014

5. Urban agriculture in Polish cities – development constrains and possibilities (spatial planning issues)

Barbara Szulczewska, Katarzyna Bruszewska
Warsaw University of Life Sciences – SGGW, Department of Landscape Architecture

Prof. Barbara Szulczewska

Introduction

The idea of urban agriculture has not been adopted in any policy, including agricultural policy and spatial development policy of Polish cities yet. In Polish publications urban agriculture topic is mentioned very seldom, almost only as foreign examples of this activity. It is more said about the concept of urban agriculture on Polish web-sites on Internet than in scientific publications. First of all, some recent examples of urban agriculture and new technologies connected with this activity are widely described, such as edible park in Hague (dekoeko, 2012), Prinzessinnengarten in Berlin (dekoeko, 2012), roof farming (Ekologia.pl, 2012), vertical farming (Radziewicz, 2013). However some opinions about urban agriculture can be found in Polish literature. e.g. Giecewicz (2005) wrote about farming areas within cities as the factor of natural revitalization of the city. As a reference region she took the city of Vienna in Austria. Another Polish author – Palej (2010) in the idea of urban agriculture sees a chance to improve a natural environment of the city, as well as the strategy supporting the sustainable development of the city. Palej (2010) describes very concisely some examples from abroad. Other Polish authors recall also examples of urban agriculture activity from other countries, e.g. Szczepańska (2013) writes about the city of Barcelona in Spain, Zenkteler (2013) about Havana in Cuba, Wybieralski (2013) about the example from Detroit in the USA. While urban agriculture is still not so common in Polish cities comparing to the Western European countries, family allotment gardens should be considered as the only type of urban agriculture areas widely spread out in Poland. However, the term urban agriculture is not being used in the context of their description in Polish publications and legal regulations.

Polish agriculture – general information

Poland is situated in Central Europe. Its territory covers 321.7 thousands km^2 and the population reaches 38.2 million what gives 6th place in EU-27. Poland is divided into 16 regions ('voivodships'), 314 counties ('poviats') and 2,479 communes ('gminas').

In 2011 agricultural land covered 49.6% of the total area of the country. The majority of this land has belonged to the private sector (97,1%). The total area of farmland in good conditions has equaled 14.8 million ha, that makes 95.7% of the total area of

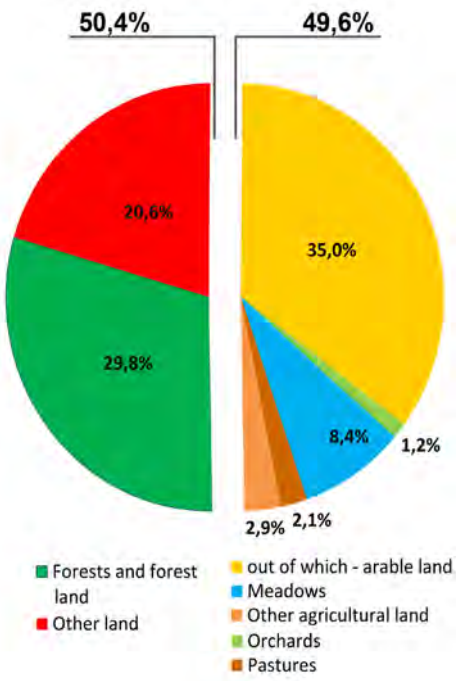


Fig. 5.1 Land-use structure in 2011 (in % of total area)
Source: Statistical Yearbook of Agriculture, Central Statistical Office (GUS), Warsaw 2011

agricultural land.

The significant part of the total area of Poland is covered by rural areas. The average percentage of the rural areas is 93,2%, and in some part of Poland this percentage is even higher, even above 97%.

The quality of agricultural land in Poland is rather poor, poorer than the average in European Union. The share of light soils, which in Poland are characterized by a high sand content, is two times higher than in the EU average (60,8% of total agricultural land).

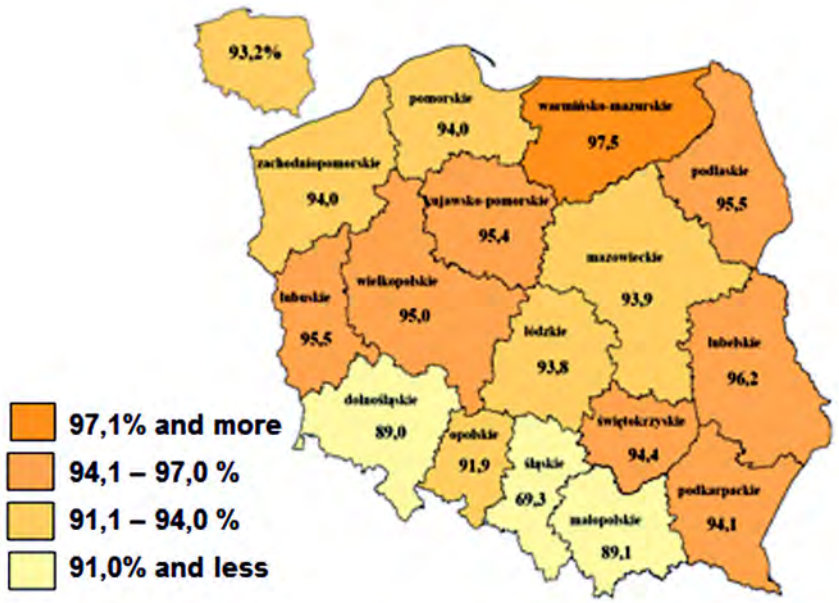


Fig. 5.2. Rural areas in Polish voivodships 2010 (in % of total area)
Source: Characteristics of rural areas in Poland, Central Statistic Office, 2010

The Agricultural Census of 2010 compared to Agricultural Census of 2002 (it means before Poland joined the EU) revealed the following trends:

- the number of agricultural holdings keeps decreasing while their area is increasing;
- the structure of agricultural holdings has changed significantly: the number of smallest farms (0 – 5 ha) has decreased by almost 25%, the number of farms (5 – 20 ha) has decreased by 17%, the number holdings (20 – 50 ha) has remained unchanged, the number of largest holdings (over 50 ha) has increased significantly – 34%;
- the model of multi-functional holding is gaining popularity slowly yet steadily;
- the total agricultural land has decreased by 5% (some farmland has been allotted for non-agricultural purposes as e.g. infrastructure);
- the cropped area has decreased;
- the total number of cattle has increased, whereas population of cows has dropped (grooving interest in the production of slaughter cattle after the EU accession);
- agricultural holding are better equipped in the means of production.

Despite the poor quality of soils and significant dispersion of the agriculture (the average area of agricultural land per farm amounted in 2011 to 8.7 ha), Poland is an important European and global producer of agricultural and horticultural products, as well as of products of animal origin (table 5.1).

Soil and climatic conditions, as well as regional traditions, determine the kind of typical production for each farm.

Tab. 5.1
Share and place of Polish agriculture in the world and in hte EU (27 states)

Production of some agricultural products	Share		Place	
	in the world	in the EU	in the world	in the EU
- wheat	1,4	6,9	15	4
- rye	20,4	41	3	1
- potatoes	2,9	18,4	7	1
- suger beet	4,8	11	6	3
- rape	4	11,6	6	3
- apples	3,7	9,9	3	4
- meat	1,3	7,9	16	5
- cow's milk	2,1	8,2	10	4
Stock:				
- cattle	0,4	6,3	45	7
- pigs	1,5	11,2	10	3

Source: Statistical Yearbook of Agriculture, Central Statistical Office (GUS) 2011, Data from 2009

Prof. Barbara Szulczewska

Protection of agricultural land in Poland

The legal definition of agricultural area is included in the Act on arable and forested lands protection from 3 February 1995 (with amendments). According to this Act, agricultural land is defined as "lands: (…):

1) specified in the register of lands as arable lands;
2) under the fish ponds and other bodies of water, reserved solely for agricultural purposes;
3) forming part of the farm buildings, residential and other buildings and installations used exclusively for agricultural production (…);
4) under the buildings and installations used directly for agricultural production (…);
5) under rural parks and lands under shelter belts;
6) under family allotment gardens and botanical gardens;
7) under the devices such as: drainage systems, anti-flood systems, agriculture supply of water, sewerage, sewage disposal, waste disposal for agricultural purposes and for inhabitants of villages;
8) reclaimed for agricultural purposes;
9) under peat bogs and ponds;
10) under the access roads to agricultural land".

It should be underlined that family allotment gardens are also included in the agricultural areas by law. Family gardens, however, constitute a special kind of agricultural lands because of their functions, which are listed in a special act – the Act on family allotment gardens from 8 July 2005. In accordance with the fourth article of this Act: "family allotment gardens are public utilities serving to satisfy rest, recreational and other social needs of members of local community by providing them with common access to family gardens' area and plots, which give them the ability of gardening for their own needs, and which also increase the ecological quality of their surrounding".

The Act on arable and forested lands protection from 3 February 1995 (with amendments) sets the norms of using lands in agricultural and forestry way. In accordance with the Act, there are three ways of protecting agricultural lands:

1) quantitative protection (limited change of agricultural land for non-agricultural purposes);
2) qualitative protection (e.g. prevention of land degradation and devastation, damage prevention, preservation of peat bogs and ponds);
3) obligation of land rehabilitation.

Since 2008 the very strict rules related to designation of arable or forested land for a development have become less severe. The special consent is required only in case of land with soil of I – III class (area bigger than 0,5 ha). In such a case the Minister of Agriculture and Rural Development gives the consent. Also, according to the amendment from 2008, no consent is required in case of agricultural land situated within cities' administrative boundaries.

The Spatial Planning and Development Act of 2013 (with amendments) requires to take into account an agricultural production space while setting municipality spatial policy provisions. Local plan is considered as the main instrument aimed to maintain (protect) agriculture land. The problem is that local plans are usually elaborated only for chosen parts (areas) of the municipality, usually designated for development. The decision on the area designated for local plan elaboration depends on the decision of the municipality council. For the area not included into local plan, the decision on building permission is based on planning permissions. It should be emphasized that most decisions about development and changes of agricultural land for non-agricultural purposes have been taken on the base of planning permissions.

Agricultural land in Polish cities

Possibilities for urban agriculture development in Polish cities to certain extend depend on the share of still existing agricultural land within their boundaries. Analysis of the situation has been done on the basis of statistical information (for all Polish cities) and of the analysis of spatial policy documents for the largest Polish cities (capitals of voivodships).

According to Central Statistical Office (2005) agricultural land covers 41 % of total territory of all 890 Polish cities. Arable land predominates, but meadows and pastures are also present. The orchards represent the smallest share. Allotment gardens have not been included into this survey.

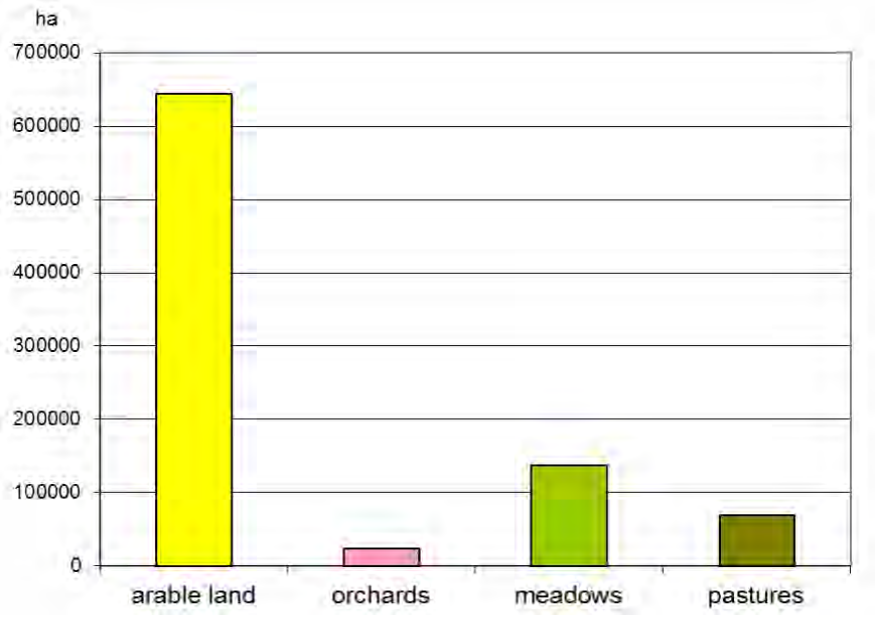


Fig.5. 3. Existing agricultural lands in Polish cities (in ha)
Source: Central Statistical Office, 2005

On the basis of the analysis of spatial policy documents for the 16 largest Polish cities (capitals of voivodships) the percentage of the cities covered by agricultural lands and allotment gardens is presented. The average percent covered by agricultural lands in those cities is around 25%. For the 7 cities this percentage is even higher, while the biggest part of the city covered by agricultural lands can be found in Kraków (over 50%), which is one of the second biggest city in Poland after the city of Warsaw.

The average percent of the cities covered by allotment gardens is 2,84%. For some biggest cities (e.g. Warsaw, Gdańsk, Poznań) this percentage is even above average.

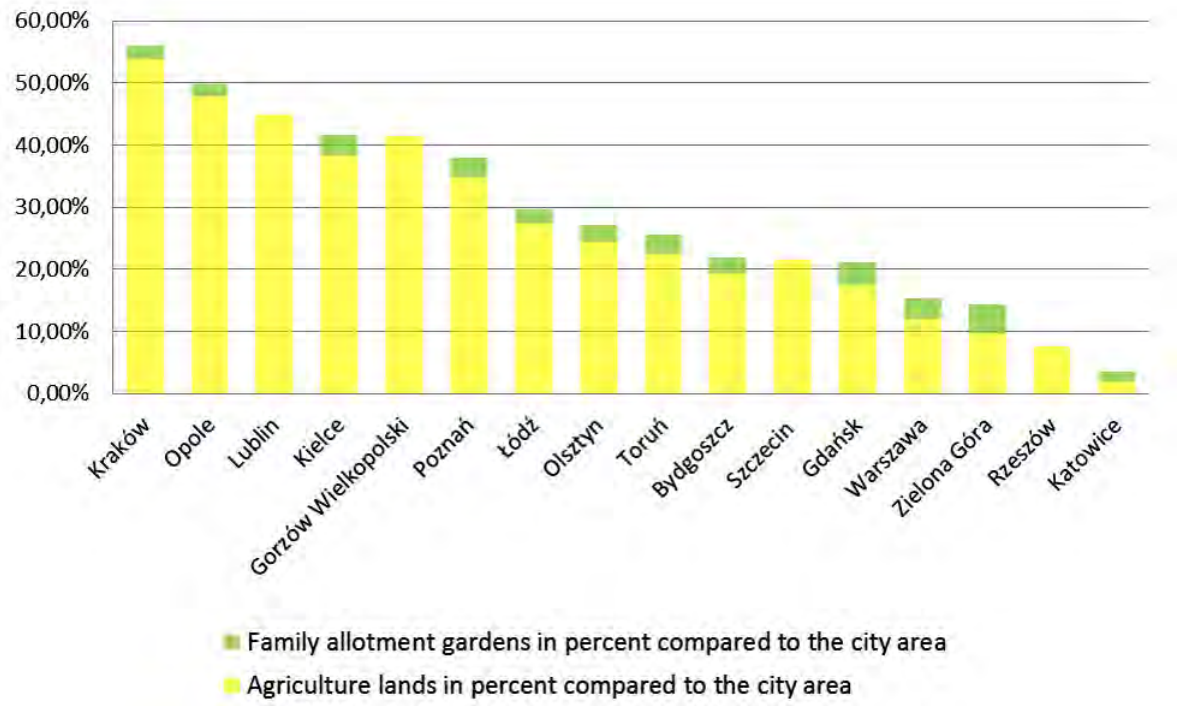


Fig.5.4. Existing agricultural lands in largest Polish capitals (in percentage)
Source: Municipalities' studies of development conditions and directions

Fig.5.5. Location of voivodeships' capitals

Spatial development policies versus urban agriculture in Polish cities

In Poland the municipal spatial development policy is determined in the document called *Municipality study for development conditions and directions*. According to the Act on Spatial Planning and Development (2003), this document should specify the future of municipality agricultural areas and provide recommendations for changes in land designation. The analysis of spatial development policies of the largest Polish cities gives some indications about possible future of urban agriculture in Poland. The existing functional-spatial structure of the city was compared with the planned structure. The analysis shows future changes in land one for particular area.

Below there are presented three different examples of Polish cities with three different attitudes towards future of agricultural lands within the city.

The city of Toruń isa good example of a possibility to develop the urban agriculture policy. The present agricultural lands located within the city will be partly existing according to the city's spatial policy (what is shown in the figure 5.7). Moreover, some of the new agricultural lands and allotment gardens will be created. However, part of existing agricultural land is going to be used for other purposes, such as housing-service areas, service areas, industrial/service areas or transport areas (Figure 5.6). Despite of this fact, Toruń was classified as a city with possible future for development of urban agriculture activities.

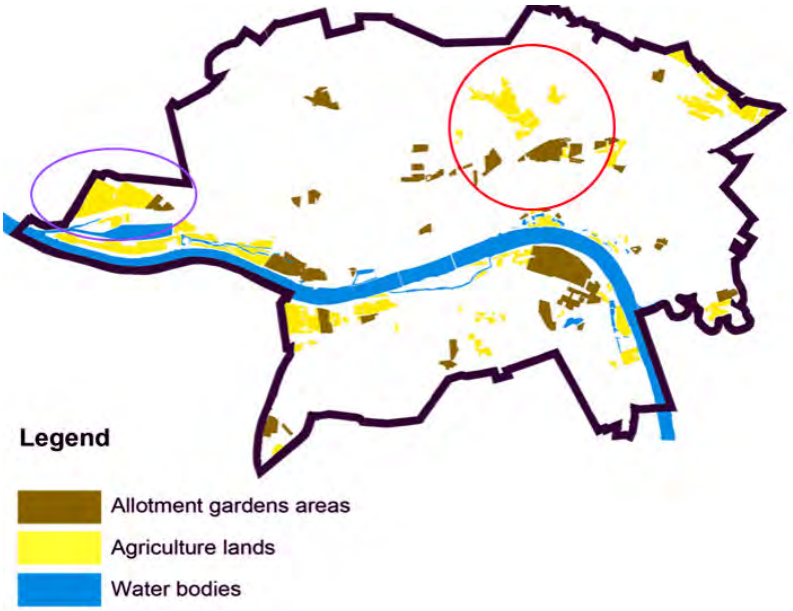


Fig. 5.6. Existing agricultural lands in the city of Toruń
Source: Bruszewska, 2014 on the basis of Toruń Study of Spatial Development Conditions and Directions 2006

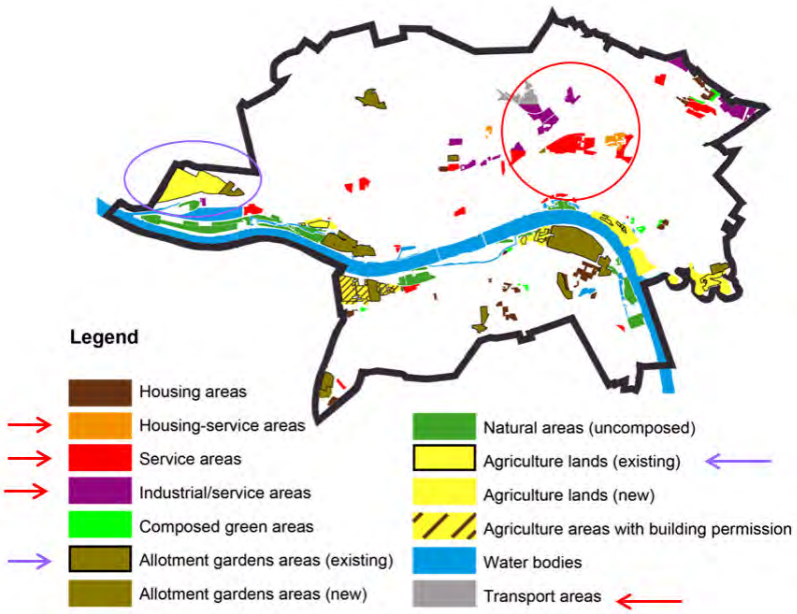


Fig. 5.7. Changes in land designation in the city of Toruń.
Source: Bruszewska, 2014 on the basis of Study of Spatial Development Conditions and Directions 2006

The city of Poznań is an example of a different spatial policy towards agricultural lands within the city area. The city has large reserves of agricultural land. But after comparing the existing situation (Fig. 8) with the planned changes (Fig.9) in land designation it must be stressed that the agricultural areas almost disappear from the city. Agricultural lands will be changed into e.g. housing-service areas, service areas, areas of manufacturing and services (Fig. 8). However, some agricultural lands will be also changed into allotment gardens. It seems that the city sees only future for allotment gardens, not for other types of agricultural lands. The possibility of shaping urban agriculture activity in this city is not certain.

Completely different approach towards agricultural lands is presented by city of Warsaw. The Warsaw's spatial policy does not see the future for further existing of any agricultural lands within the city's borders. Agricultural lands will be changed mostly into housing areas, service areas, and transport areas. Allotment gardens will change their designation mostly into composed green areas.

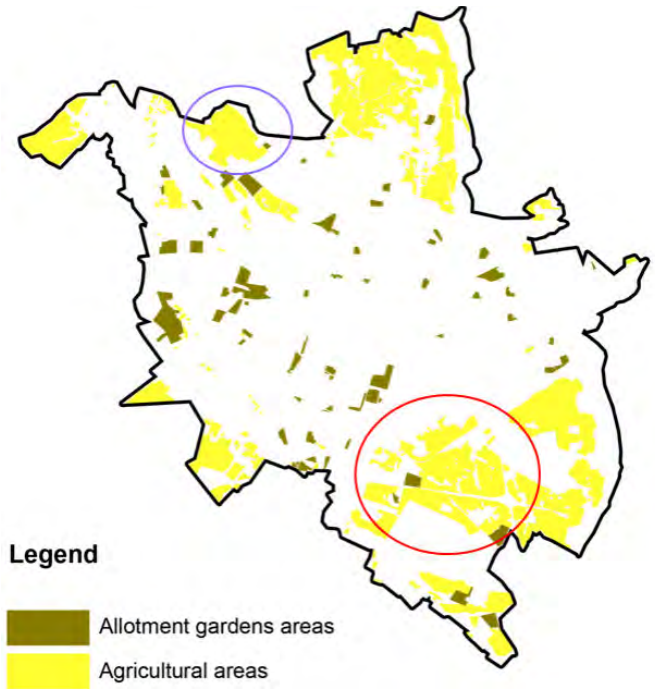


Fig. 5.8. Existing agricultural lands in the city of Poznań
Source: Bruszewska, 2014 on the basis of Poznań Study of Spatial Development Conditions and Directions 2008

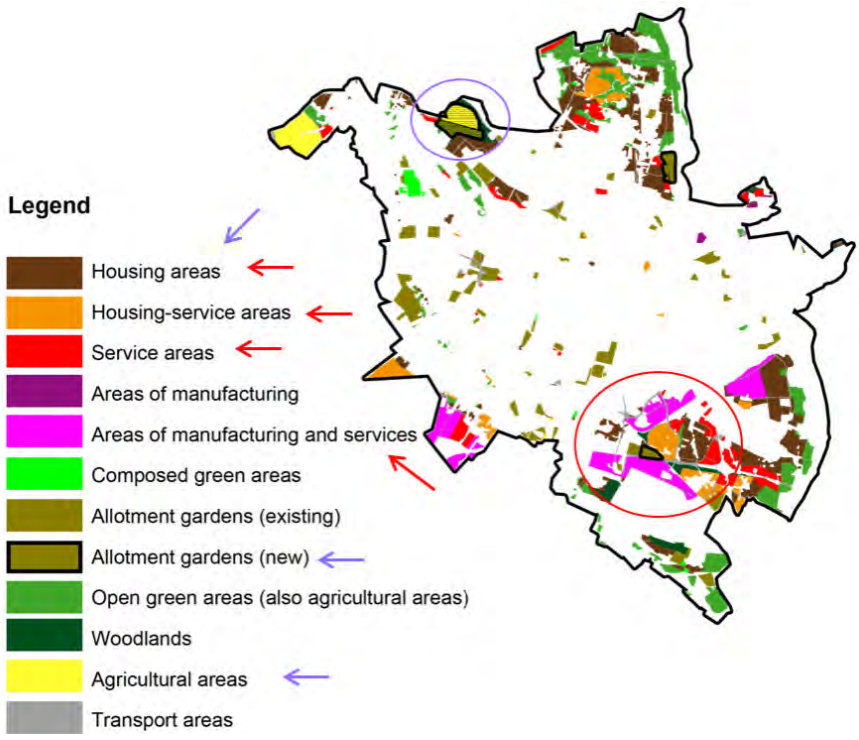


Fig. 5.9. Changes in land designation in the city of Poznań
Source: Bruszewska, 2014 on the basis of Poznań Study of Spatial Development Conditions and Directions 2008

Agricultural lands as part of ecological networks in Polish cities

According to studies of conditions and spatial development of surveyed cities, agricultural lands and allotment gardens are an important part of city their ecological networks or / and green spaces systems. Those ecological networks / green spaces systems usually have different names what depends on slightly different theoretical and methodological backgrounds for their creation and personal views of city planners responsible for elaboration of these documents.

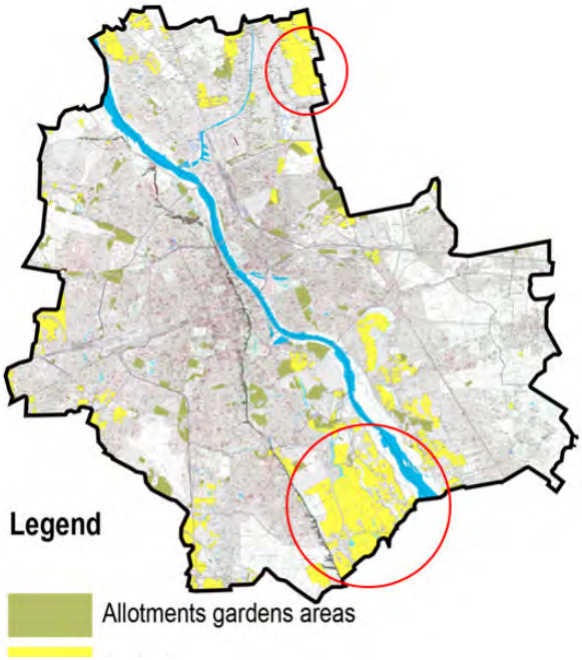


Fig. 5.10.
Existing agricultural lands in the city of Warsaw
Source: Bruszewska, 2014 on the basis of Warsaw Study of Spatial Development Conditions and Directions 2010

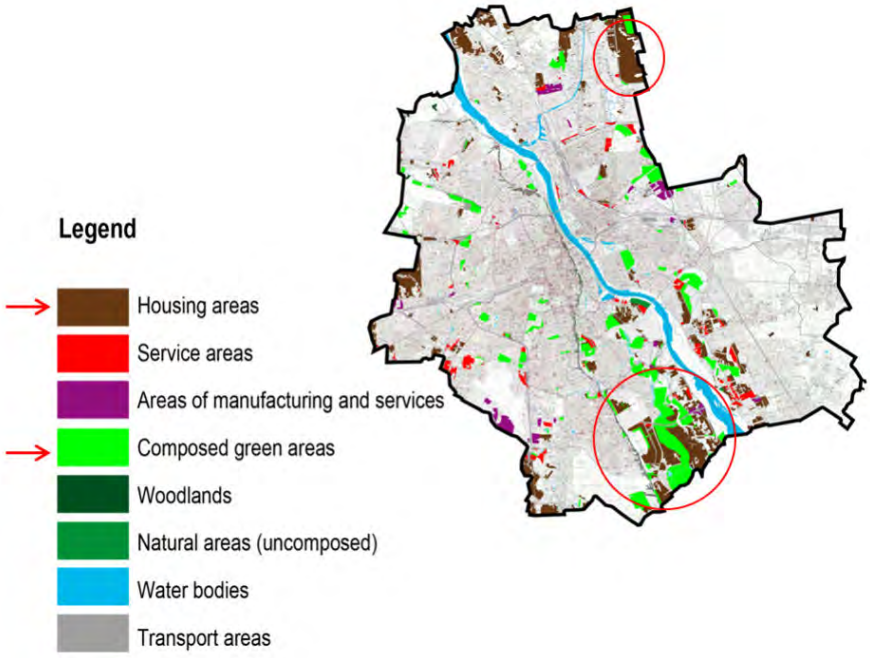


Fig. 511.
Changes in land designation in the city of Warsaw

Source: Bruszewska, 2014 on the basis of Warsaw Study of Spatial Development Conditions and Directions 2010

Table 5.2.
Terms used for naming *ecological networks / green spaces systems* applied in the spacial planning policy (Municipality study of development conditions and directions.

Terms	Surveyed cities
Zone of Green Spaces	Zielona Góra
Urban System of Natural Environment	Olsztyn
Urban Natural System	Warszawa, Kraków, Łódź, Białystok, Rzeszów, Toruń
System of Green Areas and Open Areas	Wrocław
Zone of Green Areas and Water Bodies	Opole
Urban Ecological System	Lublin
Urban System of Green Areas	Szczecin, Bydgoszcz
Urban System of Biologically Active Areas	Gdańsk
Zone of Natural Landscape – Recreational Areas	Katowice

Constrains and possibilities for shaping urban agriculture in Polish cities

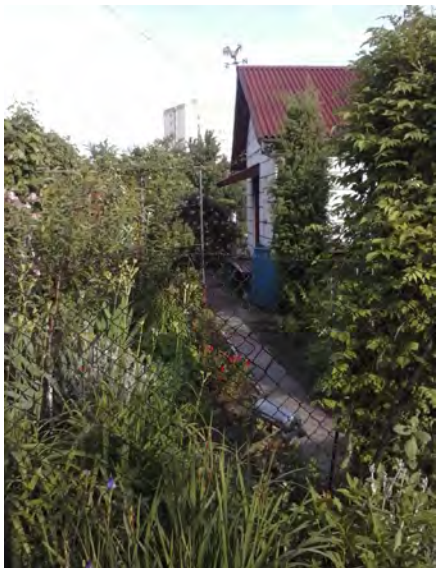
Taking into account general public consideration, amount of agricultural areas and present situation of agricultural land in Polish cities the following constrains for urban agriculture development in Poland could be identified:
low awareness of the problem among local authorities (spatial policies do not 'see' the issue);

- urban agriculture issue is not seen by the Ministry of Agriculture which seems to have enough problems with rural areas transformation;
- cancellation of soil protection within cities / towns border;
- no effective protection measures within the present system of spatial planning;
- Increasing fragmentation of still existing agricultural areas.

However, in favor of urban agriculture development in Polish cities are:

- still high share of agricultural land within the cities' borders;
- high number of allotment gardens
- allotment gardens and agricultural land considered as a part of cities' ecological network or /and green spaces.

Fig.5.12. Allotment gardens in Warsaw



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6. Suburbanisation and urban sprawl in Warsaw Metropolitan Area and their potential impact on future development – a planner's perpective

Tomasz Sławiński
Maciej Sulmicki
Mazovian Office for Regional Planning

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Cities have always been subject to expansion. In ancient times, when accessibility to modes of transport other than one's own legs was limited, cities tended to be compact with a small center and strictly delimited urban area around it (often limited physically by walls, as military aspects also influenced city planning). The English architect Cedric Price likened such a model to a hard-boiled egg with the yolk as the center and the white as the surroundings. He also provided egg metaphors for successive types of cities. In the 17th-19th centuries with the advent of gunpowder making city walls increasingly obsolete and growing city populations making it hard to fit within city walls, urban areas became more like fried eggs, with more spread out and less acutely delineated centers and surroundings. Modern cities in turn, due to significant changes in mobility resulting from the development of the automobile and public transport, as well as ongoing urbanization, resemble rather scrambled eggs: with various local centers present throughout a city spread out over a larger area and not as integrated territorially as in former models due to suburbs and satellite towns.

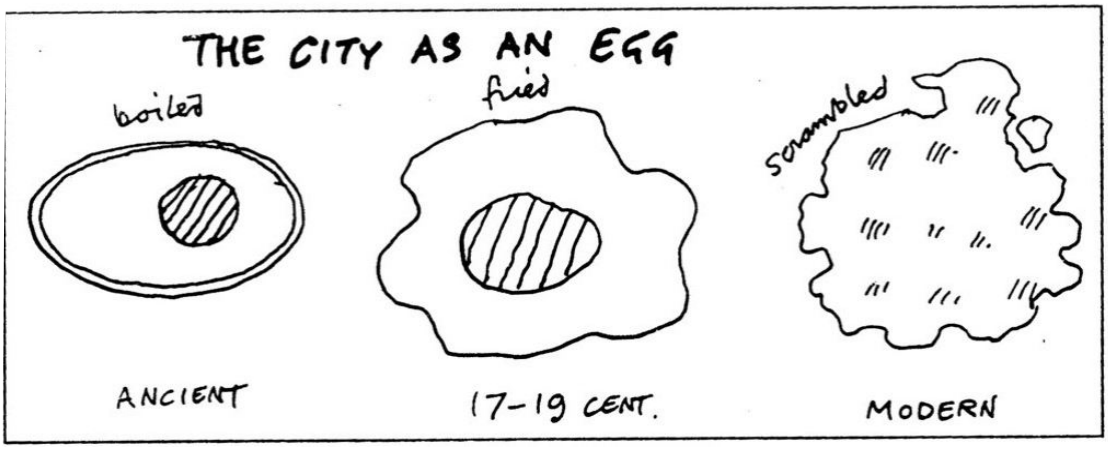


Figure 6.1. Cedric Price's city models. Source: Cited in The Nature of Cities, http://www.thenatureofcities.com/2013/03/13/intensiveness-and-extensiveness-in-our-urban-landscape/

Plans for the development of Warsaw have also changed with time. The first Warsaw Metropolitan Area Plan was prepared in 1911 by Alfons Emil Gravier (1871-1953) and consisted of an urban core surrounded by a green belt. The 1934 Spatial Plan of Functional Warsaw by architect Jan Chmielewski (1895-1974) and Szymon Syrkus[1] (1893-1964) presented a vision of two linear structures crossing in the city center and based on rail and road networks. The project was applauded by Le Corbusier and Walter Gropius and partly implemented in Warsaw before World War II by the mayor, Stefan Starzyński. The basic elements of this structure still exist today, but urban sprawl and urban spread have transformed the clear and lucid city plan into an example of the 'egg crushed on the wall' model.

The Warsaw Metropolitan Area (WMA) is currently the largest in Poland with a population of three million (of which 1.7 live in Warsaw) and an area of 6203 sq. km (of which Warsaw accounts for 517 sq. km). Even though it takes up only 2% of the area of Poland, the WMA houses nearly 8% of the country's inhabitants (and over 57% of Mazovia's). It is also the most developed part of the country with a GDP per capita

1 Chmielewski J., Syrkus, Sz., 2013 [1934], Warszawa funkcjonalna. Przyczynek do urbanizacji regionu warszawskiego, Fundacja Centrum Architektury, Warsaw

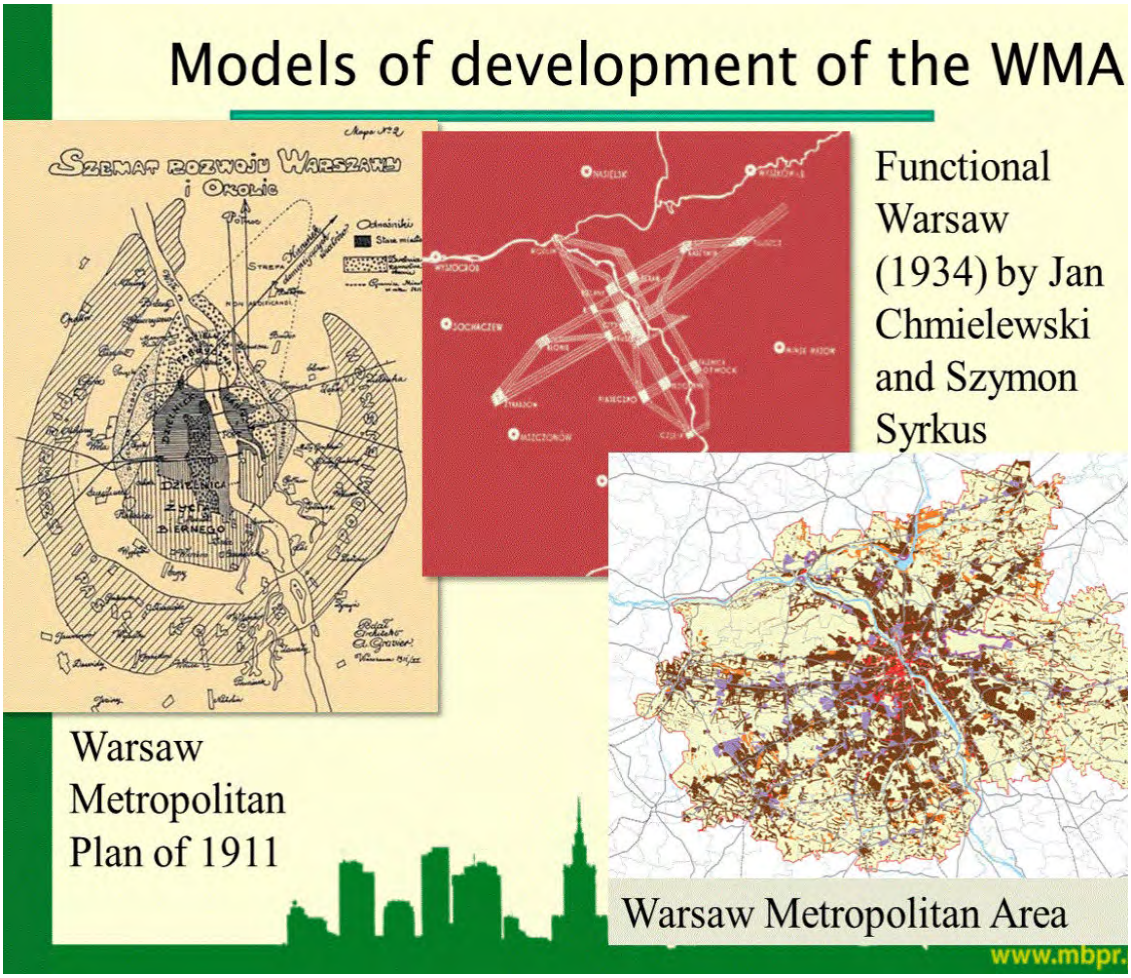


Fig. 6.2. Models of development of the Warsaw Metropolitan Area. Source: own compilation

Table 6.1.
Basic data about the Warsaw Metropolitan Area; source: own work based on GUS data

	Area		Population		GDP per capita 2011		Unemploy -ment rate 2010"
	km²	%	mln	%	PLN	"Poland = 100"	
Poland	312 685	100	38.17	100	39 692	100	12.3
Mazovia Region	35 567	11.4	5.24	13.8	64 790	163	9.4
WMA	**6 203**	**2.0**	**3**	**7.8**	**82 800**	**209**	**7.3**
Warsaw	517	0.17	1.72	4.5	119 828	302	2.9
Mazovia Region		100		100		100	
WMA		**17.4**		**57.3**		**128**	
Warsaw		1.45		32.8		185	

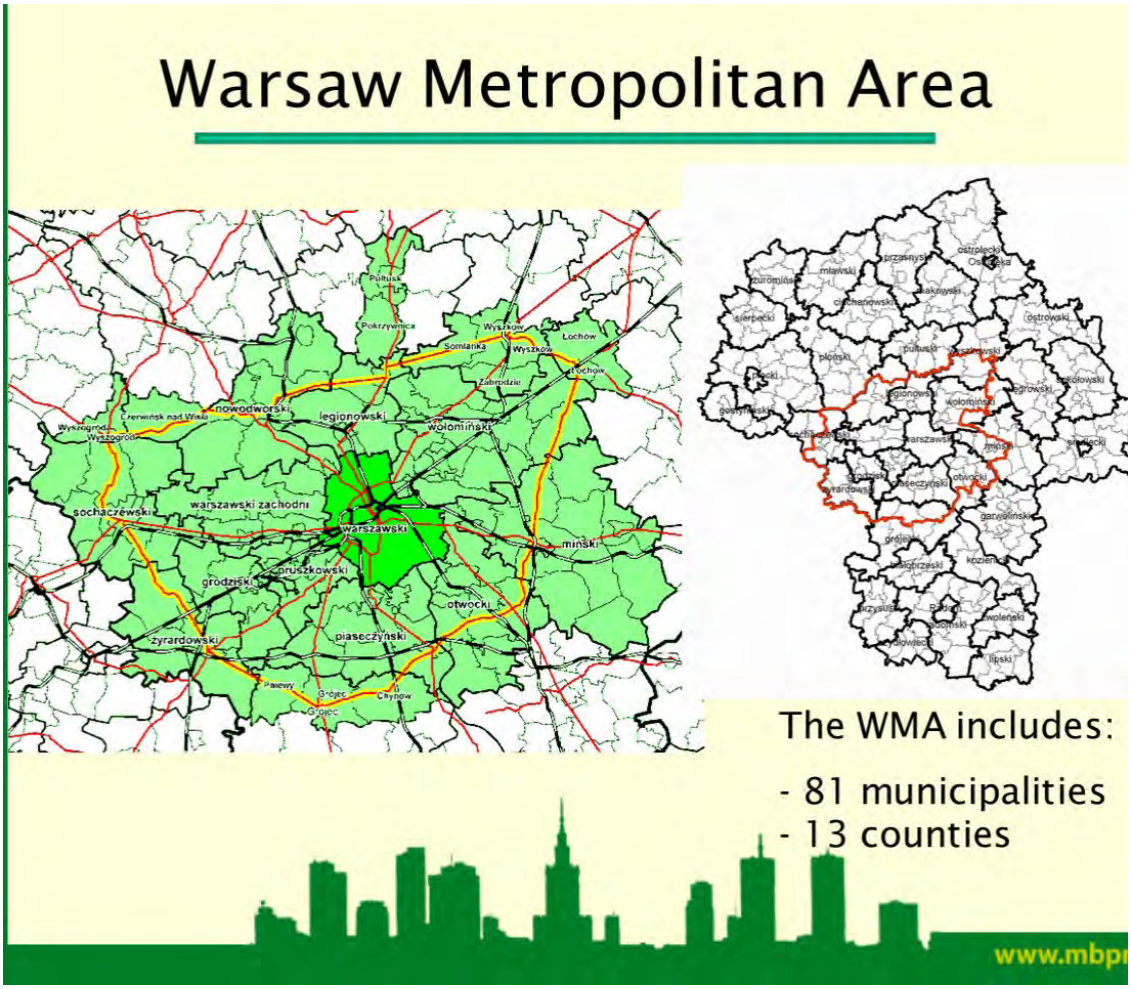


Fig 6.3. The Warsaw Metropolitan Area. Source: Mazovian Office for Regional Planning

over twice as high as the national average (in Warsaw, thrice the average). It consists of 81 municipalities and 13 counties which make up Warsaw and its surroundings. The WMA has been acknowledged as a key element of spatial policy in the National Spatial Development Concept 2030, with strong links to surrounding cities, especially the nearest – Łódź. On a more local, or rather metropolitan scale, however, the functional area of Warsaw has to deal with the problem of suburbanization and urban sprawl.

Since the 1990s, when capitalism replaced socialism, Warsaw has been the site of intense suburbanization. This process has intensified in the 2000s with the cancelling of previous spatial development plans and accession to the European Union and resulting increase in investments. Peri-urban rural areas are successively being replaced by buildings, primarily residential ones. The locations of these investments are often chosen by developers more or less at random, according to availability and prices of land rather than existing or even planned infrastructure, accessibility or spatial order. Such a process entails increasing costs – both direct and external ones. These include valuable land assets such as fertile soils or open spaces (useful both for recreation and ensuring a supply of clean air) being taken up by housing being built more or less at random. At the same time, more longer trips need to be made which entails congestion, especially when suburbanization takes place in areas lacking effective public transport (e.g. outside rail corridors). Studies have shown that chaotic urban sprawl is roughly 1.5 times as transport-demanding as organized (sub)urban development.

The problem of urban sprawl has been discussed in various analyses which have resulted in a few acronyms summing up the problems of and/or solutions to the expansion of (sub)urban areas. The World Bank's *World Development Report 2009* bore the subtitle 'Seeing Development in 3D: Density, Distance and Division'. 'The World Development Report argues that some places are doing well because they have

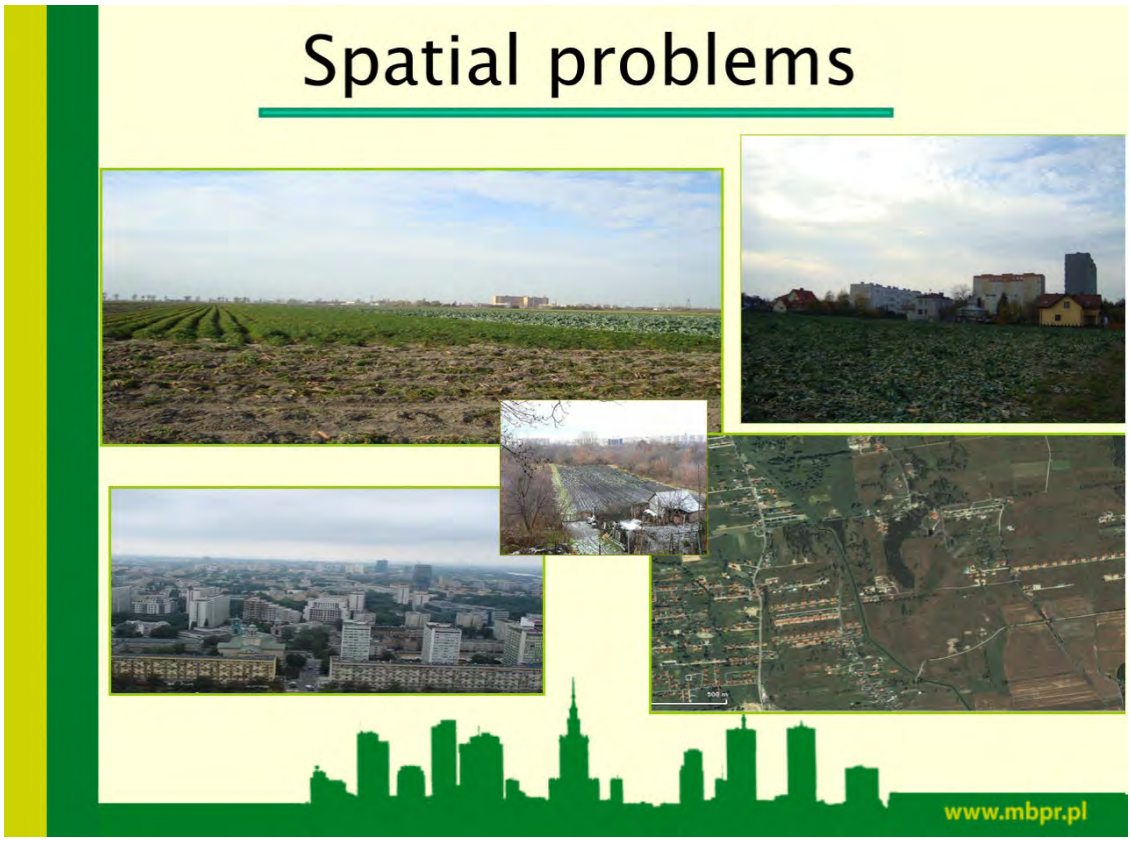


Fig. 6.4. Spatial problems in metropolitan areas.
Source: own compilation from various sources

promoted transformations along the three dimensions of economic geography:

- Higher densities, as seen in the growth of cities.
- Shorter distances, as workers and businesses migrate closer to density.
- Fewer divisions, as countries thin their economic borders and enter world markets to take advantage of scale and specialization[2].'

Two of the D's encourage more compact urban areas, allowing for shorter distances between travel sources and destinations due to higher population densities. Achieving such a result requires effective spatial planning, as well as coordination with other policies (e.g. taxes, road tolls, etc.), in order to motivate developers to invest in the designated area and construct adequately capacious buildings.

On the other side of the Atlantic, the European Commission's *Green Paper on Territorial Cohesion (2008)* (subtitled with another 'd': 'Turning territorial diversity into strength') refers to the World Bank report:

The EU faces *mutatis mutandis* similar questions [as those indicated by the *World Development Report* 2009]. Policy responses to these may lie in action on three fronts: concentration, connection and cooperation (…)

Concentration: overcoming differences in density

As noted above, economic activity is more concentrated across the EU than population. There are gains from such concentration in terms of the increasing returns from agglomeration and from the clustering of particular activities in specific locations, including the wide availability of health care services and relatively easy access to

2 World Bank, 'WDR 2009: Seeing Development in 3D: Density, Distance, and Division', http://go.worldbank.org/Y1BL5L2XC0

Fig. 6.5. Spatial problems in metropolitan areas.
Source: own compilation from various sources

higher education institutions and training facilities. This is reflected in the high level of GDP per head, productivity, employment and research and innovation activity relative to the national average in capital cities and in most other densely populated conurbations. (…)

Connecting territories: overcoming distance

Connecting territories today means more than ensuring good intermodal transport connections. It also requires adequate access to services such as health care, education and sustainable energy, broadband internet access, reliable connections to energy networks and strong links between business and research centres. This is also essential to address the special needs of disadvantaged groups. (…)

Cooperation: overcoming division[3]

(…) In a number of Member States, metropolitan bodies have been created to bring together several authorities at different levels to tackle issues, such as economic development, public transport, access to healthcare and higher education and training facilities, air quality and waste, which span regional borders.

The Green Paper serves by its nature to pose questions rather than provide answers (as opposed to white papers). Its most general question, however, that of what exactly is territorial cohesion and how to achieve it, is relevant to metropolitan areas, including the WMA. Even on the subregional scale, a disparity is visible in terms of accessibility to various services, facilities and areas. One of the reasons for such imbalance is suburbanization and urban sprawl.

3 Commission of the European Communities, 'Green Paper on Territorial Cohesion: Turning territorial diversity into strength', Brussels, 6.10.2008, COM(2008) 616 final.

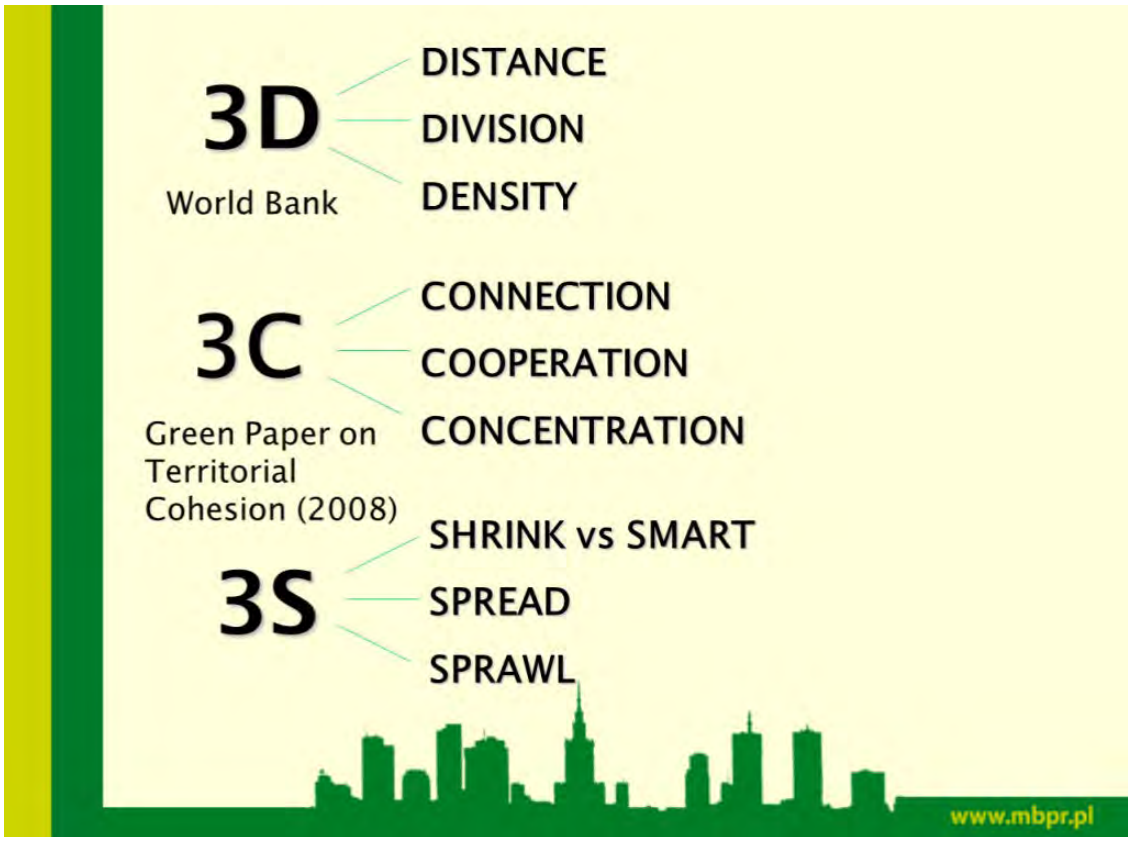


Fig. 6.6. Three acronyms concerning the problems of urban development. Source: own work

A third acronym can be posited as summing up the problems of the Warsaw Metropolitan Area: the 3S. The first 'S' in fact consists of two: shrink versus smart. Modern cities require smart solutions and smart management as well as diversification of functions (as in Cedric's scrambled egg model). Such actions can to some extent compensate for suburbanization and serve as a way to limit traffic intensity.

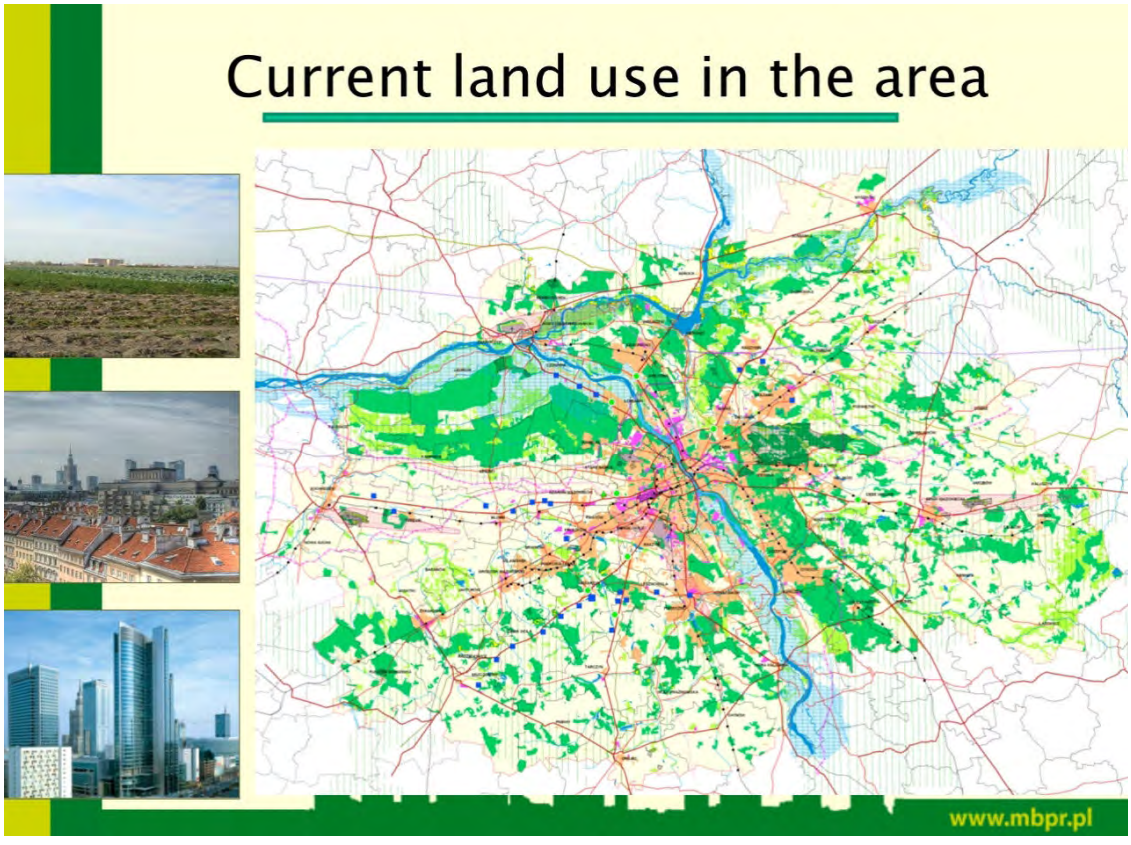


Fig. 6. 7. Current land use in the Warsaw Metropolitan Area. Source: own work by MBPR

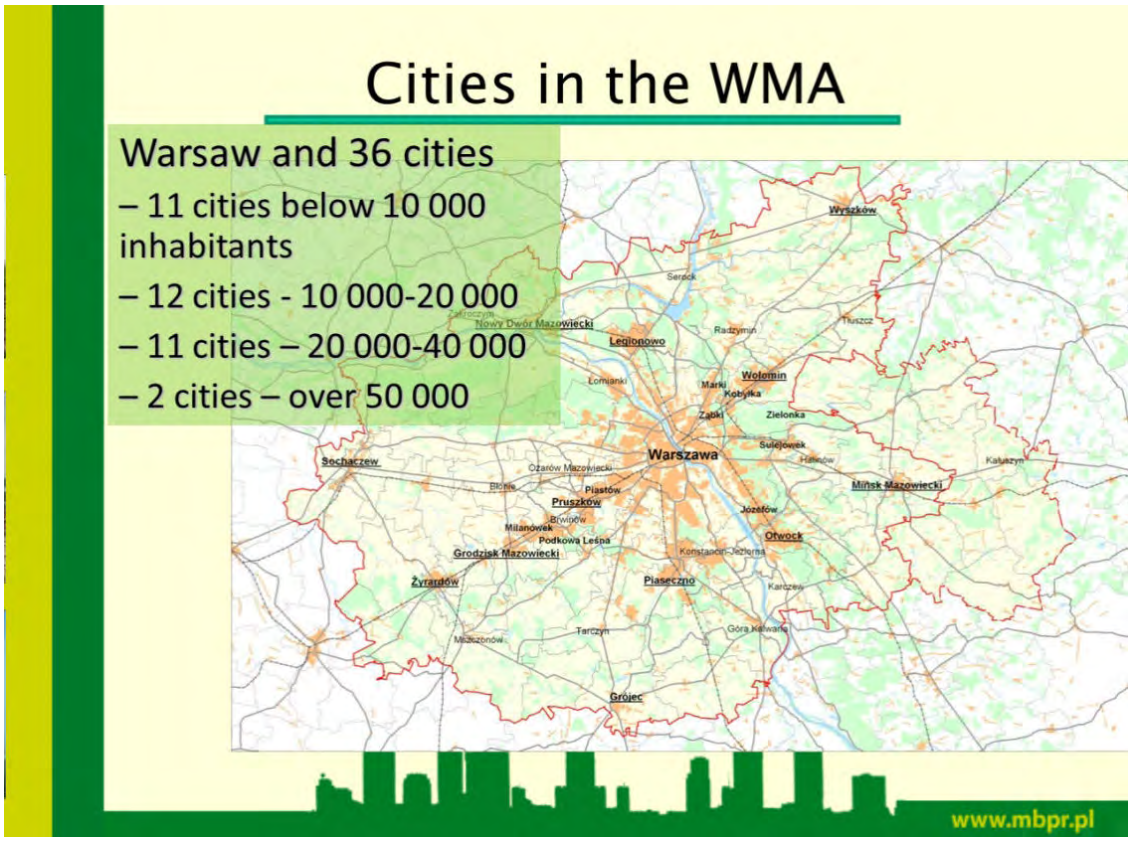


Figure 8. Cities in the Warsaw Metropolitan Area. Source: own work by MBPR

At the same time, the other two 'S's' – spread and sprawl – need to be avoided. Spreading of built-up areas takes place when new investments appear in areas not built-up before rather than fill up gaps in already urbanized parts of the metropolitan area. Sprawl is a parallel phenomenon: the built-up area around the city becoming larger which results in poorer access to infrastructure and services and less effective use of existing ones. These problems are visible in various metropolitan areas, including the WMA.

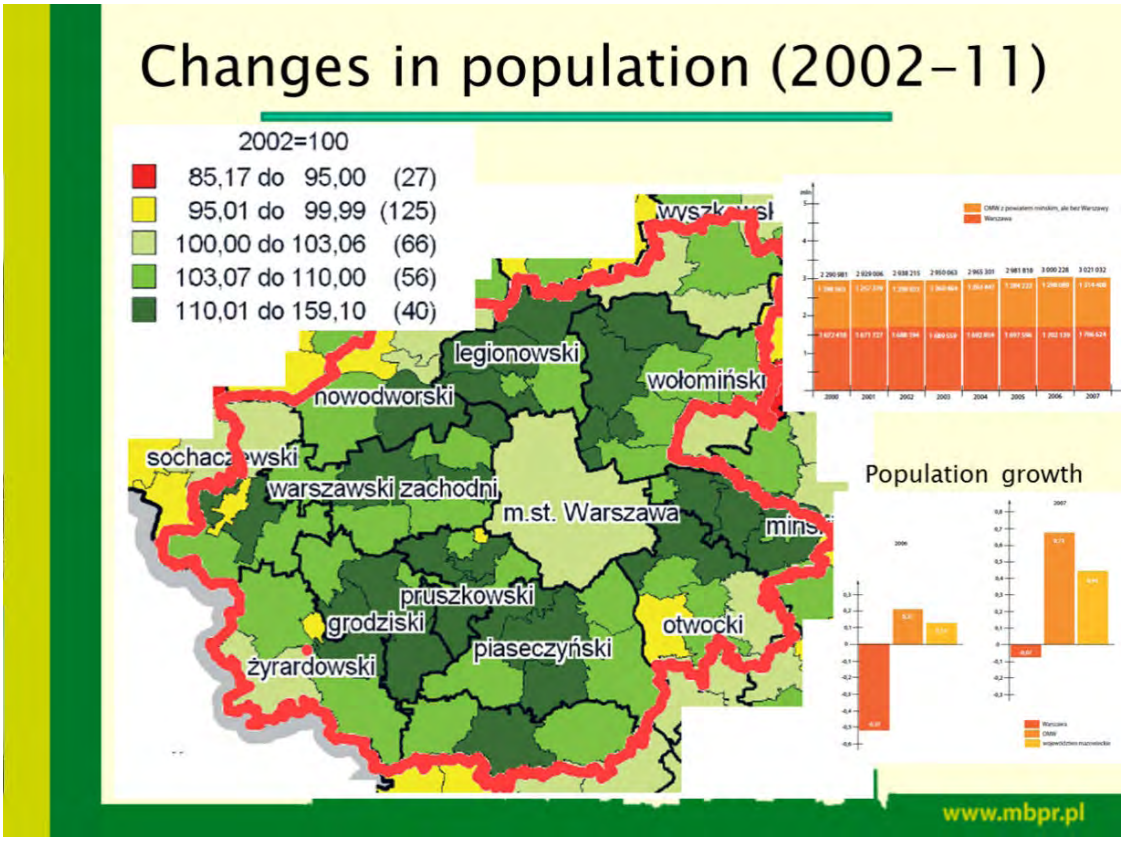


Fig. 6.9. Changes in population in the WMA (2002-2011). Source: own work by MBPR and System monitorowania rozwoju (strateg. stat.gov.pl)

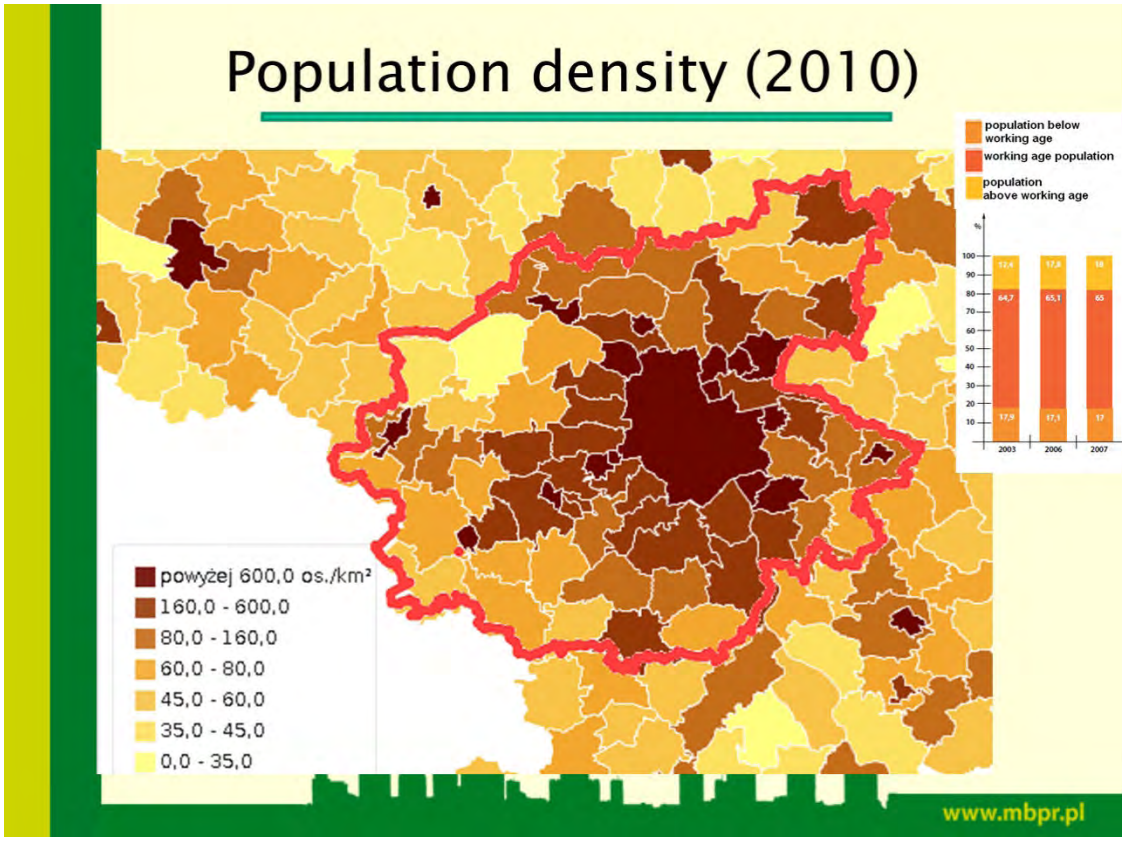


Fig. 6.10. Population density in and around the WMA (2010)
Source: own work by MBPR and System monitorowania rozwoju (strategy.stat.gov.pl)

The Warsaw Metropolitan area includes Warsaw and 36 other cities, of which 2 have over 50 thousand inhabitants, 11 between 20 and 40 thousand, 12 between 10 and 20 thousand and 11 below 10 thousand. Suburbanization is visible not so much in the sizes of the cities, however, but in the changes which have taken place during the previous decade. Between 2002 and 2011, the population of Warsaw has remained fairly stable (growth under 3%) while the majority of the remaining counties in the WMA grew much more quickly, up to 59%. In effect, an increasing share of the functional area's population lives outside the capital city.

Warsaw remains the most densely populated part of the WMA (c. 3,300 inhabitants/ sq. km), but several other municipalities have over 600 inhabitants per square kilometer. Naturally, the highest population density is visible in cities. Fortunately, for the most part these are municipalities with access to railway transport. One exception is the municipality of Łomianki, which has been the site of intense suburbanization, partly due to its proximity to Warsaw, the Vistula river and the Kampinos Forest National Park. The lack of rail transport results in intense congestion on the Warsaw-Łomianki road, which is at the same time a national road linking Warsaw and the Baltic Sea. Such sprawl of built-up areas also has its negative effects on valuable natural areas which have the potential of supplying Warsaw with a green ring, important for both natural, sanatory and recreational reasons. Łomianki, for example, is in the buffer zone of the Kampinos Park and borders the Vistula River Valley Natura 2000 site.

Historical changes in land use have been illustrated in the Metronamica model prepared in the PLUREL project (Peri-urban Land Use Relationships – Strategies and Sustainability Assessment Tools for Urban – Rural Linkages). PLUREL was a large research project funded within the 6th Research Framework Programme of the European Union. 31 partner organisations from 14 European countries and China participated therein and one of its effects was a map demonstrating how an increasing portion of the WMA was built up and how the process is expected to continue if the trends remain constant, with the built-up area increasing over time outside Warsaw. This process is not likely to be halted by municipal land-use plans due to extensive areas being dedicated therein for new built-up areas. In effect, although the preparation of individual plans by municipalities can have positive effects on a local scale in terms of organization of buildings and their appearance, it does not prevent urban sprawl or spread.

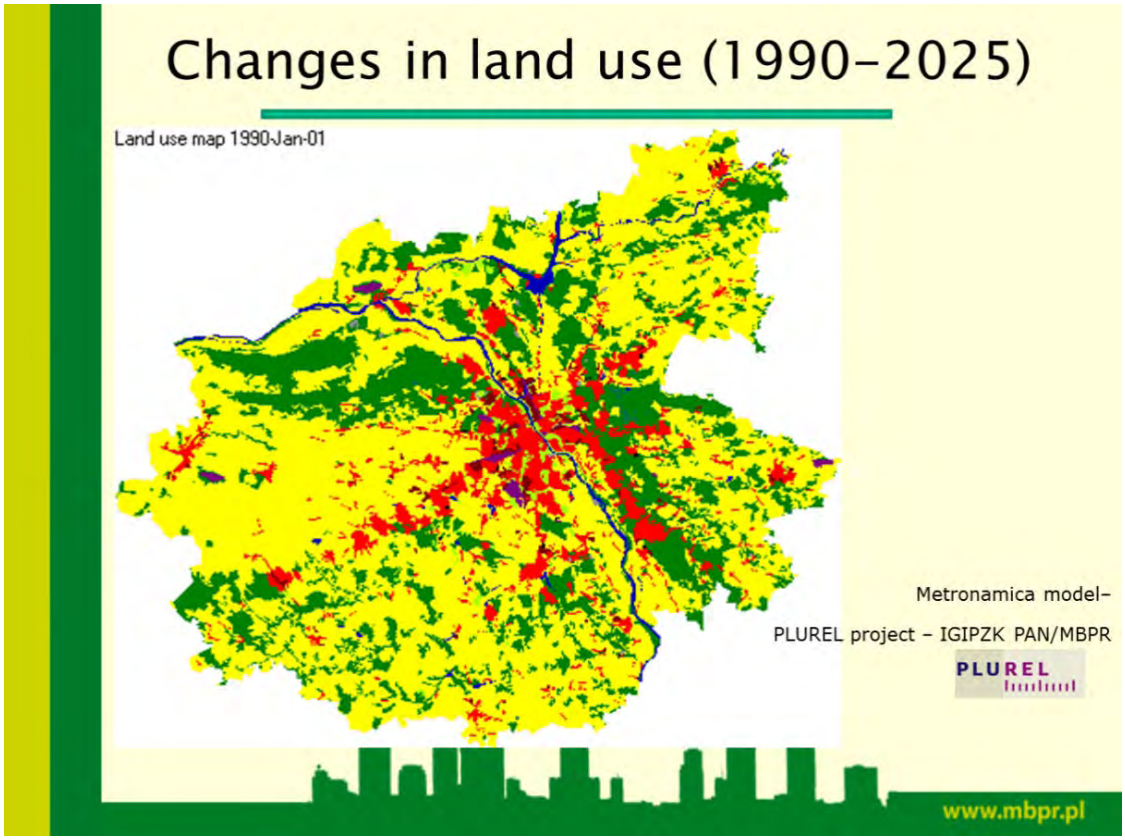


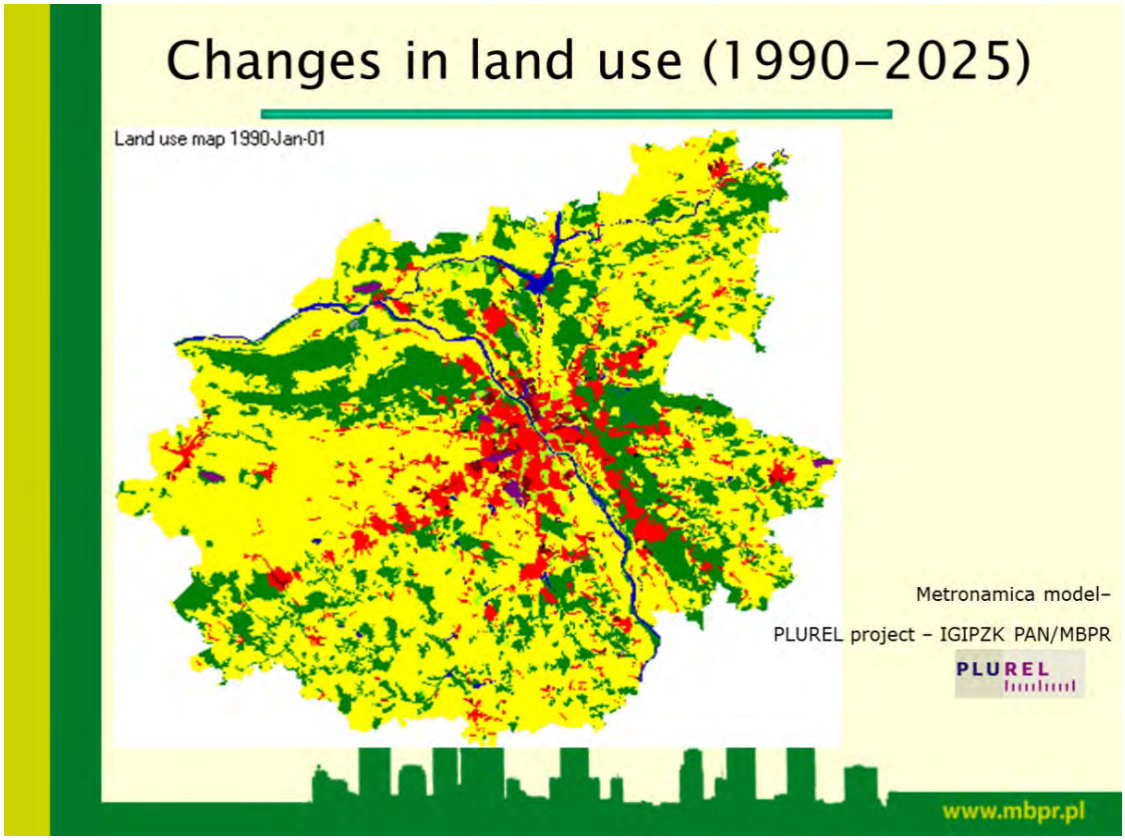
Fig.6.11. Land-use in the WMA in 1990: the starting point of the Metronamica model Source: PLUREL project.

A solution for the problem could be a Warsaw Metropolitan Area Land-Use Plan. Due to the lack of a legal basis for implementing such a legally binding plan, a study thereof was prepared by the regional authorities. The plan could serve a number of functions:

regulatory – providing binding regulations for units subordinate to the Mazovian Regional Government;
coordinative – coordinating supralocal programs and public undertakings, influencing the behavior of other actors of spatial policy;
in negotiations and offers – making use of the Plan as a tool in establishing a common ground in spatial policy negotiations with municipalities and counties;
educational and promotional – a basis for establishing the desired strategic vision of the area and its directions of development.

In effect, development in the WMA would be much more likely to contribute to common goals of all the actors in the area rather than individual short-term interests. Below are listed several of the directions of development indicated in the study of the WMA Land-Use Plan.

- Spatial development should continue along existing communication corridors, in accordance with the trends so far,
- Development corridors should include areas urbanized in the past along railway lines, as well as recently urbanized areas along roads,
- Development corridors should be separated by green areas of extensive use forming wedges cutting into the center of Warsaw,
- The radial series of development corridors should be linked by circular communication corridors which would allow travel between the corridors without entering the city center,
- The metropolitan area as a whole should be enclosed by a natural green belt, directly linked to the areas of extensive use,
- The WMA should develop in coordination with the Łódź Metropolitan Area with particular focus on spatial links between the appropriate corridors both of urbanized land and open space.



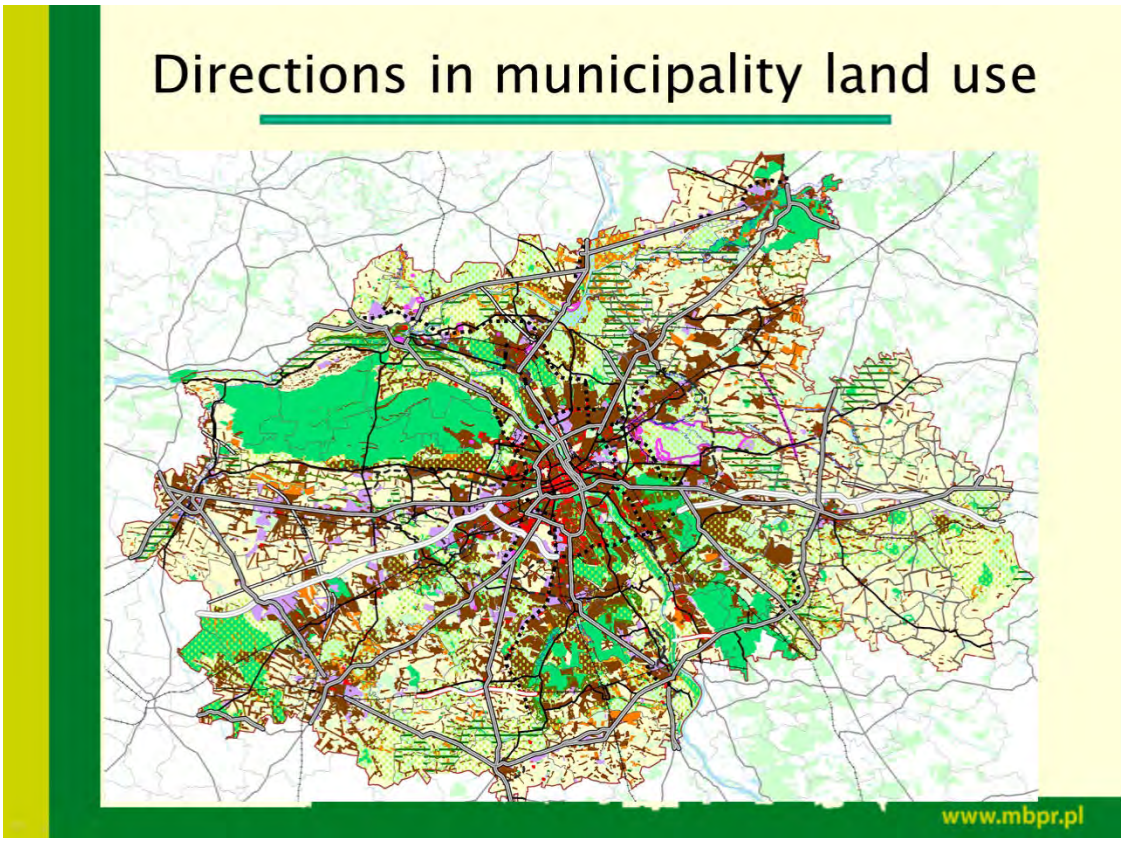


Fig.6.12 and Fig. 6.13. Directions in municipality land-use according to local plans. Source: own work by MBPR.

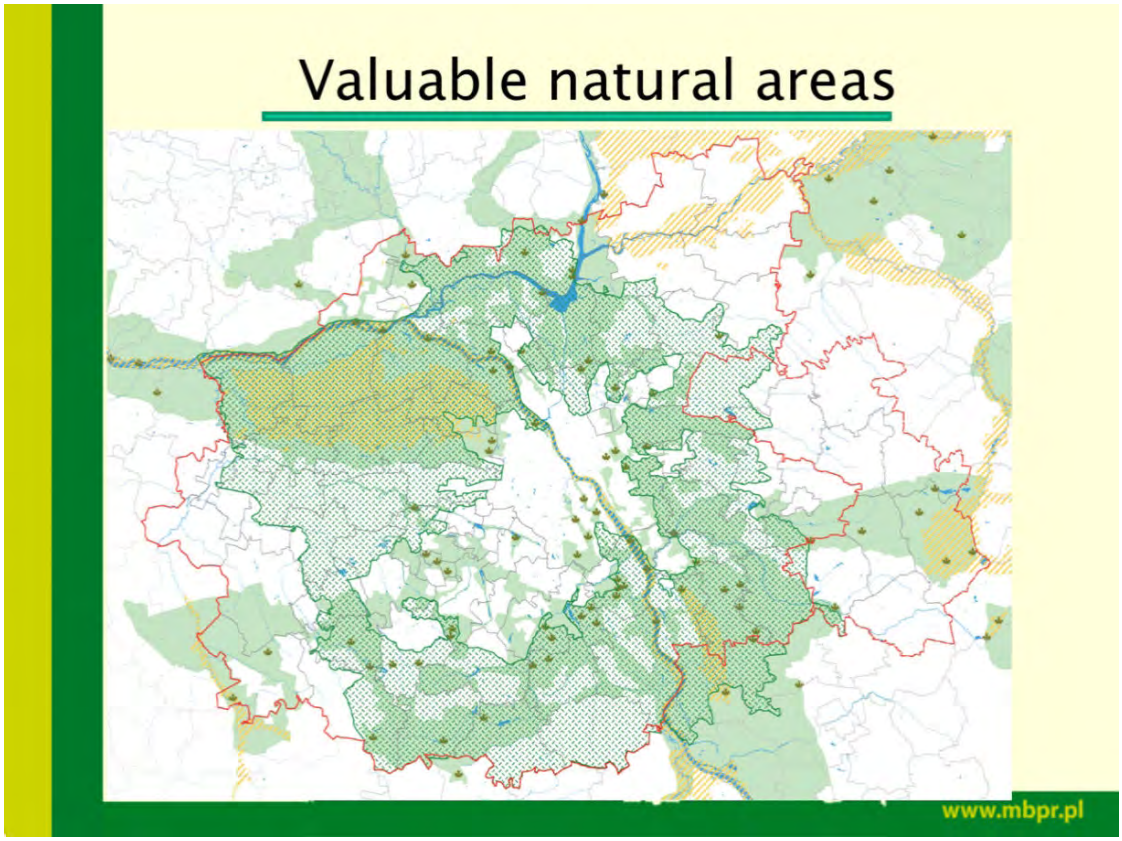


Fig. 6.14. Valuable natural areas in the Warsaw Metropolitan Area. Source: own work by MBPR.

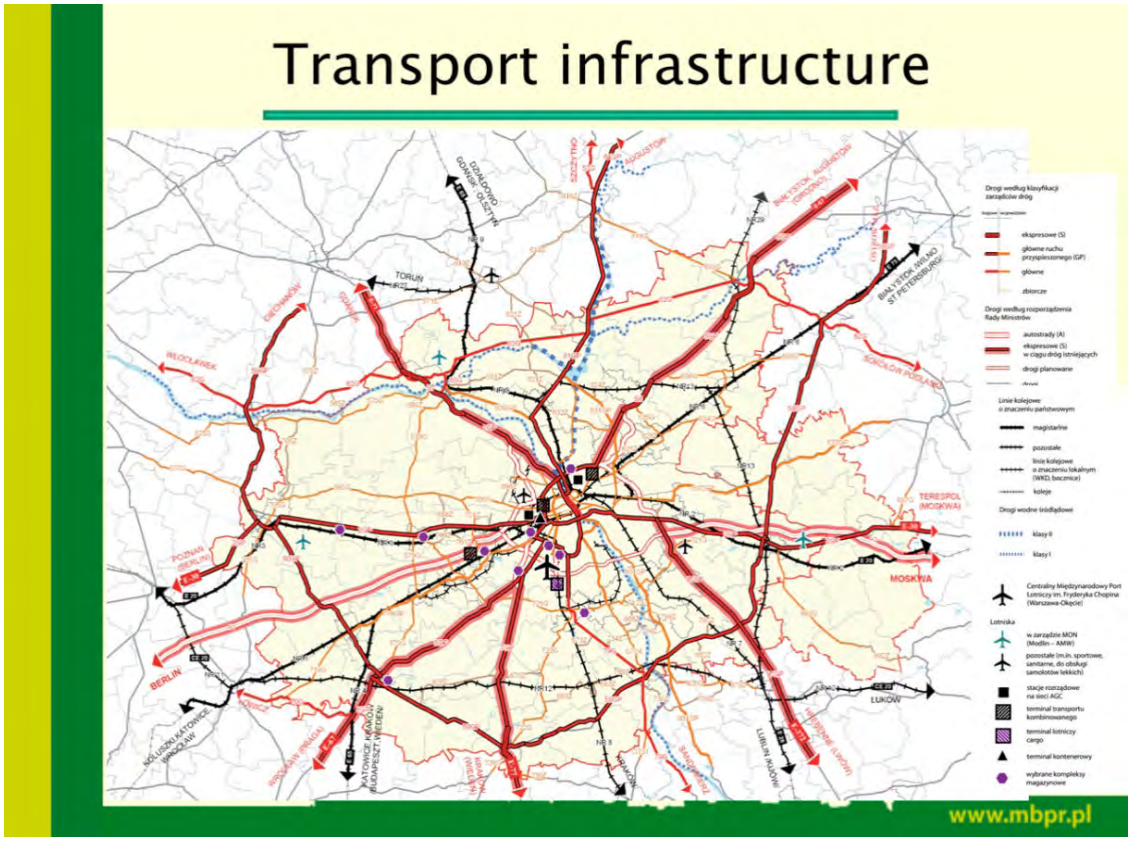


Fig. 6.15. Transport infrastructure in the Warsaw Metropolitan Area. Source: own work by MBPR.

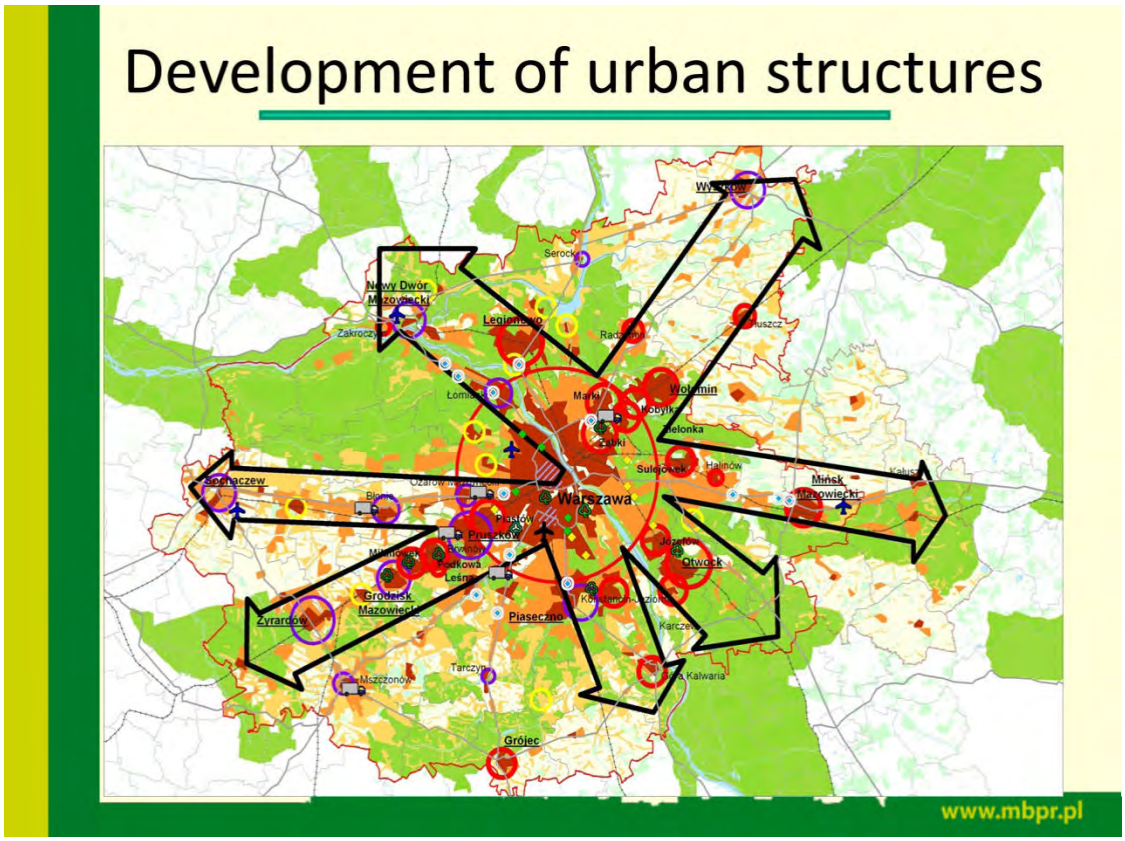


Fig. 6.16. Desired directions of development in the Warsaw Metropolitan Area. Source: own work by MBPR

Areas of urban development intensification would include primarily ones connected to Warsaw by rail. Less intense new urban development would be allowed in their surroundings, while areas further away from the main transport infrastructure would be dedicated to retaining the current level of built-up areas rather than their further development. Along with the development of urban structures and functions, clear spatial directions of development would be visible and the green ring of Warsaw easier to complete and protect. This shows the importance of planning metropolitan areas at the regional (rather than municipal) level. Only then can individual actions and plans contribute to the sustainable of the development of the entire area.

7. Suburbanization and urban sprawl in Warsaw Metropolitan Area and their potential impact on future development – a geographer's perspective

Miroslaw Grochowski

Miroslaw Grochowski

Introduction

The shift from the system of central planning and rigid control to a decentralized system promoting local autonomy and to market-based rules of development, as well as re-birth of local democracy and empowerment of local governments, have brought strong incentives for economic development of Polish cities and regions. Several years of dynamic changes have contributed to development of functional urban areas. Some of them might be labeled "metropolitan areas" due to their functions and importance at the national and international scale. However, dynamic development processes often assume spontaneous character which leads to conflicts, impede modernization processes and makes it impossible to use efficiently development potential located in the area. Situation of the Warsaw Metropolitan Area (WMA) is a good example of an impact that systemic changes have on development paths in different dimensions: economic, social, and spatial one. The spatial planning system and the system of self government in Poland are of crucial importance for the practice of development management. Both systems, however, do not secure conditions for sustainable development in terms of rational location of functions and use of assets. Municipalities compete among themselves trying to attract new investors and inhabitants. There is no coordination in preparation of local development plans. Examples of cooperation among municipalities are very rare. Economic situation of individuals and households has improved significantly which results in their increased spatial mobility – people are looking for better living conditions and are ready to move from cities to suburbs. Increased mobility is also connected with better physical accessibility of urban fringe. All these factors contribute both to suburbanization and urban sprawl. Uncontrolled spatial expansion of urbanized areas brings many negative consequences and may result in decreasing attractiveness of Warsaw and Warsaw Metropolitan Area as places for living and investing.

Development of the Warsaw Metropolitan Area

Warsaw Metropolitan Area is located in the Mazowieckie voivodship. This is the largest voivodship in Poland, both in terms of area and population number (11,4% of the Polish territory; 13,1% of total population of Poland) (tab. 1, fig. 1). The City of Warsaw is the biggest metropolitan city in Poland, which experiences dynamic development. This is also the richest Polish municipality and the growth pole of the Warsaw Metropolitan Area. However, the Warsaw Metropolitan Area is highly differentiated in terms of development conditions and level of development, and one may find relatively poor rural municipalities in the WMA.

Mazowieckie voivodship is the region attracting migrants. The area of Warsaw and its surroundings is characterized by the highest inflow of population. Looking at migrations' flows from the regional perspective one may state that people migrate mainly to urban municipalities. However, this is not the case of the WMA. Many migrants select municipalities located next to Warsaw. The social and economic profiles of local communities are shaped to large extend by migrations. In the period of 1995-2005 the average annual increase of population number caused by migration in some municipalities from the WMA exceeded 4% per annum. This represents a combined effect of migration inflow from other regions, and of residential mobility within the metropolitan area, in particular the population outflow from the city of Warsaw to suburban and exurban communities situated in the metropolitan ring.

Table 7.1 Basic information on Mazowieckie voivodship, Warsaw Metropolitan Area and Warsaw

	Mazowieckie voivodship	Warsaw Metropolitan Area	Warsaw
Area (sq. km.)	35 598	6205	517
Number of population (millions)	5	3	1.7
Population density (per sq. km)	140	474	3291
Administrative status	region, (voivodship), NUTS 2 level, unit of territorial subdivision, self government and government level of public administration	area delineated for planning purposes, composed of 72 municipalities, no legal status and management structures	urban municipality (gmina), NUTS 5 level, unit of territorial subdivision governed by local self government

Warsaw and its metropolitan area have benefited from the change from industry dominated into service dominated economy, the shift that occurred during the 1990s. Warsaw became the prime destination for international investors, lured to the city and its metropolitan area by a large capacity of the local and regional consumer and investment goods markets, as well as a highly diversified labour market. The metropolitan area of Warsaw was gradually assuming the position of Poland's economic heartland, the role that during the previous several decades was held firmly by the Upper Silesian conurbation. The labor market of the WMA has a relatively modern structure. Employment in industry has been gradually decreasing. The growth of employment in industry takes place in municipalities located 50 - 100 kilometers from Warsaw.

Problems related to the WMA development have become more burdensome over the period of the last two decades. Warsaw has acquired new metropolitan functions and the metropolitan area has been shaped. Firms and population are more mobile and proactive, looking for the best location which meets their needs and expectations. The WMA offers attractive environment to run business as well as relatively good living conditions. Ongoing suburbanization and urban sprawl have an impact on the landscape, land use pattern, and new functional relationships among municipalities situated within the metropolitan area. A need for coordinated development of metropolitan areas in Poland has been articulated many times by representatives of public authorities from different tiers of administration. However, there is little evidence of any changes in approaches to the practice of metropolitan areas development in terms of legal regulations or any other activities initiated by the central government.

The municipalities from the WMA that are under urbanization pressure are especially those that are situated close to major transportation routes. Changes of land use in the metropolitan area triggered by urbanization pressure rapidly accelerated at the beginning of the 1990s. Rising demand for land for development results in conversion of agricultural land into land for housing development and location of services. Proactive behavior of developers together with the lack of rigid spatial policies both at the local and regional level result in situation that more and more farmers decide to sell their land. Additionally, there are no infrastructural investments preparing the land for development, the size and shape of plots that are sold do not often allow rational use for other than agricultural purposes.

The main development problems related to natural environment are as follows:

- Land pressure (new land for development) generated by rapid suburbanization and urban sprawl which brings changes of functions and, as a result of new functions introduction, changes pattern of land use, access to open space,

- High value nature at risk (greenery - natural forests, landscape, etc) which is related directly with conflicts of functions that result from the increasing intensity of land use and proximity of conflicting functional zones,

- Agriculture under pressure (conversion of agricultural land into lots to be developed by the allocation of other functions) which shall be related to changes of functions as well as to conflicts of functions (congestion, pollution, spatial chaos, dysfunctional uses).

Agriculture and rural areas development in Warsaw Metropolitan Area

Land use pattern in the Warsaw Metropolitan Area is a mosaic one. Based on dominant use of the land and functions performed one may distinguish six categories of municipalities: urbanized (dominated by built-up areas), under urbanization (experiencing urbanization pressure reflected in changes of land use pattern), traditional agricultural (with domination of arable land and traditional rural economy), diversified agricultural (mixture of land use pattern and activities related to agricultural production), modern agricultural (dominated by orchards), and forest type municipality (dominated by forests and greenery). Spatial concentration of different types of municipalities forms four zones of spatial development within the WMA (fig. 2). Every zone is characterized by specific features that shape relations between urban and rural land use. These relations contribute to creation of peri-urban areas and determine their development paths. In all cases pressure, although of different intensity, on rural land is observed. Despite different intensity of urbanization pressure its negative consequences for agriculture and rural areas are clearly visible. These facts are often ignored in development plans and programs. Responses to suburbanization formulated by local governments in planning documents are weak and inadequate. There are several reasons for that.

First of all the problem of peri-urban areas development is not addressed from the perspective of their unique values and assets. These areas are usually seen simply as areas for possible further expansion of urban functions. Development plans are focused on creation of basis for economic development. The economic growth goes first and it might be anticipated, that development plans will generate increasing urban pressure since they contain programs focused on attracting new inhabitants and

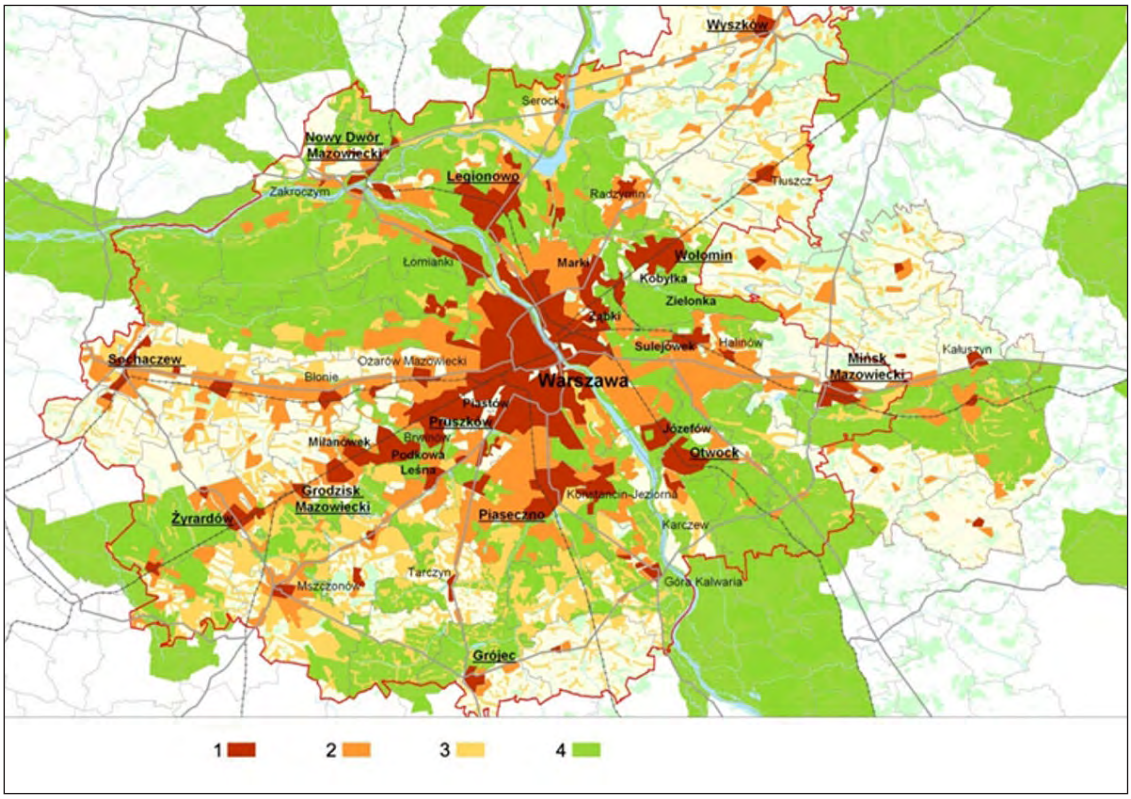


Fig. 7.1 Zones of spatial development within the WMA

businesses. Natural environment protection plans have "sectoral" character; there is a lack of comprehensive approach to protection and utilization of different resources, agricultural land, open spaces, and green areas. Diagnostic parts of development strategies include information on existing or potential urbanization pressure; however, there is a lack of clear statement on responses of planning and management character (except restrictions concerning areas protected by law).

1. Intensive urbanization zone (categories of municipalities: urbanized)
2. Supplementary development zone (categories of municipalities: urbanized and under urbanization)
3. Adaptation zone (categories of municipalities: traditional agricultural, diversified agricultural, modern agricultural)
4. Open zone (categories of municipalities: traditional agricultural, modern agricultural, forest type.

Suburbanization and urban sprawl are progressing rapidly but planning documents include measures and undertakings that are supposed first of all to cope with current problems and especially those of economic nature. Planning documents do not set paths for desirable future development and the planning shall be called "reactive". Even in cases when strategies and plans refer to wider spatial context of municipalities' development, areas that are not protected by law are being seen as plots for development regardless of their significance in local or sub-regional scale.

Development scenario for Warsaw Metropolitan Areas and its consequences

Based on experience of the last two decades it might be anticipated, that economic and spatial development of Warsaw and the WMA will continue with use of current practice of spatial planning and management of development. Warsaw will take advantages of its development potential. Trends of development will remain the same as they have been since 1990. Warsaw will be a growth pole of the WMA and Mazowieckie voivodship. Further polarization of development processes will take place. As a result the spatial pattern of development of Warsaw takes a shape of growing, aggressive octopus. Uncontrolled urbanization leads to chaotic urban colonization of areas surrounding Warsaw. New firms and housing developments are located along transportation corridors. Although the infrastructural gap is widening new investments are still coming to Warsaw and its surroundings. The area is not territorially cohesive; its newly developed parts are hardy accessible. Private cars become the main mean of transportation. Despite these problems, because of the lack of planning intervention urbanization pressure is still rising. More migrants are arriving to Warsaw and surrounding municipalities, which offer lower costs of living. These municipalities develop predominantly housing functions. Service functions are underdeveloped. Inhabitants of Warsaw are becoming more affluent. It leads to spontaneous suburbanization since many of them decide to leave Warsaw and move to suburbs. It is partly because Warsaw is losing its attractiveness as a place of living.

Predicted consequences are as follows: Warsaw is losing its attractiveness at national and European scale because the city does not offer good living conditions. The city and the WMA are poorly served by transportation infrastructure and are losing their attractiveness as a place of doing business. Social disparities are increasing which brings serious social conflicts. Underdevelopment of services in suburbanized areas forces their inhabitants to commute to fulfill their needs to Warsaw. The WMA acquires features of monocentric type of rural – urban region. Agricultural sector goes through restructuring process that results in decrease of areas used for agricultural purposes and important because of their ecological functions. Warsaw is surrounded by highly urbanized areas and suffers lack of areas to be used for leisure and recreation.

Concluding remarks

Suburbanization and urban sprawl might be criticised from different perspectives. The environmentalist perspective points in particular at the uncontrolled use of resources, the fragmentation and destruction of landscapes and the waist of fuels due to an ever increasing car traffic in low density developments. The urban planners' perspective complains about the loss of social and functional mixture in the inner cities which goes along with a desolation of public space and hence a general demise of urbanity. The social-politics perspective underlines concentration of poverty and a concurrent decline in infrastructure in large parts of the inner cities. The 'agro-lobby' perspective focused on criticism of the ongoing reduction of farmland. There is also the local interest perspective, mainly adopted by the citizens of suburban communes which are already established who try to prevent further development in their neighbourhoods. Every perspective brings strong arguments that call for intervention to regulate suburbanization processes and prevent urban sprawl. Major policy responses on urban sprawl can be grouped in the following way: regulation, incentives, public management, and education. The case of the WMA provides arguments about existence of planning vacuum in transforming contexts. This planning vacuum results to large extend from institutional capacity of institutions responsible for planning and management of spatial development. The exchange of formal management structures didn't bring about the intended results immediately. The planning culture is still of poor quality.

The practice of development of the Warsaw Metropolitan Area proves, that multi level governance model is needed to address multidimensional development challenges and in order to avoid realization of scenario described above. This model allows to integrate strategic, long-term planning with medium-term and short-term (operational) planning. In this case the leading role is played by the regional authorities, which are responsible for forming development coalition that will be instrumental in searching consensus among conflicting interests of different actors. This approach and model of governance create proper environment to formulate and implement programs of protection of agricultural land, organic farming, ecotourism, and improvement of agricultural production at the regional and local levels.

8. Allotment gardens in Poland

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Historical overview

The origins of allotment gardens in Poland were the same as in the rest of Europe. Insightful people in the 19th century came up with an idea to help poor urban families. The city authorities of that time organized allotment gardens and provided people with plots, so that they could harvest fruits and vegetables for their own needs. The first Polish allotment garden was organised in Koźmin Wielkopolski, as documents certify its existence back to the second half of the 18th century. However it is widely considered that the pioneer of the Polish allotment movement is a garden located in the city of Grudziądz, because its organizational structure was similar to the one that is still in use today. This garden was established in 1897. Both of the mentioned allotment gardens still exist in the same place.

The number of gardens was growing in proportion to the increasing demand for plots due to the socio-economic situation, as well as the legal conditions for the functioning of allotment gardens. In 1939, Polish gardens were located on 3050 hectares of land were 49.000 plots had been organized. During the Nazi occupation throughout World War II allotment gardens were primarily used for food supplementation. This function was also maintained after the war, because of a serious food shortage in the devastated country. The largest development of allotment gardens, unmatched anywhere in the world, is dated back to the 1980s. The awful economic situation in Poland had resulted in a huge demand of allotment plots. On the other hand, at that time, the allotment movement received the greatest support with the foundation of its own independent organization – the Polish Association of Allotment Holders. Within a few years gardens were built in Poland on the area of approximately 14.000 hectares of land, where 365.000 families received plots.

Today in Poland we have 4.929 family allotment gardens that occupy 43.350 hectares of land. These gardens have over 965.000 plots. Approximately 85% of all Polish allotment gardens are located within the cities. In 2011, the Polish Association carried out an extensive research among allotment holders. The results were quite surprising. It turned out that 37,66% of all allotment holders were in an age range from 50 to 65 years old. The next group of holders (37,22%) were under 50 years of age. Only 25% of allotment holders were in a retirement age.

Fig. 8.1 Logo of the Polish Association of Allotment Gardens

This is a very big change, because over a decade ago, retirees accounted for half of all allotment holders. Now, in Poland there is a great interest of young families in the plots. For many of them this is the only way to raise their children in contact with nature, it's also the only way to spend free time in a healthy environment. Finally, it is a place to harvest healthy food for children, but also a place where children can spend quality time with their parents and grandparents.

The legal basis for allotment gardening

The implementation of social and environmental functions of allotment gardening requires appropriate legal protection. Many allotment gardens are located on attractive lands, which too often are perceived only through their economic value. Such a perspective raises a number of threats to the existence of gardens in cities. Hence, the need for a special law, regulating the functioning and protection of allotment gardens.

This was recognized already in the interwar period, when the efforts to draft a new law were interrupted in 1939. After the war, these efforts were resumed and a Decree was issued in 1946. During the Stalinist regime another Act was passed in 1949, which deprived the allotment movement of autonomy and self-governance. Not until the wave of social movements related to the foundation of "Solidarity" in the early 1980s, did the allotment community force the passing of the Act in 1981, which contributed to the tremendous development of allotment gardening. After the political and economic changes in 1989 new problems and threats emerged. In response the Polish parliament passed a law in 2005.

Today in Poland there is a new law accepted on the 13th of December 2013 concerning family allotment gardens. These regulations were prepared by the Polish

Fig. 8.2 Allotment gardens in Warsaw

allotment organization, supported by nearly a million signatures and submitted as a citizens draft law. This law protects the existence and the development of allotment gardening through solutions implemented at three levels.

First of all, the new law creates optimal conditions for allotment holders and the gardens, essentially by strengthening their legal position. This objective has been achieved mainly by giving specific rights and privileges, particularly the rights to land and property. As a result, each allotment holder is treated as a full-fledged individual, entitled to a wide range of legal protection of their rights and interests.

Secondly, the new law has introduced mechanisms for protection against the most serious threats to the existence of gardens and the rights of allotment holders. It regulates in particular the issue of garden liquidation by specifying the rules for the removal of gardens located mainly within urban spaces. An essential requirement for garden liquidation is the obligation to provide replacement land with restored infrastructure and payment of compensation to the allotment holders. Consequently, these regulations create optimal conditions for urban development with the preservation of the allotment gardens substance.

And thirdly, the new law has created a strong organizational framework for the functioning of allotment gardening. Most of the allotment holders and gardens are associated in the Polish Association of Allotment Holders - a nationwide, independent and self-governing social organization. The primary goal of this association is garden management, as well as representing and defending the rights of allotment holders. The association takes care of the practical implementation of the mentioned legal guarantees set forth in the allotment law. It prevents any attempts to violate the interests of the holders through a variety of measures, specifically by undertaking legislative, judicial and administrative actions. In particular, the association defends the existence of gardens from hostile intentions of various investors seeking to liquidate allotment gardens strictly for commercial purposes. In addition, the association carries out a wide range of investment, educational and public relations activities that ensure the development of the Polish allotment gardening movement.

So as you can see, the existing law completely regulates the most important matters concerning the issues related to allotment gardening. Approximately one million Polish families benefit from these regulations. This law is well received by the allotment holders and the gardens. It protects their rights and interests. This is currently especially important, since the garden sites are sought after by many political and economic circles. The law opposes intentions of liquidating gardens only for commercial reasons. Therefore, these regulations are frequently met with unfair attacks. For this reason currently one of the most important tasks of the association is not only the implement the law into practice, but to defend it against the attempts to revoke it.

The horticulture production in the allotment gardens

The horticulture production coming from the allotments garden is difficult to estimate, but probably it is still no less that 10% of total production of fruits and vegetables in Poland. Horticulture products obtained from the allotments are mostly produced according to IPM and ecological methods, so they are willingly consumed because of general opinion about them as being free of heavy metals, harmful nitrogen compounds as well as the remains of pesticides. Many allotment holders still produce vegetable and fruits for their own needs, but there is still growing group of people for whom the allotment is not only the place for activity but mainly a place for relaxing after every day very often physical work, and the address where they meet friends and organise parties.

Beneficial effect of the allotments garden on the quality of life in big cities

Improving the microclimate in urban areas

Over 4600 allotment gardens is located in the centres of big cities being real "green areas" or "green lungs" with diversified species composition and structure. We should remember that oxygen production of a 50 year old tree equals to annual oxygen consumption of a human being (the same amount of oxygen is produced yearly by 3-4 acres of lawn).

In one family garden in Kraków, consisted of 150 single allotments with the total area of 10 acres there were 600 fruit trees, 3000 fruit bushes, and difficult to calculate number of ornamental trees and bushes as well as annual plants and others. The energy produced by plants as a result of assimilation of CO2 is then deliver to the soil microorganisms (10 000 species of bacteria and 3000 species of fungus).

Numerous trees and bushes cultivated in allotment gardens cause the decrease of temperature in surrounding area in degree of 2-30 C creating the feeling of comfort for the people staying in the garden.

Prof. Kazimierz Wiech

Soil protection methods in the allotments

Soil is the basis of horticulture production everywhere in agriculture including allotment gardens. In Poland allotments were very often planned and located on uncultivated lands as well as on areas formerly covered by industry or being devastated by building companies and others. Owing to the allotment holders work this areas were gradually returned for agricultural usage.

In last years in Poland, as well as in other European countries the gradual decrease of the contents of organic matter (humus) in the soil was observed (for example in last century in Germany the average amount of humus in the soil dropped down of about 20%) . In such a situation the allotment gardens play an important role as places where humus is created as well as where soil is protected against the erosion. A 300 m2 allotment produces around 10 m3 of organic remains which, further re-composted, make around 0.8 m3 of compost containing about 30 kilos of pure food nutritives for plants.

The ways of soil protection applied in allotment gardens:

- intercropping and inter-row cropping
- cover crops
- providing compost, mulching (bark products, woodchips, straw and hey)
- applying green manures
- utilization of organic remains

Biodiversity protection in allotments

In the area with numerous plants finding the host plant is for the most of pests more difficult because of mixing smells coming from different plants (smell camouflage). Moreover, the plants cultivated in close mutual neighbourhood, in a dense green group are for phytophagous insects the physical barrier through which moving/flying as well as finding the proper host plant is not easy (visual camouflage).

Biodiversity in the allotments gardens

There is no necessity to convince anybody about the need of plant and animal biodiversity protection in the allotment gardens. Even though, we do not understand the importance of particular plant or insect, our satisfaction connected with the consciousness of existence of different species in the allotment is an important "added value".

We should always remember:

„The greater is the diversity of species and mutual relations between plants, insects and other organisms, the stronger and more resistant is the meticulous network of these inter-relations".

On the other hand, the presence of different plants being source of nectar and pollen cause that the allotment is visited by enormous number of pollinators, e.g. honeybee and other wild bees, as well as beneficial insects (parasite and predators of pests), which after consuming proper amount of nectar and pollen produce optimal number of eggs and will be able to look for the suitable places for their offspring in aphids colonies, inside bodies of caterpillars, larvae and pupae of other insects to reduce their number.

We should not be surprised that in the garden without "smell of pesticides" the parazitation level of tussock moth larvae by Trichogramma and other parasites of eggs reaches 90%. The same parasite destroys great number of eggs also of other pests, e.g. apple moth, cabbage moth or cabbage white butterflies. Another important parasite – Cotesia glomerata kills 50-90% of Pieris brassicae larva, and closely related – C. rubecula,

20-40% of imported cabbage white (Pieris rapae) 20-40% of its caterpillars. Diadegma fenestralis larval parasite of diamond-back moth kills yearly 70-90% of mentioned pest caterpillars, whereas the predatory larvae of hover fly (Syrphidae) during its life lasting 4 weeks consumes even over 1000 of aphids. Carabid beetles which penetrate the surface of every allotment kill difficult to estimate number of insect eggs, larvae, pupae and also aphids, which fall down from the plants. We can say that because of the activity of beneficial insects and other biotic and abiotic factors about 95% of all development stages of phytophagous insects is reduced every year. In spite of the great activity of beneficial insects, this high mortality in many cases is not sufficient and some pests damage cultivated plants. It happen not very often and only few among thousands of insects are able to do that. Very often people exaggerate, considering as a pest insect or mite, which truly is not dangerous for yield and plant development.

Every allotment holder should ask himself a question:

What lies within my limit of acceptance, and what does not?"

answering:

I can survive on 90% of fruit only, may the remaining 10% be generously left to other organisms.

What is biodiversity?

We can imagine the surrounding nature as a big puzzle divided into numerous pieces. Single plants or animal species are elements of this natural puzzle. We should also know that nature is much more complicated than any known puzzle, and every piece of this natural mosaic is connected with difficult to describe number of species fit to each other. Lack of single element may cause the destruction of these complicated puzzle resulting in yield loses due to increased activity of – for example: apple moth, apple blossom weevil or other insect.

Biodiversity on apple tree:

- on single leaf there are about 50 different development stages eriophyes mite, 15 – 50 spider mite, 1-3 phytoseid mites (predators of spider mites and eriophyes mites
- on single apple tree may exist 30-50 colonies of aphids (each colony may reach few thousands of aphids), leaf miners – 1/100 leaves, tortricid moth larvae – 5% of shoots, winter moth caterpillars – 1/300 leaves, apple blossom weevil destroy yearly less than 10% of flower buds (but in some years even 50%), scale insects – few "scales/branch

Biodiversity protection:

- maintaining the widest possible variety of plant species – which cause the increase of the number of phytophagous insects and mites which number never reach high level of abundance because of growing number of beneficial insects (parasites and predators)
- providing insects with access to food – pollen and nectar throughout the entire season increase the number of pollinators as well as beneficial (parasitic wasps and flies)
- preserving wild plant areas – alternative places for the development of beneficial organisms as well as rare, endangered and beautiful butterflies and beetles
- building shelters for birds, predatory mammals and some other animals

The protection of beneficial insects

The protection of beneficial mites and insects should be the duty of each allotments holder. With every "pest" is connected higher or lower number of parasites and predators playing the crucial role in decreasing the number of pests and mites which damage plants.

Protection of rare insects

Insects in Poland constitute about 60-85% of all known animals occurring in this country. Among them 17-36% of species was placed on the list of endangered. In Polish "Red book" of endangered and protected species there are 2173, among them several can be found in allotment gardens belonging to carabid beetles (*Carabus sp., Calosoma sp.*) – predators of development stages of other insects.

Tab. 8.1 The importance of some pests parasites and predators

Species of „pest"	Species of parazite	The importance of parazites and predators
Apple weevil (*Anthonomus pomorum*)	Parazitic wasps – parazites of weevil larvae	+
Apple moth (*Laspeyresia pomonella*)	15 species of parazitic wasps – eggs and larvae parazites	+
Leaf rollers (t*ortricide Mohs*)	Over 30 species of parazite wasps	+++
Tent caterpillars (*Yponomeutidae*)	Over 20 species of larval parazites	+++
Mites	5 species of predatory mites	+++
Aphids	Many different species of parazites and predators	+++
+ - low importance ++ - mean importance +++ - high importance		

In trunks and branches of old trees undergo the development some rare insects belonging to family *Cerambycidae*, so old trees should be particularly protected and their presence is necessary from the point of view of environmental protection.

Also all species of bumblebee are on the list of protected animals. Their abundance in Poland in recent years decreased dramatically so allotment garden became a comfortable shelter for them due to abundant food as well as many suitable places for nesting.

Protection of rare and endangered plants

In Poland at least 219 species is on the official list of the protected plants. One of the methods of their protection is encouraging allotments holders to their cultivation. Many rare and endangered plant species can be found in the allotments, as well as in other small gardens in the cities, bought from private breeders or straight from botanical gardens. In such a case, the allotment gardens play similar role like botanical gardens protecting plant species which number dropped down in last years, due to environmental changes caused by human activity.

Tab. 8.2 Occurance of race and endangered plant

Plant species	Occurrance	Notice
Adonis vernalis	Meadows	Quite often found on the market and in the shops
Anemone sylvestris	Meadows	
Cipripedium calceolus	Meadows	Quite often found on the market and in the shops
Pulsatilla pratensis	Meadows	Quite often found on the market and in the shops
Aquilegia vulgaris	Forests	Quite often found on the market and in the shops
Galanthus nivalis	Forests	Quite often found on the market and in the shops
Hepatica nobilis	Forests	Quite often found on the market and in the shops
Otana martagon)	Forests	Quite often found on the market and in the shops
Matteucia struthiopteris		
Arnica montana)	Mountain meadows	Quite often found on the market and in the shops
Crocus scepusiensis	Mountain meadows	Quite often found on the market and in the shops
Trollius europaeus	Mountain meadows	Quite often found on the market and in the shops

*'**Bold font**' – plants particularly often found in the allotments and home gardens*

Fig. 8.4 and Fig 8.5
Allotment gardens in Warsaw

Creating butterfly garden

Butterfly gardens provide an attractive alternative to monotonous gardens designed around a lawn scheme and numerous coniferous trees and bushes. "Butterfly plants", not only those that butterfly adults feed on, but also species such as a stinging nettle which provide food to caterpillars, can be divided into several groups:

- Ornamental plants often visited by day butterflies (Marigold, Aster, Butterfly Bush, Sedum);
- Ornamental plants often visited by night moths (Tartarian Honeysuckle, Evening Primrose, Datura).

The research carried out in some allotments in Kraków showed over 40 species of butterflies visiting allotments in the gardens in the centre of the city:

Species	Number of observed butterlies	Period
Papilion machaon	7	May - August
Pieris rapae	47	May - August
Gonepteryx ramni	6	July – next spring
Polyomnatus ikar	10	May - July
Argymnis paphia	3	June - September
Vanessa atalanta	6	May - July
Inachis Io	4	July – next spring
Numphalis athiopa	5	July – next spring

Protection of cultural values in the allotments

Protection of old cultivars of fruit tree and bushes

The allotment gardens play in this matter particularly important role. The cultivation on the allotments of old cultivars (existing only as local populations) and not placed on the official list of recommended varieties for fruit production, secure protection of cultivar biodiversity with its unique taste and nutrition value. Old cultivars protected on such a way, can be treated in future as a specific "bank of genes", being an important source and starting point in obtaining new cultivars. One of the points of Agreement for the Protection of Biologic Biodiversity (ratified by Poland) says about "necessity of protection of domesticated varieties and cultivars of plants and animals, in particular old and local". In the last years, we observed growing interesting among people searching for old and very often forgotten cultivars of apples (Złota Reneta, Szara Reneta, Grafsztynek, Kronselska, Glogierówka), pears (Józefinka, Paryżanka, Dobra Szara, Boika, Kongresówka, Pstrągówka) and cherries (Bladoróżowa, Kurzego, Wolska, Przybrodzka).

Rearing of wild pollinators (example of *Osmia rufa*)

Osmia rufa belongs to the most effective pollinators. It is easy and safe to breed (it belongs to the stingless bees). The list of protected insects contains almost all bumble bee species which find favourable conditions for their development in the allotments. Moreover, the allotment are also visited by wild bees (in Poland about 500 species), for which we promote establishing "insect hotels".

Return to traditional methods of cultivation and plant protection

Old, very often abandoned, methods of cultivation and plant protection should be widely applied in the allotments because of their simplicity and easy way of application as well as safety for human being.

Methods of plant protection recommended to apply in family allotments gardens:

- farming- hygienic methods – removing parts of plants after harvesting is particularly important in plant protection against many important vegetable diseases
- proper date of sowing, plant neighbourhood, plant rotation
- mechanical methods – cutting of shoots of currents and raspberries decrease the occurrence of several pests like stem borers, and flies building galls on the stem
- using artificial covers and different plastic nets and other barriers protecting plants against some flying pests
- breeding methods – correct selection of plant cultivars for growing in the allotments (introducing plant cultivars resistant against pest and diseases
- biological method – the usage of beneficial organisms to protect plants cultivated in glasshouses and under over artificial covers.
- Biotechnical methods – applying coloured sticky traps, pheromone traps for monitoring and trapping pests
- Using the registered plant pesticides (based for example on garlic and grapefruit)

Fig. 8.6 and Fig 8.7
Allotment gardens in Warsaw

Building ethical attitudes among allotments holders

About 25% of allotment holders still apply chemical control against pests and diseases which do not correlate with the ecological/organic methods propagated by us as the proper method of plant protection. Many people until now do not understand and is not able to appreciate the need of environmental protection. In magazine "Działkowiec" ("The allotment holder") we elaborate and recommend to use natural methods. In the publication one can find a list of some recommendations for eliminating chemical protection and substitute it with other methods safer for the biodiversity.

Creating the appropriate mind set

- when applying plant protection measures, always remember about your own safety and about the safety of others residing on the allotment
- remember that although your allotment is your castle, your neighbour pertains to the same right to peace and relaxation
- always protect plants against pests and diseases according to the ten commandments of an allotment farmer as well as all the recommendations which stem from the principles of plant protection practice
- always choose the safest method when thinking about the protection of fruit and vegetable yield; try to use other methods instead of the chemical one.
- think about those you will say 'help yourself" to, when offering fruit and vegetables as well as about your potential customers; your products should be the source of nutrients and not the remains of badly applied pesticides and fertilisers
- maintain biodiversity on your allotment; aim at creating appropriate conditions for the development of beneficial organisms which, most often without you even knowing, help to diminish the number of pests
- remember that every single existence/living organism is there for a reason and may thus have positive influence on the quality of the produced fruit and vegetables.
- maintain what is around you with care and diligence; remember about a delicate approach to plants, keeping in mind that your life will be better surrounded by a beautiful garden with a great diversity of flora and fauna
- remember that methods of protecting your yield undergo a constant evolution together with the development of science and the change of aims of horticultural production
- do not forget about constant education and improving your qualifications

Dilemma

To spray or not to spray
That is a question …
To eat a cherry with a cherry fly
Peas with pea beetles, on the side
Plums with plum moths
Leaks with leak miners
Or carrots with a carrot fly
Yet what is pest?
Does it deserve this cruel name
Only because it eats again and again
What a man eats?
Should it be the one to blame
Seeing this "enormous plate"
Of insects' snacks planted everywhere
A man then suddenly
Screams out loud
Aiming huge arsenal of pesticides
To kill the "pest"…
Spraying out blindly
Without a glance
Not even checking if nearby
Innocent creatures share
This cruel fate …
He often puts near insect's nose
A fruit or wheat…
Against the cause
And effect of Natural logic
Then every bite is punished hard
With heedless calamity…
Still there's a question hanging by:
Who is a thorn in whose side?

Poem by
Alicja Zięba
Translated by
Joanna Wiech

9. Representative of Urban Gardening Movement in Warsaw

Iga Kołodziej
Landscape Architect, Mint&Lavender

Iga Kołodziej

Warsaw Urban Agriculture - early bird initiatives

Although urban agriculture in Warsaw is not well-developed, increasing number of actions and projects shows a rapidly growing interest in the subject. Submissions for design competitions, temporary gardens installations, workshops, debates, guerrilla gardening actions and forming of community gardens become popular. Scale of the actions may not seem impressive, comparing to many other cities, but a possibility to watch the change happen is what makes the case of Warsaw really fascinating.

One of the reasons why urban gardening is less popular than in Western countries may be general attitude towards public spaces. In the city where most of the parks removed signs saying "please do not walk on grass" just recently, the space meant to be common is often perceived as nobody's. Gardens in the city center are expected rather to decorate than educate or produce food. There's also a common concern about environment pollution.

The existing network of amateurs of urban gardening in Warsaw can be quite easily tracked by anyone researching the topic. Because the movement is still rather small, people actively engaged in promoting urban agriculture in Warsaw usually support each other and often cooperate. Most of local activists are not professional gardeners or landscape architects. Working in multidisciplinary teams and cooperation allow to look at the projects from different angles and add valuable perspectives. Urban agriculture in Warsaw has become popular among architects, sociologists and people interested in locally produced food.

Lots of people interested in gardening in the city farm their plots in family allotment gardens, a formation unique for Polish landscape. Most of the fences surrounding these gardens remain closed, but some of them open their alleyways during the day, allowing to get a glimpse of "traditional" gardening and find hidden peaceful places in the middle of the city. Strong community bonds often form between the owners of neighbouring lots, most of whom have been coming there for decades. Together with the seclusion, it often makes the gardens appear to be places where time stands still. Despite this impression, less traditional methods of urban farming are coming to traditional allotment gardens too. In Warsaw there are at least two groups collectively growing edibles on parcels (approximately 500 square meters each) located in the allotment gardens. It might become an interesting trend in the future, considering the large share the allotment gardens have in Warsaw green areas. It's also an opportunity for members of younger generations, not able to dedicate to gardening as much time as the retired people, who currently make the biggest group of allotment gardens residents. Mieszadło Foundation has recently gathered a group of people interested in collective use of one of the parcels at "ROD Waszyngtona" allotment gardens, announcing creating a first small CSA in Warsaw (the one that already exist and supplies Warsaw customers is located about 100 km from Warsaw in Świerże-Panki).

Urban farming is also spreading to less green lands. One of the most know urban agriculture activists in Warsaw is Jodie Baltazar. She's a founder of Pixxe foundation (Projects Involving the Experimental Exploration of the Environment), concentrating on activities connected with food - growing edible plants in the city, foraging and cooking. Jodie entered abandoned allotment gardens in Ochota district, turning the unused land into vegetable garden. She teaches classes called Hoduj-Gotuj (grow-cook) in primary schools, creating school gardens and cooking together with children. Jodie and Paulina Jeziorek regularly organize guided walks and workshops called Jadalnia Warszawa ("Warsaw Eatery"), focused on identifying and foraging wild edible plants and fruit growing in abandoned gardens, city meadows and popular public spaces. They are also responsible for creating and animating one of the first public community gardens in Warsaw, located in Służewski Dom Kultury (Służew Culture House). With support of the Culture House they grow vegetables with local community and teach gardening during

workshops organized in the garden. Architects from WWAA studio, who designed new buildings for the culture house (opened in 2013), included an educational city farm with animals and a garden in the whole concept. Permaculture ideas are also quite popular among the city gardeners.

Fig. 9.1
Entrance to Pixxe garden in Ochota (photo: Jodie Baltazar)

There hasn't been a large or permanent community garden in Warsaw so far, but there have been some attempts to create them. They take place even inside gated communities, where green areas are built and maintained by property developers, who are usually not interested in local initiative.

Fig. 9.2
Raised beds in one of housing estates in Mokotów district (photo: Marta Sapała)

Gardening workshops

Gardening workshops remain the most popular way to introduce urban farming to Warsaw citizens. Many participants come there with no basic gardening knowledge. They are interested in general advice, growing edibles on balconies as well as community gardening, guerrilla gardening and creating conditions to increase biodiversity in city areas. During recent years, many institution (e.g. Copernicus Science Centre, Centre for Contemporary Art Ujazdowski Castle, culture houses, University of the Third Age) and NGOs include gardening classes or workshops in their summer programmes.

Fig. 9.3
Garden of senses" (photo: Iga Kołodziej)

Fig. 9.4
Garden of senses" (photo: Anka Zawadzka)

Edible gardens in cultural institutions

Vegetable gardens become a popular form of installations outside cultural institutions, not afraid of exploring new ideas. It's a good way to provide inspiration and educate. In 2012 Juliette Delventhal and Pawel Kruk created a permaculture vegetable garden (a project called We're Like Gardens) at Centre for Contemporary Art Ujazdowski Castle during Zielony Jazdów summer festival.

In 2013, in the following season of Zielony Jazdów Jan Dowgiałło, Iga Kołodziej, Paulina Sulima and Anka Zawadzka designed and built "Garden of senses", a temporary sensory garden in the courtyard of the Ujazdowski Castle. The garden was divided in three zones and contained plants stimulating five senses: hearing/sight, touch and taste/smell.

Otwarty Jazdów (Open Jazdów)

In 2013 Sie-Je w Mieście collective and Ptaki Polskie Association shared a house and garden at Jazdów 10/6. Jazdów housing estate, built in 1945 for workers of Bureau for the Rebuilding of the Capital, served as communal buildings until the city introduced plans to demolish the area and started to evict inhabitants. Empty houses, waiting for final decisions, were lent to local NGOs and informal cultural animators and artist groups, who succeded in creating a unique cultural programme for the summer.

Fig. 9.5
Garden of senses"
(photo: Iga Kołodziej)

Fig. 9.6
Poster advertising "Jam Session", collective cooking of foraged fruit (photo: Jodie Baltazar)

Fig. 9.7
Jam Session in Jazdów (photo: Iga Kołodziej)

Hosts of Jazdów 10/6 planted trees and shrubs for birds and pollinators and started a small vegetable garden, open to public. The house held meetings, exhibitions, lectures and picnics. Jodie Baltazar and Slow Food Youth Warszawa co-organized culinary workshops about making preserves from foraged fruit. The garden is still in use, even though the permission to use the houses and land was not renewed for the following season. Polish edition of International Tulip Guerrilla Gardening Day, an event organized by Guerrilla Gardening, also took place in Jazdów in October 2013.

Fig. 9.8
"Eat the City" (J. Dowgiałło, I. Kołodziej, P. Sulima, A. Zawadzka)

Eat the City – BMW/URBAN/TRANSFORMS design competition

Most of large scale urban farming projects, submitted to design competitions or grant application, remain in the concept stage, but they show possibilities and maybe some future directions.

In the beginning of 2014 a team consisting of Jan Dowgiałło, Iga Kołodziej, Paulina Sulima and Anka Zawadzka submitted a project of temporary, modular urban greenhouse, called "Eat the City" for the BMW/URBAN/TRANSFORMS design competition, organized by BMW and Bęc Zmiana Foundation. Main goal of the competition was to promote urban mobility, sustainable development, ecology and improving quality of life in the city in various fields. The greenhouse was designed to be an alternative for murals and billboards, which are the most common ways of using blind walls of the buildings in Warsaw. Easily available food, produced locally in the middle of the city, could provide 90 square meters of cultivation required only 25 square meters of ground. Although the project did not win the competition, we hope it may inspire some change in attitude.

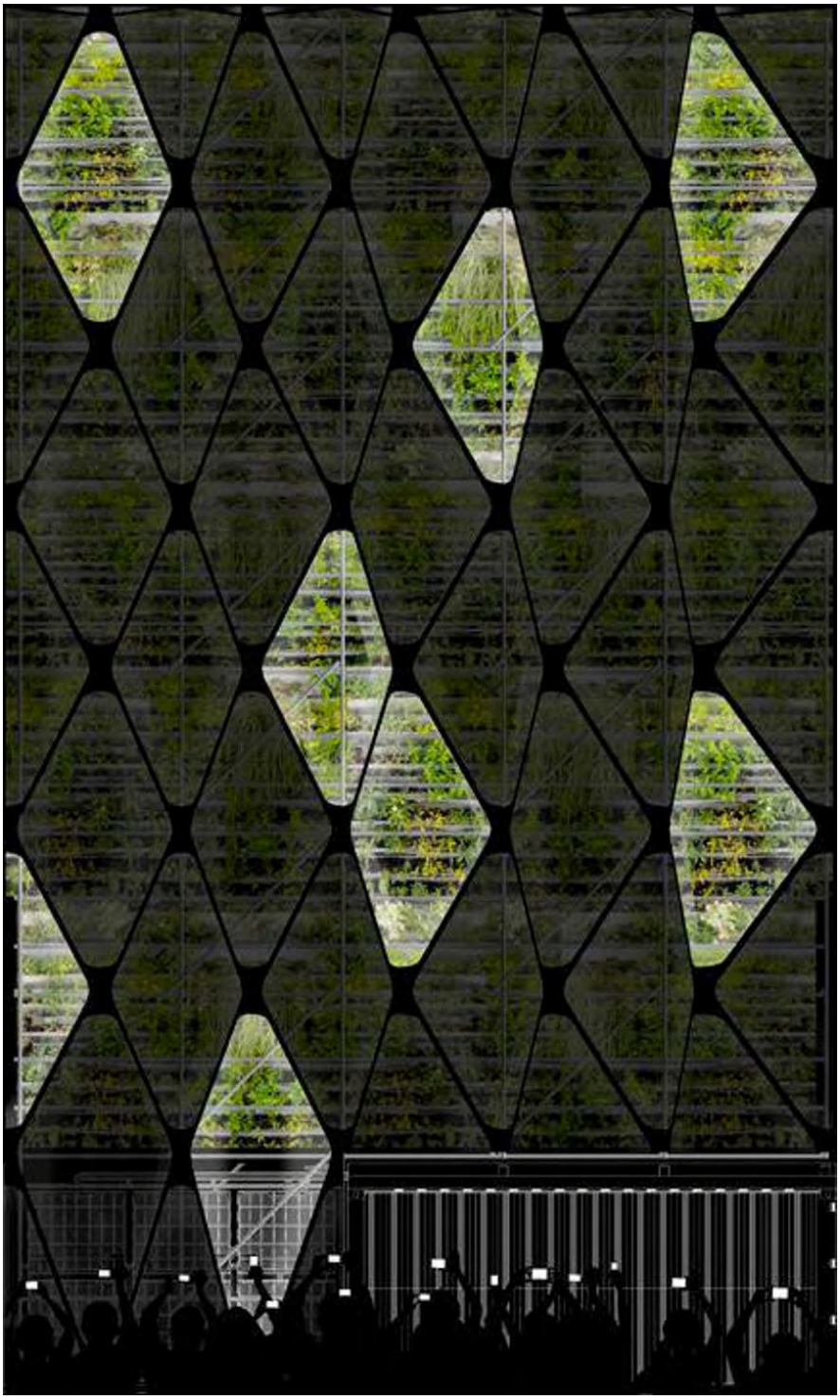


Fig. 9.9
Eat the City" (J. Dowgiałło, I. Kołodziej, P. Sulima, A. Zawadzka)

Warsaw seems to benefit from urban farming rather in social aspects than food produce. It is though very important impact and collective gardening is a great way to relax, get closer to nature, take care of surrounding space and it makes a common ground for different generations. Increasing number people belonging to food cooperatives, popularity of local food markets and first CSA examples show that there urban farming is developing also in the food aspect. We're hoping for more large scale projects to involve more people and be able to monitor and collect the results.

Fieldtrip documentation

WARSAW METROPOLITAN AREA – framework for comments on the key points of the STUDY TOUR

1. **Ursynów" Allotment Garden**
   Allotment Garden „Ursynów" is one of the best maintained and frequently awarded from the 170 gardens that are currently in Warsaw. It was established in 1972. There are 307 plots within the area of 12,73 ha, the average size is 300 sq meters.
   Main vegetation types are fruit trees and bushes. The trend to develop recreational function is increasing, especially among younger users. They replace fruit plants and vegetables with decorative plants and lawns.

2. **Warsaw expansion:** "buffer zone", new developments along Puławska Street, Ursynów – the exceptional district in Warsaw ; main incentive for development – subway; outskirts of Warsaw and former transitional zone: peri-urban area; "Mysiadło" – agricultural cooperative which went bankrupt, surrounded by housing developments; zone of rapid suburbanization.

3. **Horticulture – Jerzy Zdunek;** Nowa Iwiczna, comments on suburbanization and legal regulations concerning spatial planning; rural municipality next to the big city – advantages and threats: beneficiaries and those who pay costs; mixed functions, examples of urban sprawl.
   Jerzy Zdunek Horticulture
   The farm area covers 4230 square meters, but only approximately 500 sq meters are dedicated for vegetables.
   It is specialized in growing lettuce, rucola, tomatoes, cucumbers, radish, spinach, onion, garlic, many varieties of parsley and herbs: mint, garlic chive, thyme, marjoram, oregano, basil, savory and dill. All plants are chosen to meet the expectations of customers who follow current trends on a niche market of healthy food.
   All vegetables are cultivated on organic substrates using traditional methods and green pesticides from early spring to late autumn.
   Products have been sold mainly on a local market in Warsaw, for a dozen years.

4. **Piaseczno – satellite city – transformation of local economy:** from small businesses to residential function; Piaseczno as a suburban zone nuclei: municipality located in the suburban zone of Warsaw; dominated by urban functions; with local city center; in the past providing jobs opportunities and services for neighboring rural areas, contemporarily: relocation of jobs to Warsaw; well equipped with technical infrastructure, with easy to identify urban edge understood as the boundary between built-up areas and open space; represents transitional form - from urban to suburban in terms of size, intensity, functions performed, functional relationships with surrounding areas.

5. **Konstancin Jeziorna;** the only spa in the region, functions: exceptional but not properly used assets, example of "garden city"; prestigious location.

6. **Góra Kalwaria – sub-regional – satellite city,** dominated by urban functions; with local city center; services for neighboring rural areas; stronger links with Warsaw due to weaker base for economic development.

7. **"Land ends" - Czersk – specialized agriculture – orchards;** outer zone, typical agricultural functions; rural landscape; moderately affected by urban pressure; represents transitional form – from peri-urban to rural in terms of size, intensity, functions performed, functional relationships with surrounding areas; surrounded by open space.

8. **on the way back to Warsaw:** typical agricultural areas, examples of traditional villages, intensive agriculture, open spaces, rural landscape, not bordering with urban centers, strong functional relationships with surrounding areas, still weak urbanization pressure, relatively poor transportation accessibility results in spatial and functional isolation.

9. Konstancin Jeziorna; comments on future of towns located in suburban zone; restructuring of local economy (example of just closed paper mill); revitalization of the Old Paper Mill – local community center; local events: Wednesdays and Saturdays: market for local producers, local attraction, stimulus for local economic development, conflict: housing development vs. other functions.

10. Eco Farm – Four Seasons (Powsin); comments on driving forces of suburban development, examples of functions: "Konstancja" and "Patio" housing development, American School of Warsaw, Park of Culture in Powsin, commercial functions along the road to Warsaw; new Warsaw's outskirts: "Miasteczko Wilanów" – comments on intensity, functions, and infrastructure.

Four Seasons Farm

The eco-farm "Four Seasons" is a place created for kindergarden and elementary school children. Its aim is to provide a nature education for the visitors. On the farm children learn about breeding animals and plant cultivation. Children play and gain practical experience in agricultural activities. There are pens for animals (e.g. pigs, sheep, goats, rabbits, chickens, turkeys) as well as a pond, vegetable garden and an orchard.

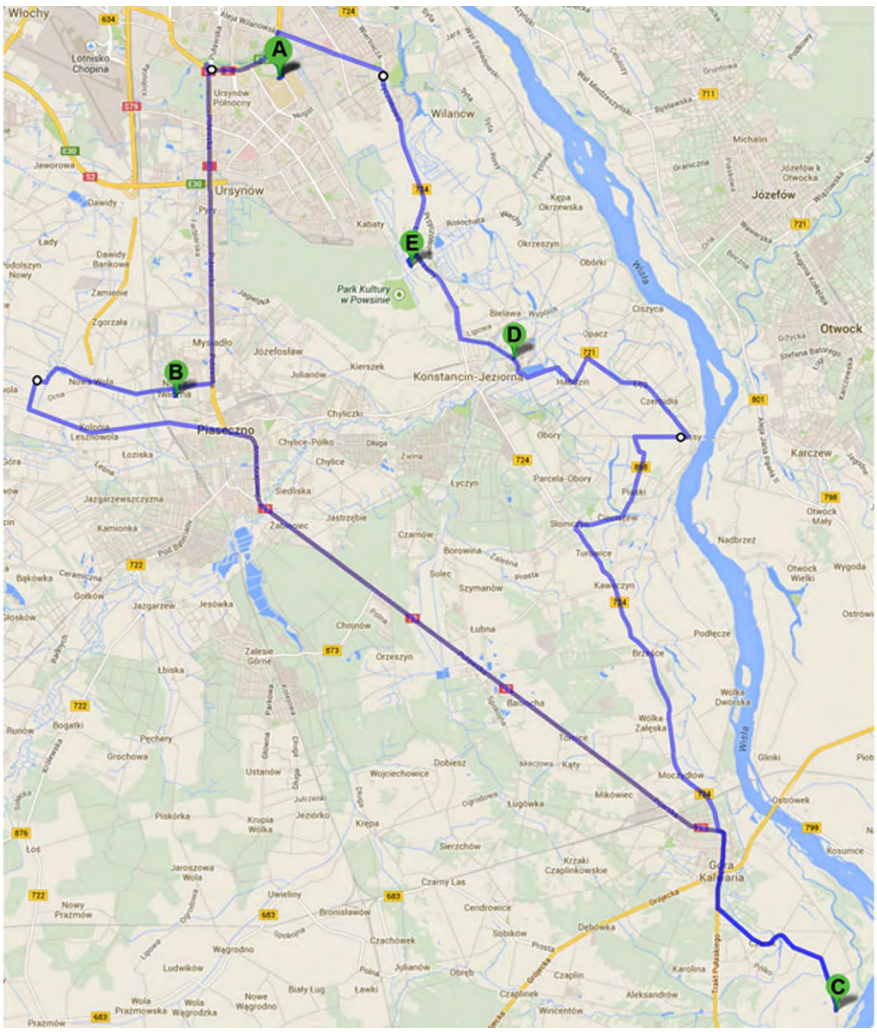


Fig. 1 Fieldtrip itinerary – stops: (A) Allotment Garden "Ursynów" (B) Jerzy Zdunek Horticulture (C) Czersk (D) Konstancin-Jeziorna (E) Eco-farm "Four Seasons"

Warsaw overview

The Capital City of Warsaw is the biggest city in Poland. It currently consists of 18 districts, inhabited by 1,7 million citizens within the 517,2 square kilometers. The average population density is 3 315 ppl/per square kilometer. Almost 24% of Warsaw is arable land.

There are big, cohesive complexes of agricultural land within Warsaw periphery and its outskirts. Other districts (except the city centre) contain small, non-cohesive complexes of agricultural lands. According to Polish land-use classification system, allotment gardens are categorized as an arable land. They are located in every district, mostly on the left bank of the Vistula River.

Warsaw Metropolitan Area overview

Warsaw Metropolitan Area consists of 72 territorial self-government units covering the area of 6206 square km, inhabited by 3 million people. Agricultural land covers 58,27 % of WMA.

The municipalities situated close to the major transportation routes especially suffer from rapid urbanization pressure. Changes of land use in the metropolitan area are triggered by urbanization pressure rapidly accelerated in the beginning of the 1990s. Increasing demand for land for development results in the conversion of agricultural land into the land for housing development and services. Proactive behavior of developers together with the lack of rigid spatial policies (both at the local and regional level) increase the numbers of farmers deciding to sell their lands.

Additionally, there are no infrastructural investments preparing the land for development. The size and shape of the plots available for sale often do not allow the rational use for other than agricultural purposes.

COST Action UAE: 4st WG Meeting Warsaw April 2014

Pictures of herbs and vegetables grown by Jerzy Zdunek in his ecological horticulture farm in Nowa Iwiczna. All plants are grown according to traditional methods and are sold in a local market in Warsaw.
Average prices: different cultivars of lettuce – ca. 1,5€; rucola - 1,6€/100g; chive - 1,2€; coriander and dill - 1,2€.

Working Groups' Report >>>

12. Working Group 1
Results of 4th WG meeting Warsaw April 2014

Participants: Sonia Callau (ES), Sebastian Eiter (NO), Veronica Hernandez (ES) Patricia Kettle (IR), Rafaella Laviscio (IT), Frank Lohberg (DE), Isabel Loupa-Ramos (PT), Dona Pickard (BG), Xavier Recasens (ES), Lionella Scazzosi (IT), Marian Simon (ES), Henrik Vejre (DK)

During the meeting in Warsaw, WG1 dealt with:

- Dimensions of UA
- Definitions and types of UA
- Country report
- Atlas and Dictionary of UA

We discussed these issues having in mind the target aims, what has been done and the possible outcomes and products.

1. Dimensions of UA

After the Dublin meeting some members of WG1 have been working on the unresolved aspects of the different identified dimensions, and prepared a paper to be discussed in Warsaw. The discussion resulted in the following dimensions:

Income, Formality, Community/Collective and Social dimensions (paper by Dona and Patricia)

Income: will measure the degree of dependence on the income from the agricultural activity.
Formality: Illegal persecuted – illegal tolerated – legal.
Community/collective: about the form of organization.
Social value: based on the social capital theory. Bonding social capital will tie in with the social values and the bridging and linking ones – with the civic values.

Cultural dimensions (paper by Raffaella and Lionella)

Cultural heritage (it was formerly referred to as cultural identity, but identity is more related to social issues). To avoid overlapping and confusion, it was decided to focus on heritage rather than identity. It will take into account tangible heritage, intangible heritage and physical perception.
Factors to be measured:

Authenticity / integrity; Fame / notoriety; Physical recognisability

Environmental dimensions (paper by Xavi, Marian and Barbora)

Production system/operations inside the farm. The reference level (base-line) is set by mandatory environmental standards (environmental legislation or cross-compliance requirements). Below the base line there are conventional farming systems that may result in over-exploitation, pollution and/or resource depletion; over the base line integrated and organic agriculture. The lower level correspons to those farms that do not comply with the legislation (reference level), that is to say that they are under the base line.

Supply and distribution system: consider positive impacts derived from minimizing packaging and transport, use of recycled (urban) water, waste reducing emissions, biodiversity preservation, protection against catastrophes, life cycle and environmental footprint of food

The intention is to apply the dimensions to different case studies to check their validity to characterize UA types and give clues for policy recommendations. It could also be used as a springboard for other research proposals.

There was a general agreement that we should not expect the members of the Action to do long, complicated and burdening studies based on heavy measurement tools as this would mean too much effort on collecting all the data for such questionnaires. Rather, we decided that the people responsible for elaborating the different dimensions would produce a set of guided „chat lines/questions" that would allow the researcher to plot the case along a rough dimension scale.

To facilitate the visual understanding we could plot all the dimensions that are normative on one side of a radar diagram (for example, above a horizontal line), and the neutral ones – on the other side (for example, below the horizontal line).

2. UA types

In Dublin we agreed on a basic scheme, UA ranging from the gardening to the farming level:

Fringe Farming | Urban Farming | Family Gardens | Educational Gardens | Allotment Gardens | Community Gardens

Lionella and Raffaella, explain the work of the Italian team, who has compared the different approaches and proposals about types and dimensions from each WG.

We agree to reshape the proposal of UA types as in the version delivered in Dublin the gardening and the farming level are not well balanced. In the new version (available at
http://www.urbanagriculturee europe.la.rwth-aachen.de/mediawiki/index.php/Types_of_Urban_Agriculture#Urban_Farming),
UA is unfolded into two levels (farming and gardening level) and three main categories:

– Urban Food Gardening Gardening activities with low economic dependence on material outputs but making use of agricultural procedures for achieving other, mostly social goals. Includes

- Family Gardens
- Allotment Gardens
- Educational Gardens
- Therapeutic gardens
- Community Gardens
- Squatter gardens

– Urban Farming Intentionally materialized business models taking advantage of the proximity to the city by offering local/regional agricultural products or services

- Local Food Farms
- Leisure Farms
- Educational Farms
- Experimental Farms
- Social Farms
- Therapeutic Farms
- Environmental Farms

– Non urban adapted Farming (equivalent to the previous "Fringe farming" category) Includes farms being located in urban areas, but whose business models have not been (yet) deliberately adapted to the proximity of the city.

3. Country report/ Atlas and Dictionary of UA

A suggested template to collect information about UA types in the different countries/and regions, is presented although there was no time to discuss it. Items included:

Presence / Trend / Functions / Actors / Public policies/ Examples / Register, study or database.

It is better to work on regional reports. They will not be based on a case-by-case collection, but an analysis of the entries in the Atlas will be very useful to achieve this task. The regional/country UA types' report is aimed to provide a general geographical overview and anticipate how different policy recommendations will affect different regions.

It is difficult and important to defining urban-periurban areas. One practical approach is to build on previous projects (ESPON) and/or existing European databases (Urban Audit)

Regarding the dictionary, it should be fed by the whole process, by those terms and explanations included in the different papers (definition of UA, dimensions, types...). It may be part of the final book.

4. Future steps and outcomes

Reference documents on types and dimensions

The people responsible for each dimension (Dona & Patricia, Lionella & Raffaella, Xavi & Marian & Henrik) will send an updated version to the chairs.

The chairs will send back the new versions of typologies and dimensions. Cases studies and dimensions will be checked to see if we all understand the dimensions in same way and if they prove feasible to characterize UA types.

Regional mapping of UA types

An outline of how the regional mapping of UA types may look like will be sent before the meeting in Lausanne (Marian).

Publications

We will prepare papers on typologies and dimensions. We agree that all participants are welcome: those who make contribution are in, those that do not, are out.

It is better not to work on an special issue, but on individual papers, as the former may hinder the possibilities of a final book with a reliable publisher.

11. Working group 2

Result of 4th WG meeting, Warsaw April 3, 2014

Meeting April 4, 2014

Notes collected by Mary, Joëlle and Cyril

Present parcipants: Andrew Adam Bradford (UK), Carlos Verdageur (SP), Mary Corcoran (IE), Sofia Nikolaidou (GR), Haidrun Moschitz (CH) , Charlotte Prove (BE), Salma Louidyi (FR) , Denise Kemper (DE), Cyril Mumenthaler, (CH), Miguel Malta (PT), Joëlle Salomon-Cavin (SW),Barbara Szulczewska (PL).

The group began with short introductions because of the addition of new members. The group is made up of geographers, agronomists, urban and rural planners, sociologists, and architecture.

Joëlle presented a slide outlining a proposition for how we would work for the afternoon and on Friday, April 4th. She proposed the creation of three sub groups to address the issues of governance, best practice and policies. The intention was to find a way of moving forward with analysis based on the grid which Tim had compiled in advance of the meeting. One output which we must produce is a white paper on public policies.

A general discussion ensured. A number of questions were raised about the terms of reference for the group, for example, what exactly is meant by governance, governance model, should the group focus on four selected reference regions or include all of the case studies (19 at present with more to add) in the frame of analysis.

Mary explained that this was the fourth meeting of WG2, that at previous meetings a lot of time and discussion had been devoted to these questions. These had produced several classification models as a way of approaching issues of land, policies and governance: the Salma grid, the Carlos model, the Tim/Joelle excel sheet (all of the documentation to date is available on the wiki on the UAE website).

Participants of WG2

Clarification of our use of the term governance:

Broadly speaking, governance is the sum of ways that affairs are managed in particular contexts (Latham, 1999). We are using governance to explore: How actors interact through formal or informal mechanisms to solve specific problems they identify. The governance of urban agriculture deals with land, land use and access, food , urban eco systems services, etc…

The discussion continued and it was proposed and agreed that rather than three groups, we would work in two sub groups, one on governance and one on policies. Both groups would work from the material collated to date, and identify examples of best practices. The working method would be to start reviewing the case studies, and then abstract cases that demonstrate for example particular features of governance such as stakeholder interaction. Cases could be grouped depending on the extent to which they exhibit these features.

Reykjavik was cited as an example (the only example in our case studies?) of public policy on UA.

We should not try to over complicate: our task is to think about people and land: Which people are doing urban agriculture? Where? and How? [the terms "place" and "space" were also recognized as central along with land].

When there is political leadership in the municipality it is more likely that UA will be taken forward. We are engaged in a diagnosis, but in the end we do need to make some recommendations (that's where the vision comes in). If you want to have a vision you need hypotheses or assumptions.

It was suggested that the two small groups: formulate three working hypotheses to guide their work with the case studies.

Sofia presented the case study from Athens in Greece.

The meeting ended at 19:00.

Working group 2, Meeting April 4, 2014

Joëlle presented the exchange that Mary has had with the Journal Nature and Culture together with the list of topics which could be part of a special issue on urban agriculture. Every participant receive a copy of the email exchange.

All participants agree on the idea to have a list of proposan of articles as abstract for the next WG meeting in Lausanne-Geneva.

As suggested the day before the group was divided into two subgroup during the morning session:

"Group Policies": Sofia, Cyril, Andrew, Carlos, Barbara;

"Group governance": Heidrun, Salma, Denise, Charlotte, Joëlle and Miguel.

Each group had the aim to :

- define hypotheses and research questions
- identify best practices.

To begin the work of the governance group, Salma showed a presentation elaborated by Giulia and her. They have tried on the basis of the Tim matrix to put all the cases on the continuum. They also proposed new analytical framework to analyze governance based on the works of Tollefson and al (2012). Those authors use 3 entries : the institutional (=polity), the political (=politics), the regulatory (policies). Salma also recall us the triptic model used by NN and Wiskerke : State - Market - Civil society.

The discussion of the subgroup Policies started with the definition of the type of policies to take in account (formal/informal, public/private?). The group decided to focus as a first step on the public policies. The first observation is that in all our case studies, only one is directly describing policy (Reykjavik). Thereby it is hard to identify best practices before having more information on these policies. The group used the Carlos Model with a scale perspective to launch the reflection and identify policies mentioned in the different case studies.

After lunch, every group presented its main results.

Heidrun presented the main results of the subgroup governance:

Two main questions and hypotheses have been defined:

Q1: What is the influence of governance models on UA practices, actors relationships and spatial patterns?

Q2: How grassroots initiatives and public actors meet each other? How this shapes the governance process?

H1: Different UA forms express different model of governance.

H2: Socio-political and cultural influence patterns of UA governance

Then she presented the lenses used for reading the Tim's matrix and selected the best practices. The best practices are not defined as the best experiences, but as "ideal type" that is to say "pure extremes". Five criteria have been used to select the best practices:

1. Typical type of bottom-up and top-down approach
2. Low /high diversity of actors (according to "the Trinity ": state, market, civil society)
3. Diverse forms of UA (= diverse form of practices/activities and land use (the idea is to show all the possibility in the continuum)
4. Longer term experience : more than one year existence (= not pure intention)
5. Diversity of regions

The best practices selected by subgroup governance are:

- Baix Llobregat (Barcelona, SP)
- Stadbruch (Malmoe, SE)
- Reykjavick (Reykjavik, IC)
- Sie Je W Mieście (Warsaw, PL)
- Urban Farm Budé (Geneva, CH)
- Adolshore/ or Emsherpark (Hannover, DE)
- Hide Park (Nitra, SL)
- Forabosko (IT)

Other cases might be chosen, but there is a need to fulfill the matrix and to make a short description of the case before.

- „Grand en garde" (Gand, BE)
- Vila Novo Gaia (PT)
- La ruche qui dit oui (FR)
- Municipal garden allotments (Athens, GR)
- London Food Strategy (London, GB).

For each of that best practices a fact sheet should be done: the aim of this fact sheet is to make a deep description of the governance model in each case. The purpose is to describe the diversity of actors and interaction according to the forms of UA cases.

The information needed are (at least..):

- name and short description
- level of policies (from European to local)
- stakeholders involvement
- modes of cooperation
- interaction public goods / private economics

Different graphical representation could be used:

- the continuum: place the case on the continuum urbanites/farmers
- the cross Urban/rural-Public/Private = showing the bottom up and top down approaches
- the trinity: showing the different actors involvement
- the network analysis (tool that Heidrun currently uses) or the Venn Diagram (that Miguel shows us): those tools show interactions between actors

(See doc annex 1 : governance)

Andrew presented the main results of the subgroup policies:

The group has used the information collected in the Tim's matrix that concerns directly the public policies. They have decided to build a table inspired by the Carlos's model with the information from the matrix.

Tab. 11.1 Questions and hypothesis regarding policies

Research Questions	Hypothesis
1. What are the main characteristics and features of a successful policies in UA?	• Goals inter sectoral • It has to be proactive • Public driven policies are more effective than the private • Indirect public policies that have an impact on land use have the greatest policy potential to promote and protect urban agriculture
2. What is the optimal spatial scale of application of UA policies municipal, regional, national?	Optimal scale for policy-making is municipal one, because it is nearer to bottom up-driven UA initiatives.
3. What are the main constraints to implement UA policies?	Intersectorial policies are most difficult to implement because they involve multiple scales and sectors
4. What are the objectives of UA. What is it planned for?	• Urban Municipalities are more interested because they can of vacant land because of the crisis • Food sovereignty is driving urban agriculture policy. • Every country and every city has different objectives depending on their situation (socio-economic).

Then, he presented the analytical grid of type of UA policies (see annex 2: policy grid)

The discussion is notably launched about the definition of what the regional level is because in Europe every country has its own definition of the level. Anita proposed to use as references the European NUTS (for each case the NUTS level has to be specified).

At the end of the Working Group session, we discussed the next steps – and the work to be done for preparation to the next meeting in Lausanne.

1. Proposals of abstracts for publication in Nature and Society
2. Feel the type of UA policy (one per country)
3. Try to answer /test the hypotheses
4. Identify policies that are relevant
5. Fill the fact sheet of governance model for each best practices – a first step will be to precise the framework for the factsheet
6. Andrew, Miguel and Charlotte should describe the cases and fulfill the matrix in order that the Ghent, Portuguese and London's cases could be used as best practices

Cyril and Sofia are responsible to collect the information for the group Policies. Salma and Charlotte are responsible for the collection of the information needed by the subgroup governance.

The working group meeting ended at 17h.

After the WG 2 meeting, Wolf Lorleberg has proposed to send to our group the information from questionnaires related to policies.

14. Working Group 3

Results of 4th WG meeting Warsaw April 2014

Present participants Warsaw meeting WG3:

Óscar Alfranca-Burriel (ES), Elisabeth Alves (PT), Galina Koleva (BG), Wolf Lorleberg (DE), André Miguel (PT), Terje Ong (EE), Bernd Pölling (DE), Maria-José Prados (ES), Bruno Ronchi (IT), Biancamaria Torquati (IT) and Helene Weissinger (AO).

WG 3 work is greatly supported by COST members in other working groups:

Paola Branduini (IT), Giulia Giacché (IT), Haissan Jijakli (BE), Denise Kemper (DE), Luís Neves (PT), Dona Pickard (BG), Xavier Recasens (SE) and Axel Timpe (DE).

Warsaw meeting of WG 3 "Entrepreneurial models of Urban Agriculture" started with a status report of case studies refering to elaborated standard questionnaires and to data entries in the Online Atlas of Urban agriculture (see COST-action website). All in all there is a remarkable good participation and a high engagement of action members in realizing case study interviews and preparing them for publication (see table).

Table 12. 1 Status of WG 3 case studies 31/03/2014 (preliminary, not complete)

Country	Author(s)	Question-naires	Online-Atlas entries	Additional questionnaires planned*)
AU	Helene Weissinger	2	2	2
BE	Haissam Jijakli			1
BG	Galina Koleva, Dona Pickard	3	3	2
DE	Bernd Pölling	2	2	3
DE	Bernd Pölling, Kristine Herkströter	1	1	
DE	Denise Kemper	1		1
DE	Wolf Lorleberg	1	1	
DE	Sibylle Henter	1		
DE	SWUAS Master Students, Wolf Lorleberg, Jürgen Braun, Bernd Pölling	12		
DE	Sonja Fahr, Axel Timpe	5		
EE	Terje Ong			3
ES	Marie-José Prados			2
ES	Oscar Alfranca, Xavier Recasens	9	13	9
IT	Biancamaria Torquati, Giulia Giacché	11	7	11
IT	Paola Branduini	3		
IT	Bruno Ronchi	1		
NL	Jan-Willem van der Schans			2
PT	André Miguel	1		
PT	Luis Neves	1		
SE	Gunilla Anderson	2		
SR	Oleg Paulen	3		
Total	Status 31/03/2014	61	34	34

*) Case study interviews planned up to 5th WG meeting Lausanne Sept. 2014

It was then discussed and decided to continue with the elaboration of case studies and to ask COST-members of countries, which don't have scientists in WG 3, to support the realization of interviews based on WG 3's standard questionnaire, f.e. within Short term scientific missions and/or training schools. It should be an objective to present at least two case studies about entrepreneurial models of every participating country.

The WG decided further to structure all WG 3 single case study publications in the same way: Publishing basic information (short introduction, short geographical and social description of situation and neighbourhood, production systems, services offered, five fotos) directly in the Online Atlas and publishing the more complex single case study analysis in a separate pdf.-file linked to the Online Atlas entry (Structure see box).

Box: Content and structure of a WG 3 single case study file

Title: Business model, success factors and societal benefits of ..... (name of enterprise or project)
Author:

1. Canvas Business Model of .....
   (containing an introduction, the Canvas Business Model table and explanations for every item of the Business Model)
   Source: Questionnaire 1., 2., 4., 5.

2. Success factors
   (following the informations given by the stakeholders in the interview and following own conclusions)
   Source: Questionnaire 6.

3. Societal benefits
   (containing the cobweb diagram and explanations to every factor)
   Source: Questionnaire 8., 9.

4. Important problems and wishes for policy
   (following the informations given by the stakeholders in the interview)
   Source: Questionnaire 5., 7., (9.)

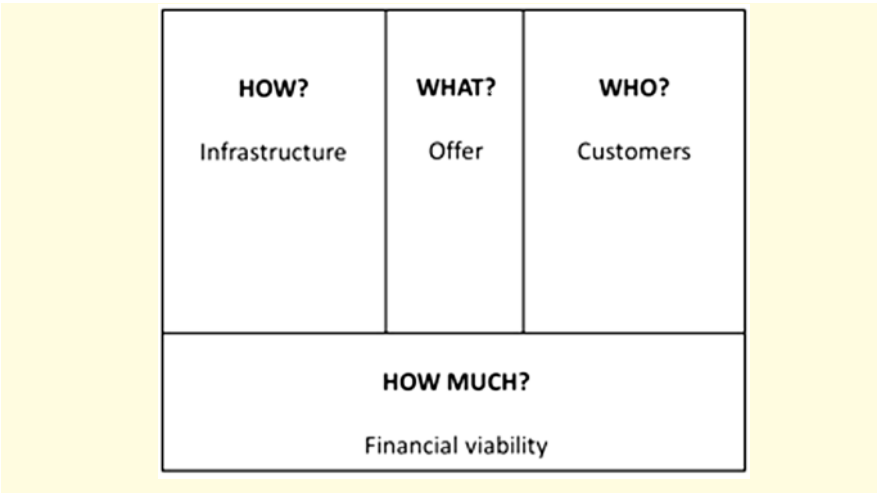
Remark: With a certain number of business models described and published in the Online Atlas WG 3 would have reached its action objective of collecting a "Catalogue of entrepreneurial models of Urban Agriculture".

Refering to the methodology for analyzing and presenting the single case studies the chair has taken up an idea from Jan-Willem van der Schans and proposed to use the Business Model Canvas, based on Osterwalder, A. & Pigneur, Y. 2010. In autumn 2013 the approach was successfully tested by master students at South Westphalia University of Applied Sciences, Soest, Germany, by elaborating case studies for 12 urban and peri-urban agricultural enterprises. Bernd Pölling presented the methodology to WG 3 members and had further prepared a Methodological Working Paper, which is available on the COST-website in the wiki-section. In short, a Canvas Business Model visualizes in a systematic manner the main elements of an enterprise activity and its strategy (see following **picture**; more detailed explanation see Working Paper).

The paper explains further the visualization of societal benefits by cobweb-diagrams, which was discussed already in Barcelona and Dublin. WG 3 members decided after a short discussion to make use of the Canvas Business Model & Cobweb Diagram as standard working methods for single case study analysis.

For preparing next working steps WG 3 members set up a status of existing case studies by country and by type of project or enterprise, linking the type of cases as far as possible to the typology proposed by WG 1 (see following table, list not complete).

WG 3 members started to discuss possible comparative analysis of business models, success factors, societal benefits, important problems and wishes for policy of UA enterprises and projects, based on a proposal tested with the 12 case studies of the German master students. It was decided to collect fullfilled questionnaires centrally and



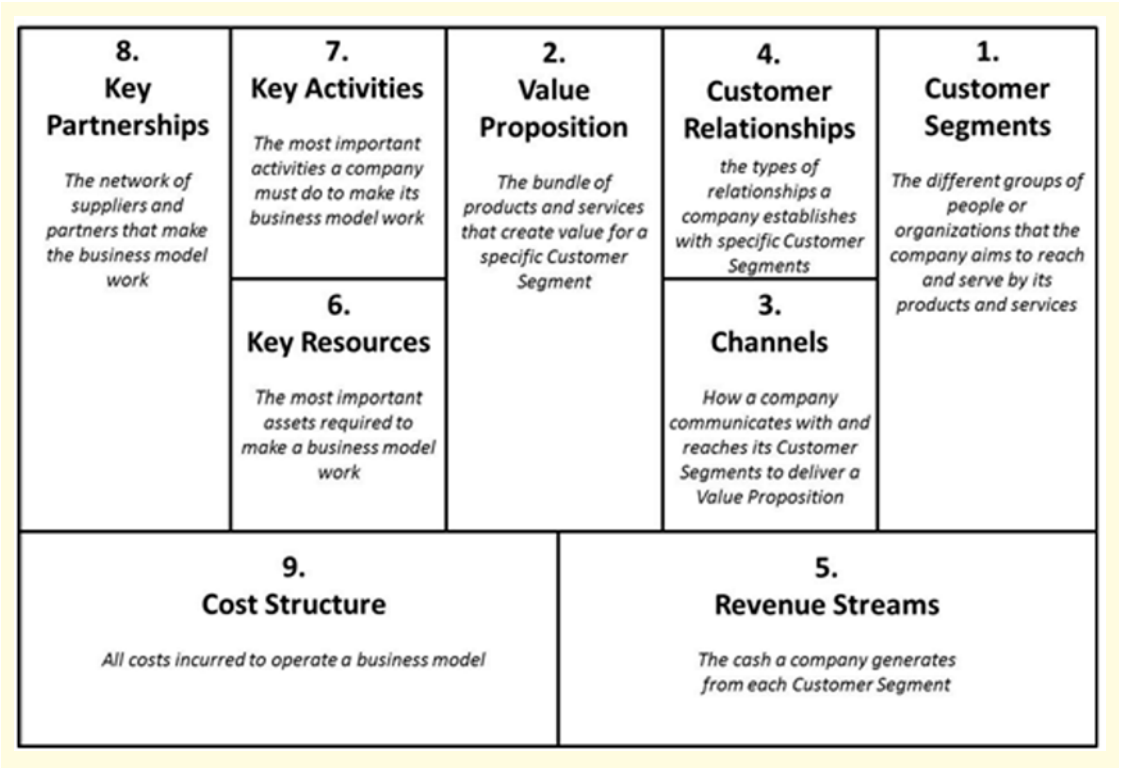


Fig. 12.1
Systematic and example of a Canvas Business Model approach
Source: Pölling, B. (2014) after Osterwalder, A. & Pigneur, Y. 2010

making them available via Dropbox to COST members interested in deeper case study analysis. Depending on the number of realized case studies at the end, a cluster analysis could be taken into consideration.

For deeper analysis – with the idea of "producing" and publishing discussion papers and scientific articles – the following subjects were identified:

1. Classification of business models + success factors (*Interested: Biancamaria Torquati, Oscar Alfranca, Bernd Pölling, André Miguel. An abstract for joint contribution to a conference in November 2014 was already proposed by Bernd Pölling and accepted by other members*)
2. Social benefits and external effects (*Interested: André Miguel, Oscar Alfranca, Bernd Pölling)*
3. Agrobiodiversity and biodiversity in the city (*Interested: Helene Weissinger, André Miguel*)
   Life cycle analysis LCA and environmental effects of urban agriculture (*Interested: Bruno Ronchi, Galina Koleva, Wolf Lorleberg, Bernd Pölling)*
4. Important problems and wishes to policy (*Informations in this field could be overhanded to WG 2)*

Table 12.2 Status of WG 3 cases April 2014 by country and by type of project / enterprise

A. Gardens and projects

Country	Family garden	Allotment garden	Community garden	Educational garden	Educational project	Social project
AU			2	1		
BG	1					
DE			2			
EE		1			1	
ES						
IT	1	2	2	2		
PT		1	1	1	1	1
SE						1
SR						

B. Farms and enterprises

Country	Social farm	Training/ experimental farm	Urban farm: direct marketing & multi-functional services	Urban farm: direct marketing	Wine farm	Green- house enter-prise	Agro-park	Fringe farm
AU			1	1				
BG			1	1				
DE	7		7	5			1	
EE						1		
ES					20			
IT	4	4	5	4			2	
PT								
SE				1				
SR		1			1			

Finally the WG discussed possible ideas for joint applications within project calls of HORIZON 2020.

The next working steps and challenges for WG 3 are now:

- Feeding further the Online Atlas of UA with basic informations
- Elaboration and publication of case studies, linked to the entries in the Online Atlas
- Comparative analysis, writing and publishing joint contributions for conferences, journals and the COST report
- Defining research tasks / forming teams for joint applications in European research programs (HORIZON 2020, ...).

References:

Pölling, Bernd and Lorleberg, Wolf (2014): Working paper: Methodology proposal for case studies about business models, success factors and societal benefits of urban and peri-urban agricultural enterprises and projects. www.urbanagricultureeurope.la.rwth-aachen.de/wiki.html (04.04.2014).

Pölling, Bernd (2014): Canvas Business Model & Cobweb Diagram: Methodologies for analysing business models, success factors and societal benefits of urban / peri-urban agri-/horticultural enterprises and projects. Presentation on 4th Working group meeting of COST Urban Agriculture Europe, Warsaw, 4th of April 2014.

13. Working Group 4: Spatial Visions of Urban Agriculture WG4 Annual Report (Warsaw, 2nd - 4th April 2014)

Luis Maldonado and Lilli Licka

Present participants: Paola Branduini, Martin Dumont, Avigail Heller, Pixie Jacobs, Friedrich Kuhlmann, Lilli Licka, Luis Maldonado, Sylvie Paradis, Ina Suklje-Erjavec, Jan Supuka, Axel Timpe, Attila Toth.

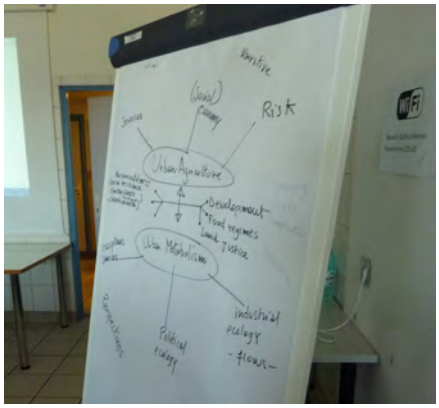
1. Previous work and Warsaw Meeting Program

1.1 Call for cases draft.

After Aachen's sprawl, language, contents and methodology were widely discussed at Barcelona (March 2013) and Dublin (September 2013). At Maynooth the program was to discuss 'how to go far away from a mere description of a case' according to Axel Timpe's meaningful drawings updating Barcelona Meeting outcomes and how to proceed.

However, the discussion never was 'What's next?' (or how to focus on space) but 'What`s first?': a bottom-up development, from cases to their development through spatially based story-lines or top-down, from general spatial ideas or aspects to their checking by meaningful-chosen cases.

To drive the exchange of information and proposals we set a common structure (A3 landscape format) based in previous discussions and recovered the original call for cases:



> *"In our approved application the goal of WG4 is defined as follows: WG 4 will develop new approaches and visions for spatial planning in urban regions that integrate urban agriculture. (See MoU: Working Groups, p.16-17). Objectives of our WG are to enhance and exchange knowledge about the functions these UA-landscapes can or should have and what kind of physical appearance we are aiming at.*
> *We would like to start with an exchange of projects and knowledge we all may have elaborated in practical work, research and writings. This should form a basis for the continuous work within COST UAE."*

The set was formed by a first general data page (or 'Identity Card') together with a location map and a satellite image; five pages including charts main topics (plans, sections, uses, atmospheres –or images- and others –probably schemes-) and, lastly, a final page with a text (250-300 words), five key words or terms, an abstract and a list with other possible links or references of the developed case. Together with a list of questions developed by M. Dehaene the result was a frame more than a template to allow both ways of working arise:

There were no rules for 'graphic design', graphs, types, colours and so on because how to envision information or the story line is part of the proposal.

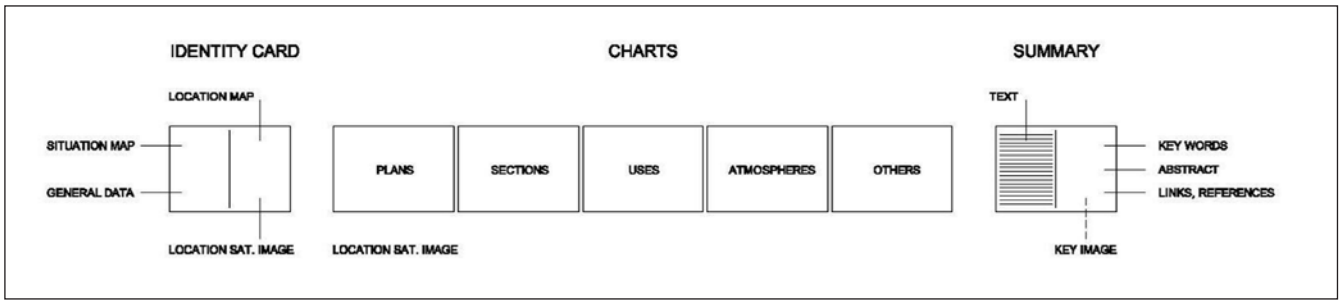


Fig. 13.1 Identify Card frame

To avoid misunderstandings the drawn template example was a tree explained as a human-nature made structure composed using previously published information.

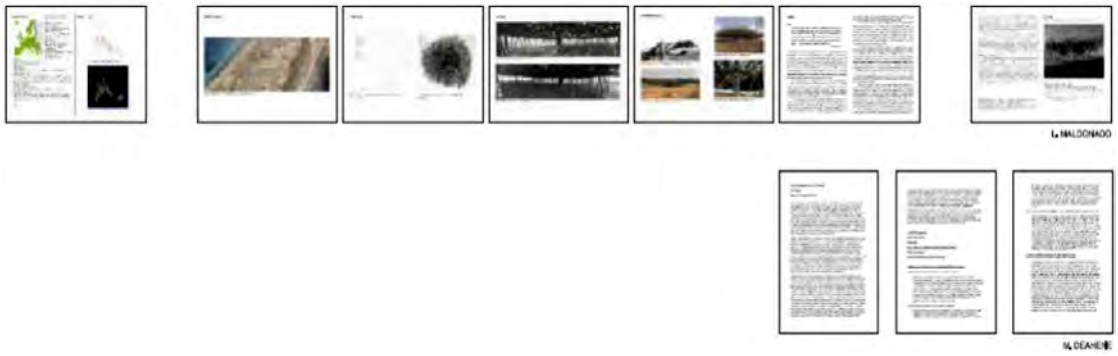


Fig. 13.3 Identify Card template

The formal commitments were:

1. Limit the full extent to seven pages;
2. Follow strictly the general structure maintaining the first and last page and its contents as a way to provide in short a summarized access to people not necessarily used to graphic information of other WGs;
3. Maximum extent of the text limited to 750 words approx. with enough calls or references to the graphic content;
4. Focus on drawing or images as our own common language;
5. Focus in space as our main topic.

The proposed structure was a way of sharing and comparing information to provide further readings or links, a common clear structure to 'build' the case that can be 'read' along or across its content, data or chosen language allowing case descriptions, cases as a story-line and cross readings looking for common key spatial qualities and indicators within the cases:

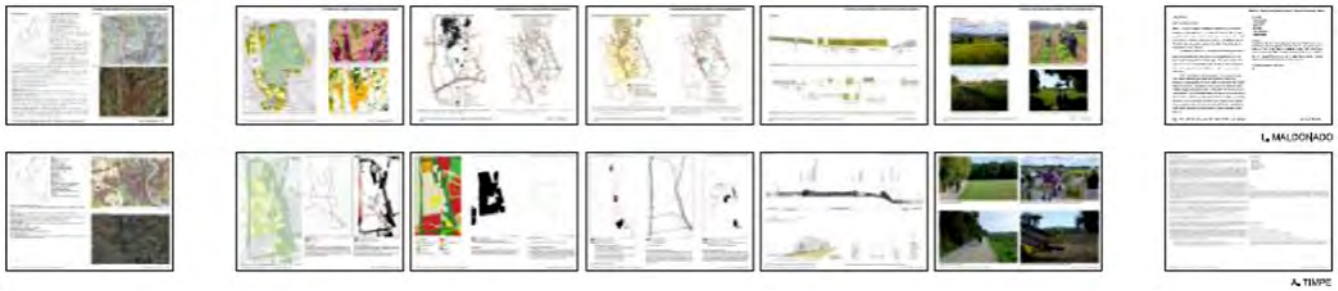


Fig. 13.3 Example of Identify Card

1.2 Warsaw Meeting Program.

Hence, at Warsaw the aim was to hang our papers on the wall and to make cross views discussing:

1. Which key topics, elements and so on can be finally developed?
2. How do they fit with the UA types posed by WG1? Do we need to propose anything or to introduce nuances –from a spatial point of view and thinking on Planning/designing these spaces- to develop our work?
3. How can we ask to other groups for specific information related to our subject matter? or, how to elicit information from the atlas data base as a clue for this call for information/cases if needed?
4. discussing (issues, schedule, milestones, organization...) according to what the Action set out about our WG (overall and focus issues) in its 'Update Oct.13 on the Action's Agenda'.

2. Work in Progress (Maynooth, 11th-14th September 2013)

Participants:

Paola Branduini, Martin Dumont, Avigail Heller, Pixie Jacobs, Friedrich Kuhlmann, Lilli Licka, Luis Maldonado, Sylvie Paradis, Ina Suklje-Erjavec, Jan Supuka, Axel Timpe, Attila Toth.

2.1 Thursday, 3 April

Self introduction by new attendants
Summary of previous meetings and work

Discussion of the previous program and expected work

We do not have an overview of European examples but we must go into depth with what we have and with those who contribute. We need to close the number and description of cases and finally focus on space.

2.2 Friday, 4 April. Subgrup 1 Report

Reported by: Attila Toth and Pixie Jacobs

Compiled according to the notes of Pixie Jacobs, Sylvie Paradis and Attila Toth

Subgroup members: Pixie Jacobs, Sylvie Paradis, Axel Timpe and Attila Toth

The subgroup analysed case studies from different countries, of diverse scales and in different spatial contexts based on the documents elaborated according to a unified layout. This enabled an easier comparison of cases, their assessment and evaluation according to same criteria.

1. Location / Context

First, the location and context were assessed. According to the cases presented at the meeting, three main context types / situations have been identified based on the relation between the built-up area and agricultural land in urban landscapes, thus 1) intra-urban; 2) peri-urban; 3) trans-urban (in-between) areas. The intra-urban agricultural spaces relate to rather small-scale farms or gardens situated within the urban fabric and thus in a clearly intra-urban context, while peri-urban agricultural landscapes represent traditional agricultural land of a larger scale, located around the urban area of cities, but still spatially or functionally urban. The trans-urban agricultural spaces are situated in a more complex spatial situation, where there is a mosaic of built-up areas and open agricultural lands within urban environments (See, Timpe, A., "Spatial Situations: plans and sections" in Maldonado, L. (ed.), *COST Action Urban Agriculture Europe: Documentation of 2nd Working Group Meeting, COST* / Universitat Politècnica de Barcelona, 2013. Available at: http://www.urbanagricultureeurope.la.rwth-aachen.de/files/131008_cost_uae_barcelona_2013, p. 113: images 1 to 3).

Within the intra-urban category (1), we have identified three cases from Amsterdam, Dordrecht and Rotterdam (all three from the Netherlands). There were two examples of a peri-urban situation (2): Milan - Fermago (Italy) and Nitra - Zobor (Slovakia). The trans-urban agricultural landscapes (3) were identified in the case studies from Gallecs (Spain), Cologne (Germany), Delft (the Netherlands), Rheintal (Austria).

2. Boundaries / Structure

While analysing the boundaries and structures of the studied areas, we were looking at the contact situations with their surroundings. 5 different types of urban agricultural landscapes were identified. The spatially less complex situations were represented in the form of a single spot of agricultural land, surrounded whether 1) by an agricultural area (Milan - Femago, Italy) or 2) by the urban fabric of a city (Amsterdam, Dordrecht, Rotterdam; the Netherlands): (Ibid. p. 15: images 1 and 4).

Other agricultural spaces border on open agricultural land and urban areas at the same time. They are situated in a peri-urban or trans-urban spatial context, where there is a mosaic of built-up areas and agricultural land. Within this spatial type, we have identified two qualitatively different types of boundaries: 1) with a clear spatial border between the site of urban agriculture and the surrounding spatial units (Cologne, Germany and Gallecs, Spain) and 2) with a semi-permeable (spatially not markedly defined) type of boundary which allows a mutual interaction between the two divided spaces (Milan - Linterno, Italy and Rheintal, Austria): (Ibid. p. 15: images 2 and 3 and following by Paradis, S., 2014).

Fig. 13. 4 Paradis S, 2014

Fig. 13. 5 Paradis, S., 2014

Besides the described examples, there was a specific case, where there is a patchwork of diversely organised built-up areas or spots with agricultural areas or spots (Nitra - Zobor, Slovakia) and is hard to clearly designate, which components of the space dominate (Fig. 13.3).

3. Uses and Functions

Finally, the subgroup discussed uses and functions which take place at the analysed sites of urban agriculture, while complementary benefits were not particularly considered. Following functions and uses have been identified at the sites:

	Functions / Uses						
	Agricultural production	Cultural and Environmental	Residential	Leisure and recreation	Selling and market	Landscape and aesthetics	Additional economic services
Milan Fermago	✓		✓				
Gallecs	✓	✓		✓	✓	✓	
Cologne	✓	✓		✓		✓	
Zobor	✓		✓				
Milan Linterno	✓	✓					
Amsterdam			✓				✓
Dordrecht	✓					✓	✓
Rotterdam	✓				✓		✓
Delft	✓			✓		✓	
Rheintal	✓			✓		✓	

4. What are spatial effects and impacts due to the following four criteria?

- Size
- Location
- Structure
- Uses

Spatial effects and impacts:

Size	accessibility, public accessibilty
	visibility
Location	social interaction
	visibility
	perception
Structure	visibility
	perception
	visual quality
	connectivity
	permanence of...
	views / vistas
Uses	identity
	urban identity
	social interaction

2.3 Friday, 4 April. Subgrup 2 Report

Reported by Paola Branduini
Compiled according to the notes of Paola Branduini and Sylvie Paradis
Subgroup members: Paola Branduini, , Martin Dumont, Avigail Heller, Friedrich Kuhlmann

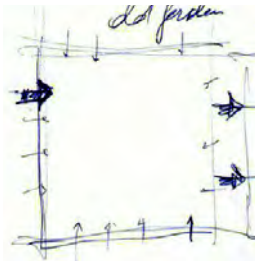
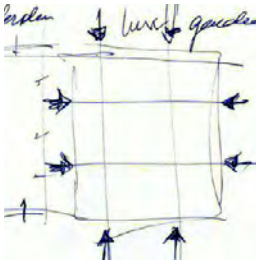
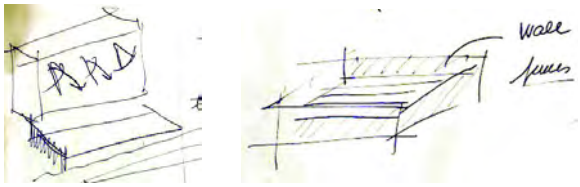
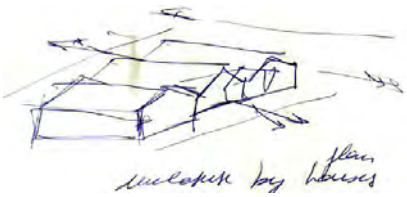
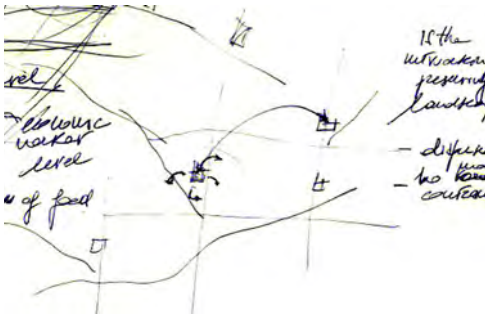
1. Aim

What are the spatial effects produced by urban agriculture?
How UA modify landscape? Can we recognize/identify a specific influence of UA in transforming landscape?
Can we assess the effects? positive or negative?

2. Methodology

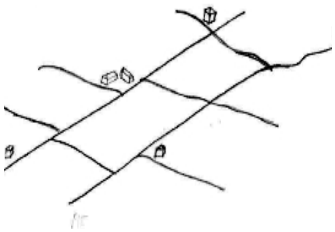
Confront of spatial approaching of different experiences
Objects/forms of UA (first subgrouping)
Example: Community gardens (Israel)

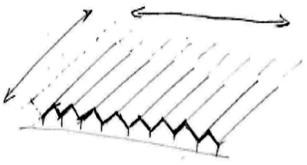
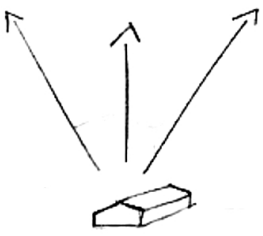
Tab. 13.2 Community garden

	
Old garden - Introversive character. - High fences often stone wall; - Only one entrance - No possibility to cross it	New garden - Expansive characters - Transparent fences (net not wall) - Many entrances - Possibility to cross it
Horticulture	
	
Open fields - Enclosure by wall - Visibility inside from high place - Colors of earth and vegetables	Glasshouses - Enclosure by houses (No possibility to cross it) - No visibility inside - No natural colors; only white covers (plexiglass, glass…) risk of brilliant colors
	
Level 1 cultural value/recreation value Level 2 economic value /market	Dispersed morphology no contraints

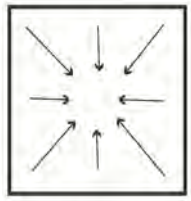
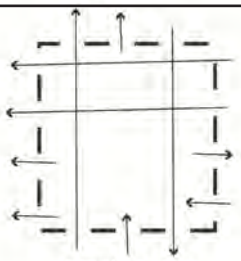
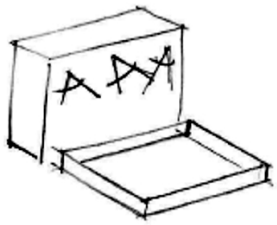
Is the networking preserving landscape?

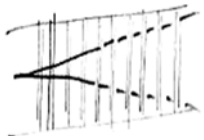
Tab.13.3 Syntesis

	POSITIVE EFFECTS	NEGATIVE EFFECT
NETWORKING	Social	
Example Network of farm (district)	Communication between farmers	
	Visibility to wide public	
	Cultural	
	Respect and valorization of rural heritage	
	Use existing and historical connections	
	Production/market	
	Commercialization in more points of sell	
	Increase of sells	
	Physical	
	Improvement of pathways/ cycleways…	

SPATIAL FORM		
buildings		
Example: horticultural glasshouses		
	DIMENSION • Improvement of quantity and variety of production • Weathered protection • Defense of productions (protection from rubbery) • Emprovement of quantity and variety of production	• excess of width • No respect of existing rural texture/network • Risk to cover wide surface • Risk of superimposition of form (no respect of existing alignments
	BRILLIANT COLORS	
		Sun reflective surface Visual disturb No integration in the landscape
 night lighting	VISUAL SIGNAL / LANDMARKS	
	Can create (new landmarks) or improve existing ones	Competition with existing landmarks, disturbing or interrupting fabric or pattern (cultural or visua

Tab.13.3 cont.

ENCLOSURE		
Example: Community garden	Landscape & Social	
 Strong enclosure	STRONG ENCLOSURE	
	protection of productions	Limited social benefits No perception of landscape No integration with the existing pathways or green spaces, etc. visibility only from high points of view
 Permeable enclosure	PERMEABLE ENCLOSURE	
	Depends on material and morphology & topography	Depends on material and morphology & topographz
	Depends on character of owner…	Depends on character of owne
 Inbetween enclosure	INBETWEEN SITUATION	
	Can create important links (spatial or social) in existing pathways by visual or physical openings + doors or gates etc.	Or not create… by enclosing more existing pathways
	Inclusion High or low	
		

MATERIAL		
	FENCES	
 wall	Maintenance of old form of protection of production	No visual permeability (mineral or vegetal wall) Discourage social connection
 net	Visual permeability Foster social connection	Low protection of rubbery

3. Synthesis: What effects will it have? "From types to what they implement"
Is the networking preserving landscape?

3. Tasks and Deliveries

1. Final call for cases, comparable structure, improve the template, have everyone filled in the template? By WG Chairs (Lilli Licka and Luis Maldonado).

2. Lausanne WG Meeting:
   - Complete and improve the description of the case-description till Lausanne. Answer the question: which are the essential spatial elements for each case?
   - Which are the spatial key-elements and how can their impact be described?
   - List of features and questions for other WGs

(To be done by all active members of the group).

Partipans of WG4

14. Working Group 5. Summary of result

Chiara Tornaghi, Luke Beesley

In Warsaw, apart from the two co-chairs, we had a completely new group. So we had to face the challenge of looking back, without risking of undoing all.

In Dublin we identified and discussed three key themes of relevance: water, soil, waste. And we have discussed each of them in a natural science and in a social science perspective.

We also tried to think of the relationship among each other, and the relevance they had for discussions on energy and carbon.

Tab 14.1 Example of themes that have energed for topic soil

Natural science perspective		Social science perspective
1. Productivity & fertility; chemistry, biology and physics of soil 2. Risk; contaminant pathways to humans, through foods 3. Improving soils; adding urban organic materials (links to waste)	**SOIL**	1. Land use; suitability, accessibility and accountability 2. Ownership; who owns/manages soil as a resource? 3. Empathy with natural resources; limits of tolerance towards smells, sights and sounds
Links to water in catchment sense; soil is a buffer and purifier of waters. Polluted soils may also impact on waters (ground and surface) as contaminants dissolve.		Links to waste in a recycling sense; wastes can be spread to soils to fertilise, but investigation of waste composition is needed and organic/pollutant interactions.

These themes where briefly re-discussed to enable new members to contribute. The results are the following:

1) Soil has been expanded, to include also other substrates
2) Two new 'elements' have emerged (although they have not been discussed with the same degree of detail of the others): plants and energy. Plants has then bee expanded to include animals and food.

The Paper

To move on from this discussion, and to see how this can feed into some of our outputs, we have started to **discuss the paper.**

NB: participation to writing the paper is open to everyone, but it has been decided that all the sections will be written collaboratively between at least 2 members. All the drafts will be circulated to everyone at least twice before next meeting.

Here we started to discuss the rationale of the paper.

There are currently two separate research fields: urban agriculture and urban metabolism, and not much has been written that put them in relation.

These fields, or themes, are approached under different perspectives or paradigms. For example, urban metabolism is discussed in industrial ecology, as flow of materials in and out of a city, or in a *political ecology* perspective, which look at the social, political construction of nature.

Building on discussion we had in Dublin, we re-stated our interest in writing a paper that discusses the relevance of urban metabolism for urban agriculture.

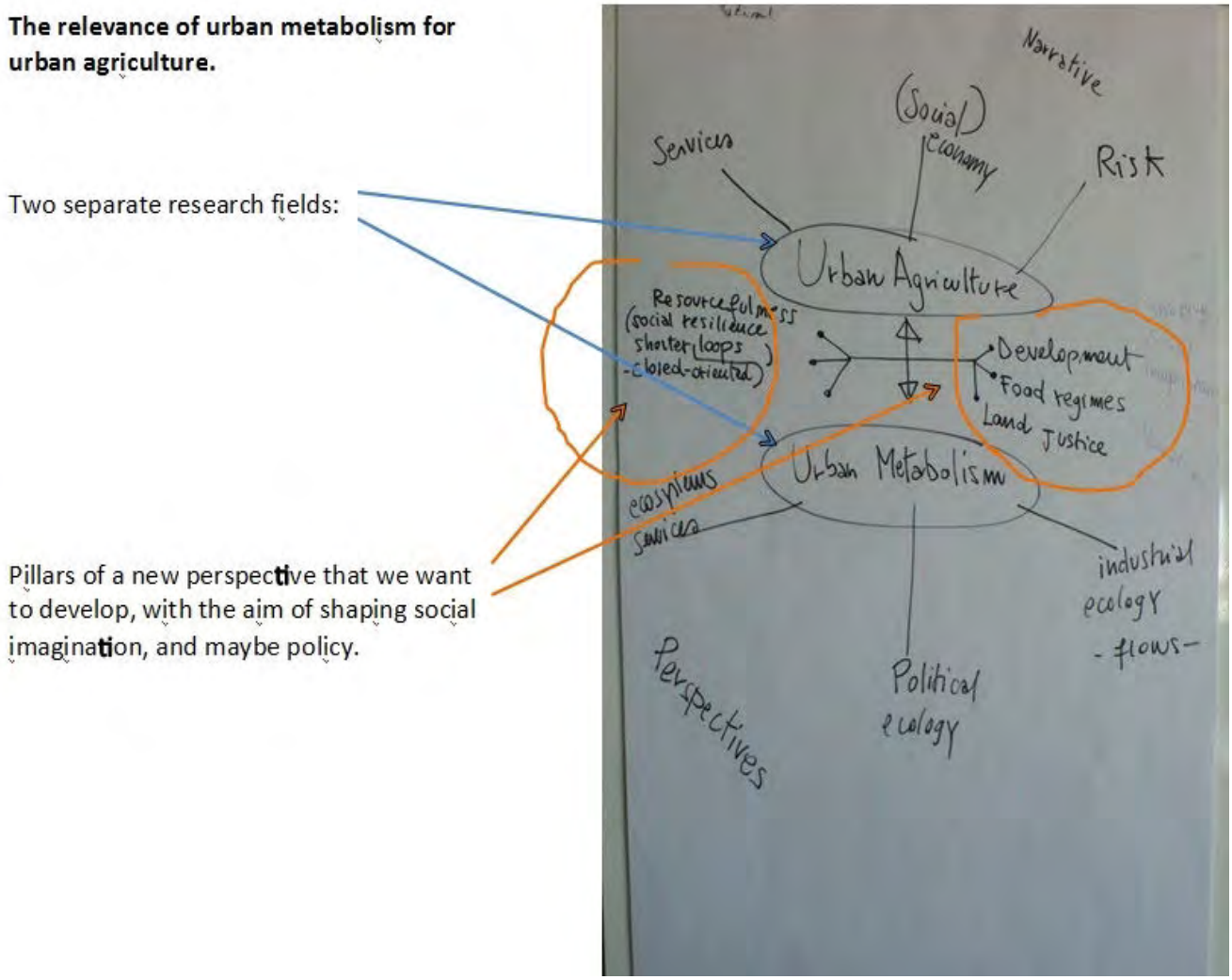


Fig. 14.1
The relevance of urban metabolism for urban agriculture

We then discussed what would be our narrative in presenting this link.
We discussed human development, food regimes, land justice, resourcefulness (intended as social resilience, shorter, closed-oriented loops) . These are pillars of a new perspective that we want to develop, with the aim of shaping social imagination, and maybe policy.

Next, we moved back to **the key elements: water, soil, plants, waste and energy**. How do these components of metabolic processes link to the emancipatory perspective that we have identified in the previous slide?

Through which social metabolic processes, or "interactions", can these elements potentially constitute sources for new visions of human development, pillars for food and spatial justice, building blocks of wellbeing and happiness, mechanism of resourcefulness and empowerment?

The challenge here is to bridge discussions on the interactions between elements that pertain to natural scientists, with discussion on the social, cultural, political or economic interactions that shape, contextualise, enable or constraint the realisation of a different society, in and through urban agriculture.

We needed a visual representation that could allow us to go beyond the tables (like the one in the picture below).

To facilitate this discussion we look at a graph, developed by Paul De Graaf (Edible Rotterdam), that Henk had with him. This somehow inspired this representation, our "egg'.

We put the core element in the middle, and the "emancipatory practices', or narratives outside, as these will be out within society.

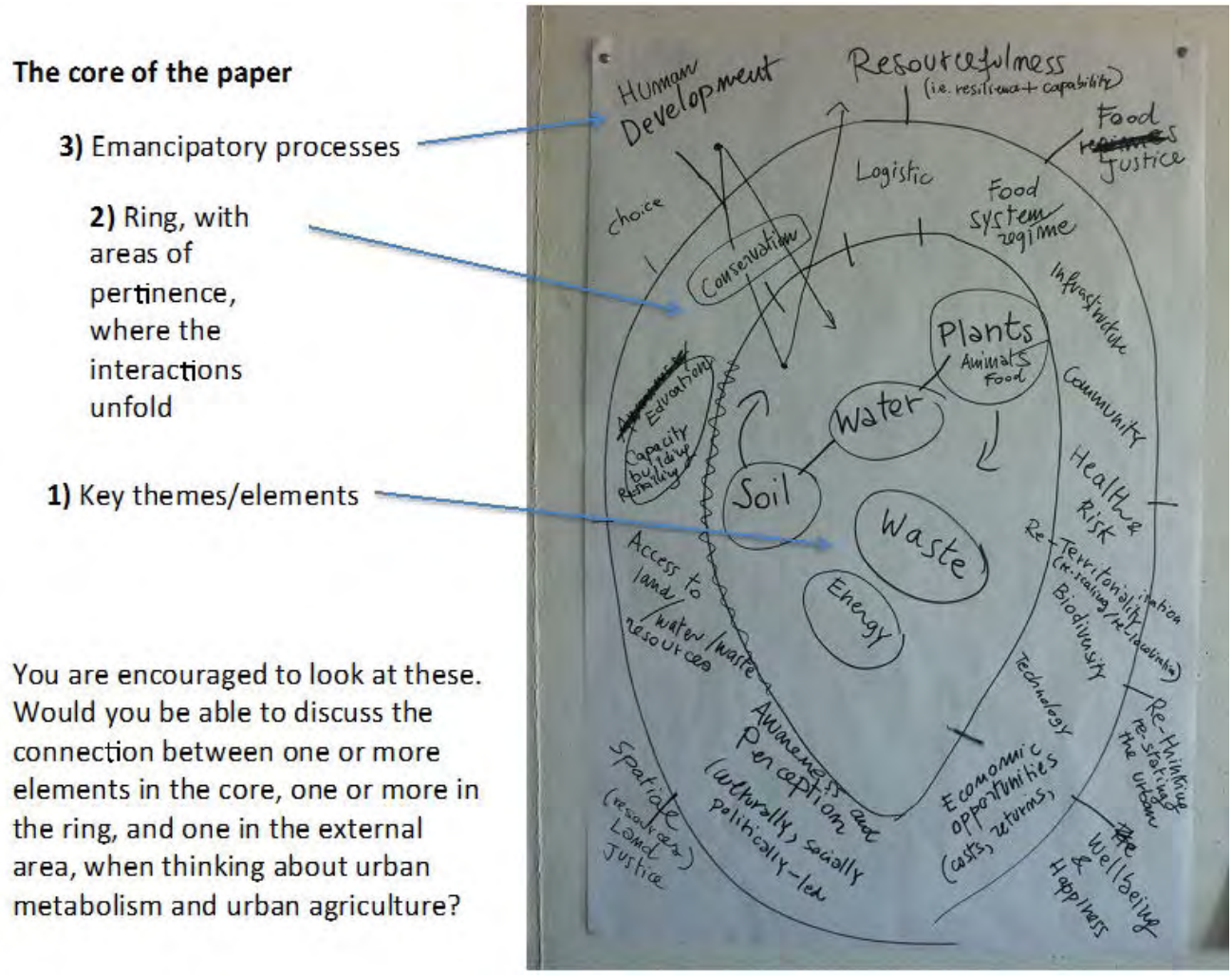


Fig. 14.2 The core of the paper

In between, i**n the ring** in the flipchart – what we could call the middle layer of the egg – we have identified some of these processes and interactions.

While we have discussed this anew, many of these actually overlap with the spheres of relevance for social and for natural science that we have developed in the tables (see slide 5 and similar table in the minutes from Dublin).

While this is not and exhaustive list, we though this could be a good, operative, synthesis: conservation, logistic, infrastructure, access to land/to water/to space, awareness and perception, economic opportunities, technology, biodiversity, health risk, community.

We agreed that this would be the backbone of our paper, and should be developed collaboratively.

While developing the drafts, we want to take into account the following structure:
1) Describe the elements/components that you want to discuss
2) How are these components ordinarily discussed? Describe what is known in literature (this could be a sort of mini literature review)
3) Discuss the research gaps. How can we link these components differently? How can we re-frame them, re-signify their relations?
4) Why are these (social or natural metabolic processes) relevant for urban agriculture? Any policy field?

These drafts will then be discussed at the next meeting. They will constitute the core of the paper.

Introduction, Literature review and Conclusions will be drawn on these and will be developed later.

Timeline:

- End of April à put key reading (max 1-2 papers) in Dropbox (put additional reading in the other folder)
- Once you have identified an area that you would like to develop, try to find a writing partner (or two). Draft half a page of ideas
- End of May/Mid June à circulate initial draft ideas to all WG5 members
- End of June à everyone to read and feedback
- Between 30 June and 31 August à Writing "ping-pong" between small groups
- By 31 August à Circulate a readable 3-4 pages draft
- Between 31 August-10 September à everyone to read and comment
- 10-12 September: next meeting in Lausanne

4th Working Group, Meeting Warsaw 2-4 /04/2014

PHOTO COVERAGE



URBAN


FUNCTIONS-OFFICIAL DEFINITIONS





IVO

Suburbanisation and urban sprawl in the Warsaw functional area and their potential impact on future development







4th Working Group, Meeting Warsaw 2-4 /04/2014









COST- the acronym for European **CO**operation in the field of **S**cientific and **T**echnical Research- is the oldest and widest European intergovernmental network for cooperation in research. Established by the Ministerial Conference in November 1971, COST is presently used by the scientific communities of 35 European countries to cooperate in common research projects supported by national funds.

The funds provided by COST - less than 1% of the total value of the projects - support the COST cooperation networks (COST Actions) through which, with EUR 30 million per year, more than 30.000 European scientists are involved in research having a total value which exceeds EUR 2 billion per year. This is the financial worth of the European added value which COST achieves.

A "bottom up approach" (the initiative of launching a COST Action comes from the European scientists themselves), "à la carte participation" (only countries interested in the Action participate), "equality of access" (participation is open also to the scientific communities of countries not belonging to the European Union) and "flexible structure" (easy implementation and light management of the research initiatives) are the main characteristics of COST.

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